

## BAB VI

### KESIMPULAN DAN SARAN

#### 6.1 Kesimpulan

Setelah dilakukan validasi aplikasi *T-Beam* dengan sejumlah sumber yang digunakan untuk validasi, penulis mendapat beberapa kesimpulan, yaitu :

1. Pada perhitungan jumlah tulangan, dengan nilai  $M_u$  372,40 KNm didapat hasil perhitungan aplikasi *T-Beam* sebesar 4,88 buah dan dibulatkan menjadi 5 buah. Hasil tersebut dibandingkan dengan hasil perhitungan pada buku Asroni, 2010(b) yaitu 4,88 buah dan dibulatkan menjadi 5 buah, sehingga selisish absolut sebesar 0%. Sedangkan untuk nilai  $A_{sperlu}$  terjadi selisish absolut sebesar 0,04% karena hasil perhitungan buku Asroni, 2010(b) sebesar  $3223,94\text{mm}^2$  sedangkan aplikasi *T-Beam* sebesar  $3225,29\text{mm}^2$  Selisih tersebut terjadi karena pembulatan yang berbeda antara kedua hasil.
2. Pada perhitungan tulangan geser, dengan nilai  $V_u$  adalah 230KN didapat aplikasi *T-Beam* mendapatkan jarak sengkang sebesar 134,99 mm jika dibandingkan dengan buku Dipohusodo, 1994, hasil perhitungan jarak tulangan geser sebesar 134,99 mm. Dari kedua hasil tersebut didapat selisih absolut sebesar 0%.

3. Pada perhitungan kapasitas balok T, validasi menggunakan jurnal Simanjuntak, 2016. Menggunakan jumlah tulangan atas 3D28 serta tulangan bawah 10D28 didapat hasil  $Mn^+$  pada aplikasi *T-Beam* sebesar 1260,42 KNm, sedangkan perhitungan pada pembanding sebesar 1260,42. Sehingga nilai selisih absolut pada kedua hasil adalah 0%.
4. Validasi pada kapasitas  $Mn^-$ , Menggunakan jumlah tulangan atas 3D28 serta tulangan bawah 10D28 pada aplikasi *T-Beam* sebesar 741,48 KNm, sedangkan perhitungan pada pembanding sebesar 741,48KNm. Sehingga nilai selisih absolut pada kedua hasil adalah 0%.

## 6.2 Saran

Pembuatan aplikasi *T-Beam* masih jauh dari sempurna, oleh karena itu penulis memberikan saran diantaranya :

1. Dalam pembuatan pemrograman aplikasi android sebaiknya berhati-hati dan teliti karena salah pemanggilan objek ataupun salah penulisan pada kode pemrograman akan menghasilkan hasil yang tidak diinginkan.
2. Tampilan pada aplikasi *T-Beam* dirasa kurang menarik sehingga kurang enak dipandang, hal ini dikarenakan keterbatasan penulis dalam hal desain.
3. Sebelum pengerjaan pemrograman, sebaiknya pembuatan algoritma pemrograman dan *flowchart* dilakukan dengan sungguh-sungguh dan teliti karena algoritma pemrograman dan *flowchart* sangat membantu dalam pembuatan aplikasi.

4. Variabel pada bagian diameter tulangn sebaiknya dibuat pilihan *checkpoint* sehingga pengguna aplikasi dapat memilih diameter tulangn sesuai dengan tulangn yang ada dipasaran.



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Lampiran 1 *Listing Program* Perhitungan Perancangan

```

package uajy.t_beam;

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

/**
 * Created by AntoniusHandiSulistiy on 5/1/2017.
 */
public class Activity_perancangan extends AppCompatActivity {
    //deklarasi objek
    EditText fc,fy,bw, h, Mu, dtulangan, dsengkang, tsb, vu, fyt ;
    //deklarasi variabel hitung
    private float edtfc,edtbw, edth, edtMu, edtdtulangan, edtAstulangan, edtdsengkang,
    edttsb, d, edtd1, Rn, Rn1, edtfy, rhomin, rhoperlu1, rhoperlu2, rhoperlu3, rhoperlu4,
    rhoperlu5, rhoperlu6, rhoperlu7, rhoperlu8, rhobalance1, rhobalance2, rhobalance3,
    rhobalance4, rhomax, asperlu, ntulangan, vc1, vc2, edtvu, vs1,vs2, sy1, sy2, av,
    edtfyt, sperlu1, sperlu2, sperlu3;

```

```
private String strh, strd, strmu, strbw, strrn, strfy, strrhomin, strfc, strrhoperlu,
strrhobalance, strrhomax, strasperlu, strastulangan, strntulangan, strdtul, strdtulangan,
strtsb, strdsengkang, strvu, strfyt, strasperlu2, stri;
```

```
TextView txtd, txtrn, txtrhomin, txtrhoperlu, txtrhobalance, txtrhomax, txtrhopakai,
txtasperlu, txtntulangan, txtdtul, txtdtulangan, txtdsengkang, txtasperlu, txtsy, txti,
txtkon;
```

```
private Button BtnHitung, Btnhapus;
```

```
private static float constant_phi = (float) 0.9;
```

```
private static float constant_rho = (float) 1.4;
```

```
private static float constant_perlu = (float) 0.85;
```

```
private static float constant_perlu1 = (float) 2;
```

```
private static float constant_perlu2 = (float) 1;
```

```
private static float constant_balance = (float) 600;
```

```
private static float constant_max = (float) 0.75;
```

```
private static int constant_pakai = (int) 2;
```

```
private static float constant_d = (float) 0.5;
```

```
private static float constant_empat = (float) 0.25;
```

```
private static float constant_phi1 = (float) 3.14;
```

```
private static float constant_vc1 = (float) 0.167;
```

```
private static float constant_vc2 = (float) 0.001;
```

```
private static float constant_sy = (float) 0.667;
```

```
@Override
```

```
protected void onCreate (Bundle savedInstanceState) {
```

```
    super.onCreate(savedInstanceState);
```

```
    setContentView(R.layout.activity_perancangan);
```

```
BtnHitung = (Button) findViewById(R.id.btnHitung);
BtnHitung.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        hitungd();
    }
});

Btnhapus = (Button) findViewById(R.id.btnhapus);
Btnhapus.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        hapus();
    }
});

txti = (TextView) findViewById(R.id.txti);
txti.setText("2");
}

private void hitungd() {
    //deklarasi objek
    tsb = (EditText) findViewById(R.id.tsb);
    strtsb = tsb.getText().toString();
    edttsb = Float.valueOf(strtsb);
    dtulangan = (EditText) findViewById(R.id.dtulangan);
```



```

strdtulangan = dtulangan.getText().toString();
edtdtulangan = Float.valueOf(strdtulangan);
dsengkang = (EditText) findViewById(R.id.dsengkang);
strdsengkang = dsengkang.getText().toString();
edtdsengkang = Float.valueOf(strdsengkang);
h = (EditText) findViewById(R.id.h); //deklarasi objek h
strh = h.getText().toString(); // ambil text h lalu diubah ke string
edth = Float.valueOf(strh); //ubah ke dalam tipe data float
edtd1 = edtsb + edtdsengkang + (constant_d * edtdtulangan);
d = edth - edtd1; //masukan ke rumus tapi tipe masih float
strd = String.valueOf(d); // hasil perhitungan diubah ke String
txtd = (TextView) findViewById(R.id.texd); //deklarasi objek d
txtd.setText(strd); //tampil ke text view
Mu = (EditText) findViewById(R.id.Mu);
strmu = Mu.getText().toString();
edtMu = Float.valueOf(strmu);
bw = (EditText) findViewById(R.id.bw);
strbw = bw.getText().toString();
edtbw = Float.valueOf(strbw);
txtd.setText(strd); //tampil ke text view
d = Float.valueOf(strd);
Rn1 = constant_phi * edtbw * d * d;
Rn = (edtMu * 1000000) / Rn1;
strrn = String.valueOf(Rn);
txtrn = (TextView) findViewById(R.id.texrn);
txtrn.setText(strrn);

```

```
txtrn.setText(String.format("%.2f", Rn));

//hitung rhomin
fy =(EditText) findViewById (R.id.fy);
strfy = fy.getText ().toString();
edtfy = Float.valueOf(strfy);
rhomin = constant_rho / edtfy;
strrhomin = String.valueOf(rhomin);
txtrhomin = (TextView) findViewById(R.id.texrhomin1);
txtrhomin.setText (strrhomin);
txtrhomin.setText(String.format("%.4f",rhomin));

//hitung rhoperlu
fc = (EditText) findViewById(R.id.fc);
strfc = fc.getText(). toString();
edtfc = Float.valueOf(strfc);
rhoperlu1 = constant_perlu * edtfc;
rhoperlu2 = rhoperlu1 / edtfy;
rhoperlu3 = constant_perlu1 * Rn;
rhoperlu4 = constant_perlu * edtfc;
rhoperlu5 = rhoperlu3 / rhoperlu4;
rhoperlu6 = (float) Math.sqrt(constant_perlu2 - rhoperlu5);
rhoperlu7 = constant_perlu2 - rhoperlu6;
rhoperlu8 = rhoperlu2 * rhoperlu7;
strrhoperlu = String.valueOf(rhoperlu8);
```

```
txtrhoperlu = (TextView) findViewById(R.id.texrhoperlu);
txtrhoperlu.setText (strrhoperlu);
if (rhoperlu8 > 0){
    txtrhoperlu.setText(String.format("%.4f",rhoperlu8));
}
else {
    Toast.makeText(this, "BESARKAN DIMENSI BALOK KARENA pperlu
TIDAK SESUAI", Toast.LENGTH_LONG).show();
}

//hitung rhobalace
rhobalance1 = edtfc / edtfy;
rhobalance2 = constant_balance + edtfy;
rhobalance3 = constant_balance / rhobalance2;
rhobalance4 = constant_perlu * constant_perlu * rhobalance1 * rhobalance3;
strrhobalance = String.valueOf(rhobalance4);
txtrhobalance = (TextView) findViewById(R.id.texrhobalance);
txtrhobalance.setText (strrhobalance);
txtrhobalance.setText(String.format("%.4f",rhobalance4));

//hitung rhomax
rhomax = constant_max * rhobalance4;
strrhomax = String.valueOf(rhomax);
txtrhomax = (TextView) findViewById(R.id.texrhomax);
txtrhomax.setText(strrhomax);
txtrhomax.setText(String.format("%.4f", rhomax));
```

```
carirhopakai());
strasperlu = String.valueOf(asperlu);
txtasperlu = (TextView) findViewById(R.id.texasperlu);
txtasperlu.setText(strasperlu);
txtasperlu.setText(String.format("%.2f", asperlu));

edtAstulangan = constant_empat * constant_phi1 * eddtulangan * eddtulangan;
strastulangan = String.valueOf(edtAstulangan);
ntulangan = asperlu / edtAstulangan;
strntulangan = String.valueOf(ntulangan);
txtntulangan = (TextView) findViewById(R.id.texntulangan);
txtntulangan.setText (strntulangan);
txtntulangan.setText(String.format("%.4f",ntulangan));

//tampilkan jumlah tulangan
strdtul = String.valueOf(contant_pakai);
txtdtul = (TextView) findViewById(R.id.textul);
if (ntulangan < constant_perlu1) {
    txtdtul.setText(strdtul);
}
else if (ntulangan > constant_perlu1){
    double a = Math.ceil(ntulangan);
    int c = Integer.valueOf((int) a);
    String b = String.valueOf(c);
```

```

        txtdtul.setText(b);
    }
    dtulangan = (EditText) findViewById(R.id.dtulangan);
    strdtulangan = dtulangan.getText ().toString();
    txtdtulangan = (TextView) findViewById(R.id.txtdtul);
    txtdtulangan.setText (strdtulangan);

    //hitung tulangan geser
    vc1 = (float) Math.sqrt(edtfc);
    sy1 = constant_sy * vc1 * edtbw * d * constant_vc2;
    vc2 = constant_vc1 * vc1 * edtbw * d * constant_vc2;
    vu = (EditText) findViewById(R.id.vu);
    strvu = vu.getText().toString();
    edtvu = Float.valueOf(strvu);
    vs1 = edtvu / constant_max;
    vs2 = vs1 - vc2;
    sy2 = constant_d * constant_max * vc2;
    if (edtvu < sy2) {
        av = contant_pakai * constant_empat * constant_phi1 * edtdsengkang *
edtdsengkang;
        fyt = (EditText) findViewById(R.id.fys);
        strfyt = fyt.getText().toString();
        edtfyt = Float.valueOf(strfyt);
        sperlu1 = av * edtfyt * d;
        sperlu2 = sperlu1 / vs2;
        sperlu3 = sperlu2 * constant_vc2;
    }
}

```

```

strsperlu2 = String.valueOf(sperlu3);
txtsperlu = (TextView) findViewById(R.id.texsmax);
txtsperlu.setText(strsperlu2);
txtsperlu.setText(String.format("%.2f", sperlu3));
Toast.makeText(this, "SECARA TEORI TIDAK MEMERLUKAN
TULANGAN GESER", Toast.LENGTH_LONG).show();
}
else if (edtvu > sy2) {
    if (vs2 < sy1) {
        av = constant_pakai * constant_empat * constant_phi1 * edtdsengkang *
edtdsengkang;
        fyt = (EditText) findViewById(R.id.fys);
        strfyt = fyt.getText().toString();
        edtfyt = Float.valueOf(strfyt);
        sperlu1 = av * edtfyt * d;
        sperlu2 = sperlu1 / vs2;
        sperlu3 = sperlu2 * constant_vc2;
        strsperlu2 = String.valueOf(sperlu3);
        txtsperlu = (TextView) findViewById(R.id.texsmax);
        txtsperlu.setText(strsperlu2);
        txtsperlu.setText(String.format("%.2f", sperlu3));
        float i;
        for (i = 2; sperlu3 < 50; i=i+1){
            av = i * constant_empat * constant_phi1 * edtdsengkang * edtdsengkang;
            fyt = (EditText) findViewById(R.id.fys);
            strfyt = fyt.getText().toString();
            edtfyt = Float.valueOf(strfyt);

```

```
sperlu1 = av * edtfyt * d;
sperlu2 = sperlu1 / vs2;
sperlu3 = sperlu2 * constant_vc2;
strsperlu2 = String.valueOf(sperlu3);
txtsperlu = (TextView) findViewById(R.id.texsmax);
txtsperlu.setText(strsperlu2);
txtsperlu.setText(String.format("%.2f", sperlu3));
stri = String.valueOf(i);
txti = (TextView) findViewById(R.id.texi);
txti.setText(stri);
txti.setText(String.format("%.0f", i));

txtkon = (TextView) findViewById(R.id.texkon);
txtkon.setText(" ");
}
//terminasi
//Log.d("key", "asd");
Toast.makeText(this, "hohoho", Toast.LENGTH_LONG);
}
else if (vs2 > sy1) {
    av = contant_pakai * constant_empat * constant_phi1 * edtdsengkang *
edtdsengkang;
    fyt = (EditText) findViewById(R.id.fys);
    strfyt = fyt.getText().toString();
    edtfyt = Float.valueOf(strfyt);
    sperlu1 = av * edtfyt * d;
```

```

    sperlu2 = sperlu1 / vs2;
    sperlu3 = sperlu2 * constant_vc2;
    strspelu2 = String.valueOf(sperlu3);
    txtsy = (TextView) findViewById(R.id.texsmax);
    txtsy.setText(strspelu2);
    Toast.makeText(this, "BESARKAN DIMENSI BALOK KARENA TIDAK
    SESUAI SNI 2847-2013 PASAL 11.4.7.9", Toast.LENGTH_LONG).show();
    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText("(BESARKAN DIMENSI BALOK KARENA
    TULANGAN GESER TIDAK SESUAI SNI 2847-2013 PASAL 11.4.7.9)");
    }
}

    dsengkang = (EditText) findViewById(R.id.dsengkang);
    strdsengkang = dsengkang.getText ().toString();
    txtdsengkang = (TextView) findViewById(R.id.texsengkang);
    txtdsengkang.setText (strdsengkang);

    strspelu2 = String.valueOf(sperlu3);
    txtspelu = (TextView) findViewById(R.id.texdseng);
    txtspelu.setText(strspelu2);
    txtspelu.setText(String.format("%.0f",sperlu3));
}

private void carirhopakai (){
    txtrhopakai = (TextView) findViewById(R.id.texrhopakai);
    if (rhomin < rhoperlu8) {
        txtrhopakai.setText(String.format("%.4f",rhoperlu8));
    }
}

```



```
        asperlu = edtbw * d * rhoperlu8;
    }
    else if (rhomin > rhoperlu8) {
        txtrhopakai.setText(String.format("%.4f",rhomin));
        asperlu = edtbw * d * rhomin;
    }
    else if (rhoperlu8 < rhomax) {
        txtrhopakai.setText(String.format("%.4f",rhoperlu8));
        asperlu = edtbw * d * rhoperlu8;
    }
    if (rhoperlu8 > rhomax) {
        txtrhopakai.setText("pperlu > pmax");
        Toast.makeText(this, "BESARKAN DIMENSI BALOK KARENA pperlu >
pmax", Toast.LENGTH_LONG).show();
        asperlu = edtbw * d * 0;
    }
}

private void hapus(){
    txtrn.setText(" ");
    txttd.setText(" ");
    txtrhomin.setText (" ");
    txtrhoperlu.setText (" ");
    txtrhobalance.setText (" ");
    txtrhomax.setText(" ");
    txtasperlu.setText (" ");
}
```

```

txtntulangan.setText (" ");
txtdtul.setText(" ");
txtdtulangan.setText (" ");
txtdsengkang.setText (" ");
txti.setText(" ");
}
}

```

#### Lampiran 2 *Listing Program* Perhitungan Kapasitas

```

package uajy.t_beam;

import android.content.Intent;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

/**
 * Created by AntoniusHandiSulistiy on 5/5/2017.
 */
public class Activity_rangkap extends AppCompatActivity {
    EditText fc, fy, h, be, bw, tf, lps1, tkn, dtulangan, tsb, dsengkang;

```

```
private float edtfc, edtfy, edth, edtbe, edtbw, edttf, edtlps1, edttkn, edtdtulangan, as,
as1, asf1, asf2, asf3, edttsb, edtdsenggang,d, d1, de1, de2, mnf1, mnw1,mn,betta1,
betta2, betta3, aa1, aa2, fs3, mnf12, mnw12, mns1, ds, a11, a12, a13, a14,d2, mn1,
ds2, ds11, ds12, brs1, brs2, lps, tekan, j, rho, rho1, rhomax, rhomax1, rhomax2, c1,
es1,es2,es3, ds3, es11, es12, es13, fs13, aa3, aa4, c11;
```

```
private String strfc, strfy, strh, strbe, strbw, strtf, strlps1, strtkn, strdtulangan, stra,
strtsb, strdsenggang, strmn, strmn1;
```

```
TextView txtfc, txta, txtmn, txtkon, txtmn1;
```

```
private Button btnhitung, Btnhapus;
```

```
private static float constant_empat = (float) 0.25;
```

```
private static float constant_phi = (float) 3.14;
```

```
private static float constant_betta = (float) 0.85;
```

```
private static float constant_d = (float) 0.5;
```

```
private static float constant_35 = (float) 25;
```

```
private static float constant_enam = (float) 0.000001;
```

```
private static float constant_600 = (float) 600;
```

```
private static float constant_28 = (float) 28;
```

```
private static float constant_005 = (float) 0.05;
```

```
private static float constant_7 = (float) 7;
```

```
private static float constant_teta = (float) 0.8;
```

```
private static float constant_es = (float) 200000;
```

```
private static float constant_ey = (float) 0.002;
```

```
private static float constant_ec = (float) 0.003;
```

```
private static float constant_dua = (float) 2;
```

```
private static float constant_satu = (float) 1;
```

```
private static float constant_tiga = (float) 3;
```

```
private static float constant_85 = (float) 0.85;
```

```
private static float constant_3825 = (float) 382.5;
```

```
private static float constant_100 = (float) 100;
```

```
@Override
```

```
protected void onCreate(Bundle savedInstanceState) {
```

```
    super.onCreate(savedInstanceState);
```

```
    setContentView(R.layout.activity_rangkap);
```

```
    btnhitung = (Button) findViewById(R.id.hitung);
```

```
    btnhitung.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
```

```
        public void onClick(View v) {
```

```
            hitung();
```

```
        }
```

```
    });
```

```
    Btnhapus = (Button) findViewById(R.id.btnhapus);
```

```
    Btnhapus.setOnClickListener(new View.OnClickListener() {
```

```
        @Override
```

```
        public void onClick(View v) {
```

```
            hapus();
```

```
        }
```

```
    });
```

```
}
```

```
private void hitung(){
```

```
    //deklarsi objek
```

```
lps1 = (EditText) findViewById(R.id.lps1);
strlps1 = lps1.getText().toString();
edtlps1 = Float.valueOf(strlps1);
dtulangan = (EditText) findViewById(R.id.dtulangan);
strdtulangan = dtulangan.getText().toString();
edtdtulangan = Float.valueOf(strdtulangan);
as = edtlps1 * constant_empat * constant_phi * edtdtulangan * edtdtulangan;
tkn = (EditText) findViewById(R.id.tkn);
strtkn = tkn.getText().toString();
edttkn = Float.valueOf(strtkn);
as1 = edttkn * constant_empat * constant_phi * edtdtulangan * edtdtulangan;
bw = (EditText) findViewById(R.id.bw);
strbw = bw.getText().toString();
edtbw = Float.valueOf(strbw);
be = (EditText) findViewById(R.id.be);
strbe = be.getText().toString();
edtbe = Float.valueOf(strbe);
fc = (EditText) findViewById(R.id.fc);
strfc = fc.getText().toString();
edtfc = Float.valueOf(strfc);
tf = (EditText) findViewById(R.id.hf);
strtf = tf.getText().toString();
edttf = Float.valueOf(strtf);
fy = (EditText) findViewById(R.id.fy);
strfy = fy.getText().toString();
edtfy = Float.valueOf(strfy);
```

```

h = (EditText) findViewById(R.id.h);
strh = h.getText().toString();
edth = Float.valueOf(strh);
tsb = (EditText) findViewById(R.id.tsb);
strtsb = tsb.getText().toString();
edttsb = Float.valueOf(strtsb);
dsengkang = (EditText) findViewById(R.id.dsengkang);
strdsengkang = dsengkang.getText().toString();
edtdsengkang = Float.valueOf(strdsengkang);
asf1 = edtbe - edtbw;
asf2 = constant_beta * edtfc * asf1 * edttf;
asf3 = asf2 / edtfy;

//hitung baris tulangan
brs1 = edtbw - (2 * (edttsb + edtdsengkang));
brs2 = brs1 / (edtdtulangan + 25);
double a, z, y;
a = Math.floor(brs2);
int c = Integer.valueOf((int) a);
float b = Float.valueOf(c);
lps = edtlps1 / b;
tekan = edttkn / b;
z = Math.ceil(lps);
int e = Integer.valueOf ((int)z);
float f = Float.valueOf (e);
String k;

```

```

k = String.valueOf(f);
y = Math.ceil(tekan);
int g = Integer.valueOf ((int)y);
float j = Float.valueOf (g);
String n;
n = String.valueOf(j);

//tulangan bawah
if (f == constant_satu) {
    d = edttsb + edtdsengkang + constant_d * edtdtulangan;
    de2 = edth - d;

    de1 = d;
}
else if (f == constant_dua) {
    d = edttsb + edtdsengkang + constant_d * edtdtulangan;
    d1 = (constant_d * edtdtulangan) + constant_35 + (constant_d *
edtdtulangan);
    de2 = edth - d - d1;

    de1 = d + d1;
}
else if (f == constant_tiga){
    d = edttsb + edtdsengkang + constant_d * edtdtulangan;
    d1 = (constant_d * edtdtulangan) + constant_35 + (constant_d *
edtdtulangan);

```

```
d2 = (constant_d * edtdulangan) + constant_35 + (constant_d *
edtdulangan);
de2 = edth - d - d1 - d2;

de1 = d + d1 + d2;
}
//tulangan atas
if (j == constant_satu) {
    ds12 = edttsb + edtdsengkang + constant_d * edtdulangan;

    ds3 = edth - ds12;
}
else if (j == constant_dua) {
    ds = edttsb + edtdsengkang + constant_d * edtdulangan;
    ds11 = (constant_d * edtdulangan) + constant_35;
    ds12 = ds + ds11;

    ds3 = edth - ds12;
}
else if (j == constant_tiga) {
    ds = edttsb + edtdsengkang + constant_d * edtdulangan;
    ds11 = (constant_d * edtdulangan) + constant_35;
    ds2 = (constant_d * edtdulangan) + constant_35;
    ds12 = ds + ds11 + ds2;

    ds3 = edth - ds12;
```



```
}

//hitung betta
if (edtfc < constant_28 ){
    betta3 = constant_beta;
}
else if (edtfc > constant_28){
    betta1 = constant_005 * (edtfc - constant_28);
    betta2 = betta1/ constant_7;
    betta3 = constant_beta - betta2;
}

//hitung blok tekan
if (edtlps1 > edttkn) {
    a11 = (as - as1);
    a12 = a11 * edtfy;
    a13 = constant_85 * edtfc * edtbw;
    a14 = a12 / a13;

    rho = as - as1;
    rho1 = rho / (edtbe * de2);
    rhomax = constant_3825 * betta3 * edtfc;
    rhomax1 = (constant_600 + edtfy) * edtfy;
    rhomax2 = (rhomax /rhomax1) * constant_100;
}
else if (edtlps1 < edttkn) {
```

```

a11 = (as1 - as);
a12 = a11 * edtfy;
a13 = constant_85 * edtfc * edtbw;
a14 = a12 / a13;

rho = as1 - as;
rho1 = rho / (edtbe * ds3);
rhomax = constant_3825 * beta3 * edtfc;
rhomax1 = (constant_600 + edtfy) * edtfy;
rhomax2 = (rhomax / rhomax1) * constant_100;
}
if (rho1 > rhomax2) {
    txtkon = (TextView) findViewById(R.id.txtkon);
    txtkon.setText("ρ > ρmax, BESARKAN DIMENSI BALOK T ");

    strmn = String.valueOf (mn);
    txtmn = (TextView) findViewById(R.id.txtmn2);
    txtmn.setText(" ");
    strmn1 = String.valueOf (mn1);
    txtmn1 =(TextView) findViewById(R.id.txtmn1);
    txtmn1.setText (" ");
}

//hitungan momen nominal
if (rho1 < rhomax2) {

```

```
if (a14 < edttf) {
    if (edtlps1 < edttkn) {
        c1 = a14 / betta3;

        //es' tekan
        es1 = c1 - de1;
        es2 = es1 / c1;
        es3 = constant_ec * es2;

        //es tarik
        es11 = de2 - c1;
        es12 = es11 / c1;
        es13 = constant_ec * es12;

        //fs tekan
        fs3 = es3 * constant_es;

        //fs tarik
        fs13 = es13 * constant_es;

        //mnplus
        if (es3 < constant_ey) {
            if (fs3 < edtfy) {
                mnw1 = de2 - (a14 * constant_d);
```

```

mnw12 = constant_85 * edtfc * a14 * edtbw * mnw1;
mns1 = as * fs3 * (de2 - de1);
mn = constant_teta * (mnw12 + mns1) * constant_enam ;
strmn = String.valueOf(mn);
txtmn = (TextView) findViewById(R.id.texmn1);
txtmn.setText(strmn);
txtmn.setText(String.format("%.2f", mn));

txtkon = (TextView) findViewById(R.id.texkon);
txtkon.setText(" ");
}
else if (fs3 > edtfy) {
    mnw1 = de2 - (a14 * constant_d);
    mnw12 = constant_85 * edtfc * a14 * edtbw * mnw1;
    mns1 = as * edtfy * (de2 - de1);
    mn = constant_teta * (mnw12 + mns1) * constant_enam ;
    strmn = String.valueOf(mn);
    txtmn = (TextView) findViewById(R.id.texmn1);
    txtmn.setText(strmn);
    txtmn.setText(String.format("%.2f", mn));

    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText(" ");
}
}
else if (es3 > constant_ey) {

```

```

mnw1 = de2 - (a14 * constant_d);
mnw12 = constant_85 * edtfc * a14 * edtbw * mnw1;
mns1 = as * edtfy * (de2 - de1);
mn = constant_teta * (mnw12 + mns1) * constant_enam ;
strmn = String.valueOf(mn);
txtmn = (TextView) findViewById(R.id.texmn1);
txtmn.setText(strmn);
txtmn.setText(String.format("%.2f", mn));

txtkon = (TextView) findViewById(R.id.texkon);
txtkon.setText(" ");
}
//mnminus
if (es13 > constant_ey) {
    mnf1 = de2 - edtff * constant_d;
    mnf12 = constant_teta * as1 * edtfy * mnf1 * constant_enam;
    strmn1 = String.valueOf(mnf12);
    txtmn1 = (TextView) findViewById(R.id.texmn2);
    txtmn1.setText(strmn1);
    txtmn1.setText(String.format("%.2f", mnf12));

    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText(" ");
}
else if (es13 < constant_ey) {
    if (fs13 < edtfy) {

```

```

mnf1 = de2 - edttf * constant_d;
mnf12 = constant_teta * as1 * fs13 * mnf1 * constant_enam;
strmn1 = String.valueOf(mnf12);
txtmn1 = (TextView) findViewById(R.id.texmn2);
txtmn1.setText(strmn1);
txtmn1.setText(String.format("%.2f", mnf12));

txtkon = (TextView) findViewById(R.id.texkon);
txtkon.setText(" ");
}
else if (fs13 > edtfy) {
    mnf1 = de2 - edttf * constant_d;
    mnf12 = constant_teta * as1 * edtfy * mnf1 * constant_enam;
    strmn1 = String.valueOf(mnf12);
    txtmn1 = (TextView) findViewById(R.id.texmn2);
    txtmn1.setText(strmn1);
    txtmn1.setText(String.format("%.2f", mnf12));

    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText(" ");
}
}
}
else if (edtlps1 > edttkn) {
    c1 = a14 / betta3;

```

```
//es' tekan
es1 = c1 - ds12;
es2 = es1 / c1;
es3 = constant_ec * es2;

//es tarik
es11 = ds3 - c1;
es12 = es11 / c1;
es13 = constant_ec * es12;

//fs tekan
fs3 = es3 * constant_es;

//fs tarik
fs13 = es13 * constant_es;

//mnplus
if (es13 > constant_ey) {
    mnf1 = ds3 - (edttf * constant_d);
    mnf12 = constant_teta * as * edtfy * mnf1 * constant_enam;
    strmn1 = String.valueOf(mnf12);
    txtmn1 = (TextView) findViewById(R.id.texmn1);
    txtmn1.setText(strmn1);
    txtmn1.setText(String.format("%.2f", mnf12));
```

```
txtkon = (TextView) findViewById(R.id.txtkon);
txtkon.setText(" ");
}
else if (es13 < constant_ey) {
    if (fs13 < edtfy) {
        mnf1 = ds3 - (edttf * constant_d);
        mnf12 = constant_teta * as * fs13 * mnf1 * constant_enam;
        strmn1 = String.valueOf(mnf12);
        txtmn1 = (TextView) findViewById(R.id.txtmn1);
        txtmn1.setText(strmn1);
        txtmn1.setText(String.format("%.2f", mnf12));

        txtkon = (TextView) findViewById(R.id.txtkon);
        txtkon.setText(" ");
    }
    else if (fs13 > edtfy) {
        mnf1 = ds3 - (edttf * constant_d);
        mnf12 = constant_teta * as * edtfy * mnf1 * constant_enam;
        strmn1 = String.valueOf(mnf12);
        txtmn1 = (TextView) findViewById(R.id.txtmn1);
        txtmn1.setText(strmn1);
        txtmn1.setText(String.format("%.2f", mnf12));

        txtkon = (TextView) findViewById(R.id.txtkon);
        txtkon.setText(" ");
    }
}
```



```
}  
  
//mnminus  
if (es3 < constant_ey) {  
    if (fs3 < edtfy) {  
        mnw1 = ds3 - (a14 * constant_d);  
        mnw12 = constant_85 * edtfc * a14 * edtbw * mnw1;  
        mns1 = as1 * fs3 * (ds3 - ds12);  
        mn = constant_teta * (mnw12 + mns1) * constant_enam ;  
        strmn = String.valueOf(mn);  
        txtmn = (TextView) findViewById(R.id.texmn2);  
        txtmn.setText(strmn);  
        txtmn.setText(String.format("%.2f", mn));  
  
        txtkon = (TextView) findViewById(R.id.texkon);  
        txtkon.setText(" ");  
    }  
    else if (fs3 > edtfy) {  
        mnw1 = ds3 - (a14 * constant_d);  
        mnw12 = constant_85 * edtfc * a14 * edtbw * mnw1;  
        mns1 = as1 * edtfy * (ds3 - ds12);  
        mn = constant_teta * (mnw12 + mns1) * constant_enam ;  
        strmn = String.valueOf(mn);  
        txtmn = (TextView) findViewById(R.id.texmn2);  
        txtmn.setText(strmn);  
        txtmn.setText(String.format("%.2f", mn));  
    }  
}
```

```
        txtkon = (TextView) findViewById(R.id.txtkon);
        txtkon.setText(" ");
    }
}
else if (es3 > constant_ey) {
    mnw1 = ds3 - (a14 * constant_d);
    mnw12 = constant_85 * edtfc * a14 * edtbw * mnw1;
    mns1 = as1 * edtfy * (ds3 - ds12);
    mn = constant_teta * (mnw12 + mns1) * constant_enam;
    strmn = String.valueOf(mn);
    txtmn = (TextView) findViewById(R.id.txtmn2);
    txtmn.setText(strmn);
    txtmn.setText(String.format("%.2f", mn));

    txtkon = (TextView) findViewById(R.id.txtkon);
    txtkon.setText(" ");
}
}
}
else if (a14 > edttf) {
    if (edtlps1 < edttkn) {
        asf1 = constant_85 * edtfc * edttf * (edtbe - edtbw);
        asf2 = asf1 / edtfy;

        aa1 = (as1 - as);
        aa2 = aa1 * edtfy;
```

```
aa3 = constant_85 * edtfc * edtbw;  
aa4 = aa2 / aa3;  
  
c1 = aa4 / betta3;  
  
//es' tekan  
es1 = c1 - ds12;  
es2 = es1 / c1;  
es3 = constant_ec * es2;  
  
//es tarik  
es11 = de2 - c1;  
es12 = es11 / c1;  
es13 = constant_ec * es12;  
  
//fs tekan  
fs3 = es3 * constant_es;  
  
//fs tarik  
fs13 = es13 * constant_es;  
  
//mnplus  
if (es3 < constant_ey) {  
    if (fs3 < edtfy) {  
        mnw1 = de2 - (aa4 * constant_d);
```

```

mnw12 = constant_85 * edtfc * aa4 * edtbw * mnw1;
mns1 = as * fs3 * (de2 - de1);
mn = constant_teta * (mnw12 + mns1) * constant_enam ;
strmn = String.valueOf(mn);
txtmn = (TextView) findViewById(R.id.texmn1);
txtmn.setText(strmn);
txtmn.setText(String.format("%.2f", mn));

txtkon = (TextView) findViewById(R.id.texkon);
txtkon.setText(" ");
}
else if (fs3 > edtfy) {
    mnw1 = de2 - (aa4 * constant_d);
    mnw12 = constant_85 * edtfc * aa4 * edtbw * mnw1;
    mns1 = as * edtfy * (de2 - de1);
    mn = constant_teta * (mnw12 + mns1) * constant_enam ;
    strmn = String.valueOf(mn);
    txtmn = (TextView) findViewById(R.id.texmn1);
    txtmn.setText(strmn);
    txtmn.setText(String.format("%.2f", mn));

    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText(" ");
}
}
else if (es3 > constant_ey) {

```

```

mnw1 = de2 - (aa4 * constant_d);
mnw12 = constant_85 * edtfc * aa4 * edtbw * mnw1;
mns1 = as * edtfy * (de2 - de1);
mn = constant_teta * (mnw12 + mns1) * constant_enam ;
strmn = String.valueOf(mn);
txtmn = (TextView) findViewById(R.id.texmn1);
txtmn.setText(strmn);
txtmn.setText(String.format("%.2f", mn));

txtkon = (TextView) findViewById(R.id.texkon);
txtkon.setText(" ");
}
//mnminus
if (es13 > constant_ey) {
    mnf1 = de2 - edttf * constant_d;
    mnf12 = constant_teta * as1 * edtfy * mnf1 * constant_enam;
    strmn1 = String.valueOf(mnf12);
    txtmn1 = (TextView) findViewById(R.id.texmn2);
    txtmn1.setText(strmn1);
    txtmn1.setText(String.format("%.2f", mnf12));

    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText(" ");
}
else if (es13 < constant_ey) {
    if (fs13 < edtfy) {

```

```

mnf1 = de2 - edttf * constant_d;
mnf12 = constant_teta * as1 * fs13 * mnf1 * constant_enam;
strmn1 = String.valueOf(mnf12);
txtmn1 = (TextView) findViewById(R.id.texmn2);
txtmn1.setText(strmn1);
txtmn1.setText(String.format("%.2f", mnf12));

txtkon = (TextView) findViewById(R.id.texkon);
txtkon.setText(" ");
}
else if (fs13 > edtfy) {
    mnf1 = de2 - edttf * constant_d;
    mnf12 = constant_teta * as1 * edtfy * mnf1 * constant_enam;
    strmn1 = String.valueOf(mnf12);
    txtmn1 = (TextView) findViewById(R.id.texmn2);
    txtmn1.setText(strmn1);
    txtmn1.setText(String.format("%.2f", mnf12));

    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText(" ");
}
}
}
else if (edtlps1 > edttkn) {
    asf1 = constant_85 * edtfc * edttf * (edtbe - edtbw);
    asf2 = asf1 / edtfy;

```

```
aa1 = (as - as1 - asf2);
aa2 = aa1 * edtfy;
aa3 = constant_85 * edtfc * edtbw;
aa4 = aa2 / aa3;

c11 = aa4 / betta3;

//es' tekan
es1 = c11 - ds12;
es2 = es1 / c11;
es3 = constant_ec * es2;
stra = String.valueOf(es3);
txta = (TextView) findViewById(R.id.texes3);
txta.setText(stra);

//es tarik
es11 = ds3 - c11;
es12 = es11 / c11;
es13 = constant_ec * es12;
strfc = String.valueOf(es13);
txtfc = (TextView) findViewById(R.id.texes13);
txtfc.setText(strfc);

//fs tekan
fs3 = es3 * constant_es;
```

```
//fs tarik
fs13 = es13 * constant_es;

//mnplus
if (es13 > constant_ey) {
    mnf1 = ds3 - (edttf * constant_d);
    mnf12 = constant_teta * as * edtfy * mnf1 * constant_enam;
    strmn1 = String.valueOf(mnf12);
    txtmn1 = (TextView) findViewById(R.id.texmn1);
    txtmn1.setText(strmn1);
    txtmn1.setText(String.format("%.2f", mnf12));

    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText(" ");
}
else if (es13 < constant_ey) {
    if (fs13 < edtfy) {
        mnf1 = ds3 - (edttf * constant_d);
        mnf12 = constant_teta * as * fs13 * mnf1 * constant_enam;
        strmn1 = String.valueOf(mnf12);
        txtmn1 = (TextView) findViewById(R.id.texmn1);
        txtmn1.setText(strmn1);
        txtmn1.setText(String.format("%.2f", mnf12));

        txtkon = (TextView) findViewById(R.id.texkon);
```



```

        txtkon.setText(" ");
    }
    else if (fs13 > edtfy) {
        mnf1 = ds3 - (edttf * constant_d);
        mnf12 = constant_teta * as * edtfy * mnf1 * constant_enam;
        strmn1 = String.valueOf(mnf12);
        txtmn1 = (TextView) findViewById(R.id.texmn1);
        txtmn1.setText(strmn1);
        txtmn1.setText(String.format("%.2f", mnf12));

        txtkon = (TextView) findViewById(R.id.txtkon);
        txtkon.setText(" ");
    }
}
//mnminus
if (es3 < constant_ey) {
    if (fs3 < edtfy) {
        mnw1 = ds3 - (aa4 * constant_d);
        mnw12 = constant_85 * edtfc * aa4 * edtbw * mnw1;
        mns1 = as1 * fs3 * (ds3 - ds12);
        mn = constant_teta * (mnw12 + mns1) * constant_enam ;
        strmn = String.valueOf(mn);
        txtmn = (TextView) findViewById(R.id.texmn2);
        txtmn.setText(strmn);
        txtmn.setText(String.format("%.2f", mn));
    }
}

```

```

txtkon = (TextView) findViewById(R.id.txtkon);
txtkon.setText(" ");
}
else if (fs3 > edtfy) {
    mnw1 = ds3 - (aa4 * constant_d);
    mnw12 = constant_85 * edtfc * aa4 * edtbw * mnw1;
    mns1 = as1 * edtfy * (ds3 - ds12);
    mn = constant_teta * (mnw12 + mns1) * constant_enam ;
    strmn = String.valueOf(mn);
    txtmn = (TextView) findViewById(R.id.txtmn2);
    txtmn.setText(strmn);
    txtmn.setText(String.format("%.2f", mn));

    txtkon = (TextView) findViewById(R.id.txtkon);
    txtkon.setText(" ");
}
}
else if (es3 > constant_ey) {
    mnw1 = ds3 - (aa4 * constant_d);
    mnw12 = constant_85 * edtfc * aa4 * edtbw * mnw1;
    mns1 = as1 * edtfy * (ds3 - ds12);
    mn = constant_teta * (mnw12 + mns1) * constant_enam;
    strmn = String.valueOf(mn);
    txtmn = (TextView) findViewById(R.id.txtmn2);
    txtmn.setText(strmn);
    txtmn.setText(String.format("%.2f", mn));
}
}

```

```
txtkon = (TextView) findViewById(R.id.texkon);
txtkon.setText(" ");
    }
}
}
else if (rho1 > rhomax2) {
    txtkon = (TextView) findViewById(R.id.texkon);
    txtkon.setText("ρ > ρmax, BESARKAN DIMENSI BALOK T ");

    strmn = String.valueOf (mn);
    txtmn = (TextView) findViewById(R.id.texmn2);
    txtmn.setText(" ");
    strmn1 = String.valueOf (mn1);
    txtmn1 =(TextView) findViewById(R.id.texmn1);
    txtmn1.setText (" ");
}
}
private void hapus () {
    txtmn.setText(" ");
    txtkon.setText (" ");
    txtmn1.setText(" ");
}
}
```

### Lampiran 3 *Listing Program Interface*

```
<?xml version="1.0" encoding="utf-8"?>

<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#FFFFFF">

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="950dp">

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceLarge"
    android:text="Perancangan Tulangan"
    android:id="@+id/textView"
    android:layout_marginTop="13dp"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true" />

<TextView
```

```
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:textAppearance="?android:attr/textAppearanceMedium"  
android:text="Input :"  
android:id="@+id/textView2"  
android:layout_below="@+id/imageView8"  
android:layout_alignLeft="@+id/textView4"  
android:layout_alignStart="@+id/textView4" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="fc ="  
    android:id="@+id/textView3"  
    android:layout_marginLeft="17dp"  
    android:layout_marginStart="17dp"  
    android:layout_above="@+id/textView4"  
    android:layout_alignParentLeft="true"  
    android:layout_alignParentStart="true" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/fc"  
    android:layout_below="@+id/textView2"
```

```
android:layout_toLeftOf="@+id/textView6"  
android:inputType="numberDecimal"  
android:text="25"  
android:layout_toRightOf="@+id/textView3"  
android:layout_toEndOf="@+id/textView3"  
</>
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="25dp"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="fy ="  
    android:id="@+id/textView4"  
    android:layout_marginTop="23dp"  
    android:layout_below="@+id/fc"  
    android:layout_alignRight="@+id/textView3"  
    android:layout_alignEnd="@+id/textView3" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/fy"  
    android:layout_alignBottom="@+id/textView4"  
    android:layout_below="@+id/textView3"  
    android:inputType="numberDecimal"  
    android:text="400"
```

```
android:layout_toRightOf="@+id/textView3"  
android:layout_toLeftOf="@+id/textView7"  
android:layout_toStartOf="@+id/textView7" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="bw ="  
    android:id="@+id/textView5"  
    android:layout_alignBottom="@+id/bw"  
    android:layout_alignLeft="@+id/textView20"  
    android:layout_alignStart="@+id/textView20" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/bw"  
    android:layout_below="@+id/editText"  
    android:layout_toRightOf="@+id/textView5"  
    android:layout_toLeftOf="@+id/textView17"  
    android:layout_toStartOf="@+id/textView17"  
    android:inputType="numberDecimal"/>
```

```
<TextView  
    android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"  
android:textAppearance="?android:attr/textAppearanceMedium"  
android:text="h ="  
android:id="@+id/textView8"  
android:layout_alignBottom="@+id/textView6"  
android:layout_centerHorizontal="true" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/h"  
    android:layout_above="@+id/textView4"  
    android:layout_toRightOf="@+id/textView5"  
    android:layout_toStartOf="@+id/textView25"  
    android:layout_toLeftOf="@+id/textView25"  
    android:inputType="numberDecimal"/>
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Φ tulangan ="  
    android:id="@+id/textView9"  
    android:layout_alignBottom="@+id/Mu"  
    android:layout_alignLeft="@+id/textView19"  
    android:layout_alignStart="@+id/textView19" />
```



```
<EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/dtulangan"
    android:layout_above="@+id/textView11"
    android:inputType="numberDecimal"
    android:layout_toRightOf="@+id/textView11"
    android:layout_alignRight="@+id/dsengkang"
    android:layout_alignEnd="@+id/dsengkang" />

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text="Φ sengkang ="
    android:id="@+id/textView11"
    android:layout_marginTop="16dp"
    android:layout_below="@+id/textView9"
    android:layout_alignLeft="@+id/textView9"
    android:layout_alignStart="@+id/textView9" />

<EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/dsengkang"
```

```
android:layout_below="@+id/dtulangan"  
android:layout_toLeftOf="@+id/textView22"  
android:inputType="numberDecimal"  
android:layout_toRightOf="@+id/textView11"  
android:layout_toEndOf="@+id/textView11" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Selimut beton ="  
    android:id="@+id/textView12"  
    android:layout_alignBaseline="@+id/tsb"  
    android:layout_alignBottom="@+id/tsb"  
    android:layout_alignLeft="@+id/textView19"  
    android:layout_alignStart="@+id/textView19" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/tsb"  
    android:layout_below="@+id/dsengkang"  
    android:layout_toRightOf="@+id/textView12"  
    android:inputType="numberDecimal"  
    android:layout_alignRight="@+id/dsengkang"  
    android:layout_alignEnd="@+id/dsengkang" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text="Mu ="
    android:id="@+id/textView13"
    android:layout_alignBaseline="@+id/Mu"
    android:layout_alignBottom="@+id/Mu"
    android:layout_toLeftOf="@+id/vu"
    android:layout_toStartOf="@+id/vu" />
```

```
<EditText
    android:layout_width="70dp"
    android:layout_height="wrap_content"
    android:id="@+id/Mu"
    android:layout_below="@+id/textView19"
    android:layout_marginTop="25dp"
    android:layout_toRightOf="@+id/textView13"
    android:layout_toLeftOf="@+id/textView34"
    android:layout_toStartOf="@+id/textView34"
    android:inputType="numberDecimal"/>
```

```
<Button
    android:layout_width="wrap_content"
    android:layout_height="40dp"
```

```
android:text="Hitung"  
android:id="@+id/btnHitung"  
android:layout_below="@+id/tsb"  
android:layout_toRightOf="@+id/textView41"  
android:layout_toEndOf="@+id/textView41" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="d :"  
    android:id="@+id/textView14"  
    android:layout_below="@+id/btnHitung"  
    android:layout_alignLeft="@+id/textView10"  
    android:layout_alignStart="@+id/textView10" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textd"  
    android:layout_above="@+id/imageView"  
    android:layout_toRightOf="@+id/textView14"  
    android:layout_alignRight="@+id/textView31"  
    android:layout_alignEnd="@+id/textView31" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Rn :"  
    android:id="@+id/textView16"  
    android:layout_alignBaseline="@+id/textd"  
    android:layout_alignBottom="@+id/textd"  
    android:layout_alignRight="@+id/textView5"  
    android:layout_alignEnd="@+id/textView5" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textrn"  
    android:layout_alignBottom="@+id/textView16"  
    android:layout_toRightOf="@+id/textView36"  
    android:layout_toLeftOf="@+id/dsengkang"  
    android:layout_toStartOf="@+id/dsengkang" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="MPa"
```

```
android:id="@+id/textView6"  
android:layout_alignTop="@+id/textView3"  
android:layout_toLeftOf="@+id/imageView2"  
android:layout_toStartOf="@+id/imageView2" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="MPa"  
    android:id="@+id/textView7"  
    android:layout_alignTop="@+id/textView25"  
    android:layout_alignLeft="@+id/textView15"  
    android:layout_alignStart="@+id/textView15" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="mm"  
    android:id="@+id/textView17"  
    android:layout_alignTop="@+id/textView10"  
    android:layout_alignLeft="@+id/textView38"  
    android:layout_alignStart="@+id/textView38" />
```

```
<TextView
```

```
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:textAppearance="?android:attr/textAppearanceSmall"  
android:text="mm"  
android:id="@+id/textView18"  
android:layout_alignBottom="@+id/textView8"  
android:layout_alignLeft="@+id/textView25"  
android:layout_alignStart="@+id/textView25" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="mm"  
    android:id="@+id/textView21"  
    android:layout_alignTop="@+id/textView9"  
    android:layout_alignRight="@+id/textView69"  
    android:layout_alignEnd="@+id/textView69" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="mm"  
    android:id="@+id/textView22"  
    android:layout_alignBottom="@+id/textView11"
```

```
android:layout_alignLeft="@+id/textView21"  
android:layout_alignStart="@+id/textView21" />
```

```
<ImageView  
    android:layout_width="30dp"  
    android:layout_height="30dp"  
    android:id="@+id/imageView"  
    android:src="@drawable/rhomin"  
    android:layout_marginTop="18dp"  
    android:layout_below="@+id/textView14"  
    android:layout_alignLeft="@+id/textView14"  
    android:layout_alignStart="@+id/textView14" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text=":"  
    android:id="@+id/textView26"  
    android:layout_alignBottom="@+id/imageView"  
    android:layout_toRightOf="@+id/imageView"  
    android:layout_toEndOf="@+id/imageView" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"
```



```
android:text=" "  
android:id="@+id/textrhomin1"  
android:layout_alignBaseline="@+id/textView26"  
android:layout_alignBottom="@+id/textView26"  
android:layout_toRightOf="@+id/textView26"  
android:layout_toLeftOf="@+id/textView34"  
android:layout_toStartOf="@+id/textView34" />
```

```
<ImageView  
    android:layout_width="30dp"  
    android:layout_height="30dp"  
    android:id="@+id/imageView2"  
    android:src="@drawable/rhoperlu"  
    android:layout_above="@+id/imageView5"  
    android:layout_toRightOf="@+id/textView34"  
    android:layout_toEndOf="@+id/textView34" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text=":"  
    android:id="@+id/textView27"  
    android:layout_alignBottom="@+id/textrhoperlu"  
    android:layout_toRightOf="@+id/imageView2"  
    android:layout_toEndOf="@+id/imageView2" />
```

```
<ImageView
    android:layout_width="45dp"
    android:layout_height="35dp"
    android:id="@+id/imageView3"
    android:src="@drawable/rhobalance"
    android:layout_alignTop="@+id/imageView2"
    android:layout_toLeftOf="@+id/textView38"
    android:layout_toStartOf="@+id/textView38" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text=":"
    android:id="@+id/textView28"
    android:layout_above="@+id/textView30"
    android:layout_toRightOf="@+id/imageView3"
    android:layout_toEndOf="@+id/imageView3" />
```

```
<ImageView
    android:layout_width="30dp"
    android:layout_height="30dp"
    android:id="@+id/imageView4"
    android:src="@drawable/rhomax"
    android:layout_alignBottom="@+id/textrhomax"
```

```
android:layout_alignLeft="@+id/textView14"  
android:layout_alignStart="@+id/textView14" />
```

```
<TextView  
    android:layout_width="50dp"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textRhoPerlu"  
    android:layout_alignTop="@+id/textRhoMin1"  
    android:layout_toLeftOf="@+id/imageView3"  
    android:layout_toRightOf="@+id/textView27"  
    android:layout_toEndOf="@+id/textView27" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textRhoBalance"  
    android:layout_above="@+id/textView30"  
    android:layout_toRightOf="@+id/textView28"  
    android:layout_alignRight="@+id/tsb"  
    android:layout_alignEnd="@+id/tsb" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"
```

```
android:text=" "  
android:id="@+id/txrhomax"  
android:layout_alignBaseline="@+id/textView30"  
android:layout_alignBottom="@+id/textView30"  
android:layout_alignLeft="@+id/txrhomin1"  
android:layout_alignStart="@+id/txrhomin1"  
android:layout_alignRight="@+id/txrhomin1"  
android:layout_alignEnd="@+id/txrhomin1" />
```

```
<ImageView  
    android:layout_width="45dp"  
    android:layout_height="45dp"  
    android:id="@+id/imageView5"  
    android:src="@drawable/rhopakai"  
    android:layout_below="@+id/textView27"  
    android:layout_alignLeft="@+id/imageView2"  
    android:layout_alignStart="@+id/imageView2" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text=":"  
    android:id="@+id/textView30"  
    android:layout_marginTop="17dp"  
    android:layout_below="@+id/textView26"
```

```
android:layout_alignLeft="@+id/textView26"  
android:layout_alignStart="@+id/textView26" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textRhopakai"  
    android:layout_alignTop="@+id/textView30"  
    android:layout_toLeftOf="@+id/tsb"  
    android:layout_toEndOf="@+id/textView29"  
    android:layout_toRightOf="@+id/textView29" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Asperlu :"  
    android:id="@+id/textView31"  
    android:layout_below="@+id/imageView5"  
    android:layout_alignLeft="@+id/textView39"  
    android:layout_alignStart="@+id/textView39" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"
```

```

android:text=" "
android:id="@+id/texasperlu"
android:layout_alignBaseline="@+id/textView31"
android:layout_alignBottom="@+id/textView31"
android:layout_toRightOf="@+id/textView31"
android:layout_alignRight="@+id/imageView5"
android:layout_alignEnd="@+id/imageView5" />

```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text="n tulanngan :"
    android:id="@+id/textView33"
    android:layout_below="@+id/texasperlu"
    android:layout_alignLeft="@+id/textView31"
    android:layout_alignStart="@+id/textView31" />

```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text=" "
    android:id="@+id/texntulanngan"
    android:layout_above="@+id/textView23"
    android:layout_toRightOf="@+id/textView33"
    android:layout_alignRight="@+id/texasperlu"

```

```
android:layout_alignEnd="@+id/texasperlu" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Gunakan :"  
    android:id="@+id/textView23"  
    android:layout_below="@+id/textView33"  
    android:layout_toLeftOf="@+id/textul"  
    android:layout_toStartOf="@+id/textul" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textul"  
    android:layout_alignBottom="@+id/textView34"  
    android:layout_alignLeft="@+id/textView15"  
    android:layout_alignStart="@+id/textView15"  
    android:layout_alignRight="@+id/vu"  
    android:layout_alignEnd="@+id/vu" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"
```

```
android:textAppearance="?android:attr/textAppearanceMedium"  
android:text="D"  
android:id="@+id/textView34"  
android:layout_above="@+id/textView41"  
android:layout_alignRight="@+id/textView15"  
android:layout_alignEnd="@+id/textView15" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textView34"  
    android:layout_alignBottom="@+id/textView34"  
    android:layout_toRightOf="@+id/textView34" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="mm"  
    android:id="@+id/textView35"  
    android:layout_alignBottom="@+id/textView12"  
    android:layout_toRightOf="@+id/textView12"  
    android:layout_toEndOf="@+id/textView12" />
```

```
<TextView
```



```
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:textAppearance="?android:attr/textAppearanceMedium"  
android:text="fys"  
android:id="@+id/textView10"  
android:layout_alignBottom="@+id/bw"  
android:layout_alignLeft="@+id/textView4"  
android:layout_alignStart="@+id/textView4" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/fys"  
    android:layout_alignBaseline="@+id/textView17"  
    android:layout_alignBottom="@+id/textView17"  
    android:layout_alignLeft="@+id/fy"  
    android:layout_alignStart="@+id/fy"  
    android:inputType="numberDecimal"  
    android:text="240"  
    android:layout_alignRight="@+id/textView23"  
    android:layout_alignEnd="@+id/textView23" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"
```

```
android:text="MPa"  
android:id="@+id/textView15"  
android:layout_marginLeft="24dp"  
android:layout_marginStart="24dp"  
android:layout_alignBottom="@+id/textView5"  
android:layout_alignLeft="@+id/textView"  
android:layout_alignStart="@+id/textView" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="be ="  
    android:id="@+id/textView19"  
    android:layout_alignBottom="@+id/be"  
    android:layout_alignLeft="@+id/textView5"  
    android:layout_alignStart="@+id/textView5" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="tf ="  
    android:id="@+id/textView20"  
    android:layout_alignBaseline="@+id/textView4"  
    android:layout_alignBottom="@+id/textView4"
```

```
android:layout_alignLeft="@+id/textView8"  
android:layout_alignStart="@+id/textView8" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/editText"  
    android:layout_alignBottom="@+id/textView4"  
    android:layout_alignLeft="@+id/bw"  
    android:layout_alignStart="@+id/bw"  
    android:layout_toLeftOf="@+id/textView25"  
    android:layout_toStartOf="@+id/textView25"  
    android:inputType="numberDecimal"/>
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="mm"  
    android:id="@+id/textView25"  
    android:layout_alignTop="@+id/textView20"  
    android:layout_toRightOf="@+id/bw"  
    android:layout_toEndOf="@+id/bw" />
```

```
<EditText  
    android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"  
android:id="@+id/be"  
android:layout_below="@+id/bw"  
android:layout_alignLeft="@+id/editText"  
android:layout_alignStart="@+id/editText"  
android:inputType="number"  
android:layout_toLeftOf="@+id/textView38"  
android:layout_toStartOf="@+id/textView38" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="mm"  
    android:id="@+id/textView38"  
    android:layout_alignTop="@+id/textView19"  
    android:layout_toLeftOf="@+id/tsb"  
    android:layout_toStartOf="@+id/tsb" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Vu ="  
    android:id="@+id/textView39"  
    android:layout_alignBaseline="@+id/dsengkang"
```

```
android:layout_alignBottom="@+id/dsengkang"  
android:layout_alignLeft="@+id/textView13"  
android:layout_alignStart="@+id/textView13" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/vu"  
    android:layout_alignBaseline="@+id/textView39"  
    android:layout_alignBottom="@+id/textView39"  
    android:layout_toRightOf="@+id/textView4"  
    android:layout_alignRight="@+id/textRhomin1"  
    android:layout_alignEnd="@+id/textRhomin1"  
    android:inputType="numberDecimal"/>
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:text="KN"  
    android:id="@+id/textView40"  
    android:layout_alignTop="@+id/textView11"  
    android:layout_alignLeft="@+id/textView24"  
    android:layout_alignStart="@+id/textView24" />
```

```
<TextView
```

```
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:textAppearance="?android:attr/textAppearanceSmall"  
android:text="KNm"  
android:id="@+id/textView24"  
android:layout_alignBaseline="@+id/Mu"  
android:layout_alignBottom="@+id/Mu"  
android:layout_toRightOf="@+id/Mu"  
android:layout_toEndOf="@+id/Mu" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Sperlu : "  
    android:id="@+id/textView41"  
    android:layout_marginTop="16dp"  
    android:layout_below="@+id/textView23"  
    android:layout_alignLeft="@+id/textView33"  
    android:layout_alignStart="@+id/textView33" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textsmax"
```

```
android:layout_alignBottom="@+id/textView41"  
android:layout_toRightOf="@+id/textView41"  
android:layout_toLeftOf="@+id/textView12"  
android:layout_toStartOf="@+id/textView12" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Gunakan sengkang :"  
    android:id="@+id/textView29"  
    android:layout_above="@+id/textkon"  
    android:layout_alignLeft="@+id/textView23"  
    android:layout_alignStart="@+id/textView23" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="P"  
    android:id="@+id/textView36"  
    android:layout_below="@+id/textView41"  
    android:layout_alignRight="@+id/textView19"  
    android:layout_alignEnd="@+id/textView19" />
```

```
<TextView
```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text=" "
android:id="@+id/textsengkang"
android:layout_alignBottom="@+id/textView36"
android:layout_toRightOf="@+id/textView36"
android:layout_toLeftOf="@+id/textView37"
android:layout_toStartOf="@+id/textView37" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text="-"
    android:id="@+id/textView37"
    android:layout_alignBaseline="@+id/textView36"
    android:layout_alignBottom="@+id/textView36"
    android:layout_alignLeft="@+id/imageView3"
    android:layout_alignStart="@+id/imageView3" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text=" "
    android:id="@+id/textdseng"
    android:layout_alignBottom="@+id/textView37"
```



```
android:layout_toRightOf="@+id/textView37"  
android:layout_alignRight="@+id/imageView3"  
android:layout_alignEnd="@+id/imageView3" />
```

```
<ImageView  
    android:layout_width="220dp"  
    android:layout_height="220dp"  
    android:id="@+id/imageView8"  
    android:src="@drawable/nama1"  
    android:layout_below="@+id/textView"  
    android:layout_alignRight="@+id/textView28"  
    android:layout_alignEnd="@+id/textView28" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="(Gunakan . untuk angka desimal)"  
    android:id="@+id/textView69"  
    android:textSize="6pt"  
    android:layout_above="@+id/h"  
    android:layout_toRightOf="@+id/imageView5"  
    android:layout_toEndOf="@+id/imageView5" />
```

```
<TextView  
    android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"  
android:text=" "  
android:id="@+id/texti"  
android:layout_above="@+id/textkon"  
android:layout_toLeftOf="@+id/textView36"  
android:layout_toStartOf="@+id/textView36" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/textkon"  
    android:layout_below="@+id/textsengkang"  
    android:layout_alignLeft="@+id/textView41"  
    android:layout_alignStart="@+id/textView41"  
    android:layout_alignRight="@+id/textView35"  
    android:layout_alignEnd="@+id/textView35" />
```

```
<Button  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="hapus"  
    android:id="@+id/btnhapus"  
    android:layout_alignBottom="@+id/btnHitung"  
    android:layout_toRightOf="@+id/textView19"  
    android:layout_toEndOf="@+id/textView19"
```

```
android:layout_alignTop="@+id/btnHitung" />
```

```
</RelativeLayout>
```

```
</ScrollView>
```

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"  
    android:orientation="vertical" android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    android:background="#FFFFFF">
```

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
    android:orientation="vertical" android:layout_width="match_parent"  
    android:layout_height="1000dp">
```

```
<ImageView  
    android:layout_width="220dp"  
    android:layout_height="220dp"  
    android:id="@+id/imageView10"  
    android:src="@drawable/rangkap"  
    android:layout_below="@+id/textView51"  
    android:layout_centerHorizontal="true" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="KAPASITAS TULANGAN RANGKAP"  
    android:id="@+id/textView51"  
    android:layout_alignParentTop="true"  
    android:layout_centerHorizontal="true" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Input"  
    android:id="@+id/textView63"  
    android:layout_below="@+id/imageView10"  
    android:layout_toLeftOf="@+id/textView51"  
    android:layout_toStartOf="@+id/textView51" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="fc" ="  
    android:id="@+id/textView64"  
    android:layout_below="@+id/textView63"
```

```
android:layout_alignRight="@+id/textView63"  
android:layout_alignEnd="@+id/textView63"  
android:layout_marginTop="15dp" />
```

```
<EditText  
    android:layout_width="50dp"  
    android:layout_height="wrap_content"  
    android:id="@+id/fc"  
    android:layout_below="@+id/textView63"  
    android:layout_alignLeft="@+id/textView51"  
    android:layout_alignStart="@+id/textView51"  
    android:inputType="number"  
    android:text="25"/>
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="MPa"  
    android:id="@+id/textView65"  
    android:layout_alignTop="@+id/textView64"  
    android:layout_toRightOf="@+id/fc"  
    android:layout_toEndOf="@+id/fc" />
```

```
<TextView  
    android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"  
android:textAppearance="?android:attr/textAppearanceMedium"  
android:text="fy ="  
android:id="@+id/textView66"  
android:layout_alignBaseline="@+id/fy"  
android:layout_alignBottom="@+id/fy"  
android:layout_toLeftOf="@+id/fy"  
android:layout_toStartOf="@+id/fy" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/fy"  
    android:layout_below="@+id/fc"  
    android:layout_alignLeft="@+id/fc"  
    android:layout_alignStart="@+id/fc"  
    android:layout_alignRight="@+id/fc"  
    android:layout_alignEnd="@+id/fc"  
    android:inputType="number"  
    android:text="400"/>
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="MPa"
```

```
android:id="@+id/textView73"  
android:layout_alignBaseline="@+id/fy"  
android:layout_alignBottom="@+id/fy"  
android:layout_toRightOf="@+id/fy"  
android:layout_toEndOf="@+id/fy" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="h ="  
    android:id="@+id/textView76"  
    android:layout_alignTop="@+id/textView65"  
    android:layout_alignRight="@+id/textView81"  
    android:layout_alignEnd="@+id/textView81" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/h"  
    android:inputType="numberDecimal"  
    android:layout_alignBaseline="@+id/textView76"  
    android:layout_alignBottom="@+id/textView76"  
    android:layout_toLeftOf="@+id/textView77"  
    android:layout_toEndOf="@+id/textView81"  
    android:layout_toRightOf="@+id/textView81" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text="mm"
    android:id="@+id/textView77"
    android:layout_alignTop="@+id/textView76"
    android:layout_alignRight="@+id/textView51"
    android:layout_alignEnd="@+id/textView51" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text="be ="
    android:id="@+id/textView78"
    android:layout_alignBottom="@+id/fy"
    android:layout_alignLeft="@+id/textView85"
    android:layout_alignStart="@+id/textView85" />
```

```
<EditText
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/be"
    android:inputType="numberDecimal"
```



```
android:layout_alignBaseline="@+id/textView78"  
android:layout_alignBottom="@+id/textView78"  
android:layout_alignLeft="@+id/bw"  
android:layout_alignStart="@+id/bw"  
android:layout_toLeftOf="@+id/textView86"  
android:layout_toStartOf="@+id/textView86" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Jumlah tulangan bawah ="  
    android:id="@+id/textView81"  
    android:layout_alignBottom="@+id/lps1"  
    android:layout_alignLeft="@+id/textView66"  
    android:layout_alignStart="@+id/textView66" />
```

```
<EditText  
    android:layout_width="35dp"  
    android:layout_height="wrap_content"  
    android:id="@+id/lps1"  
    android:inputType="number"  
    android:layout_below="@+id/textView89"  
    android:layout_toRightOf="@+id/textView81" />
```

```
<TextView
```

```
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:textAppearance="?android:attr/textAppearanceMedium"  
android:text="mm"  
android:id="@+id/textView84"  
android:layout_above="@+id/dtulangan"  
android:layout_toRightOf="@+id/bw"  
android:layout_toEndOf="@+id/bw" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="bw"  
    android:id="@+id/textView85"  
    android:layout_marginTop="20dp"  
    android:layout_below="@+id/textView78"  
    android:layout_toLeftOf="@+id/be"  
    android:layout_toStartOf="@+id/be" />
```

```
<EditText  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/bw"  
    android:inputType="numberDecimal"  
    android:layout_alignBaseline="@+id/textView85"
```

```
android:layout_alignBottom="@+id/textView85"  
android:layout_alignLeft="@+id/h"  
android:layout_alignStart="@+id/h"  
android:layout_alignRight="@+id/h"  
android:layout_alignEnd="@+id/h" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="mm"  
    android:id="@+id/textView86"  
    android:layout_above="@+id/textView85"  
    android:layout_toRightOf="@+id/h"  
    android:layout_toEndOf="@+id/h" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="tf ="  
    android:id="@+id/textView87"  
    android:layout_above="@+id/textView91"  
    android:layout_alignLeft="@+id/textView85"  
    android:layout_alignStart="@+id/textView85" />
```

```
<EditText
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:id="@+id/hf"  
    android:inputType="numberDecimal"  
    android:layout_below="@+id/bw"  
    android:layout_alignLeft="@+id/bw"  
    android:layout_alignStart="@+id/bw"  
    android:layout_alignRight="@+id/bw"  
    android:layout_alignEnd="@+id/bw" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="mm"  
    android:id="@+id/textView88"  
    android:layout_alignBaseline="@+id/textView87"  
    android:layout_alignBottom="@+id/textView87"  
    android:layout_alignLeft="@+id/textView84"  
    android:layout_alignStart="@+id/textView84" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"
```

```
android:text="Jumlah tulangan atas ="  
android:id="@+id/textView89"  
android:layout_below="@+id/textView92"  
android:layout_alignLeft="@+id/textView92"  
android:layout_alignStart="@+id/textView92"  
android:layout_marginTop="20dp" />
```

```
<EditText  
    android:layout_width="30dp"  
    android:layout_height="wrap_content"  
    android:id="@+id/tkn"  
    android:inputType="number"  
    android:layout_above="@+id/lps1"  
    android:layout_toRightOf="@+id/textView89"  
    android:layout_toEndOf="@+id/textView89" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Φ tulangan ="  
    android:id="@+id/textView90"  
    android:layout_above="@+id/dsengkang"  
    android:layout_alignLeft="@+id/textView64"  
    android:layout_alignStart="@+id/textView64" />
```

```
<EditText
```

```
    android:layout_width="35dp"
    android:layout_height="wrap_content"
    android:id="@+id/dtulangan"
    android:inputType="number"
    android:layout_below="@+id/bw"
    android:layout_toRightOf="@+id/textView90"
    android:layout_toEndOf="@+id/textView90" />
```

```
<TextView
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text="Φ sengkang ="
    android:id="@+id/textView91"
    android:layout_marginTop="20dp"
    android:layout_below="@+id/dtulangan"
    android:layout_alignLeft="@+id/textView90"
    android:layout_alignStart="@+id/textView90" />
```

```
<EditText
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/dsengkang"
    android:inputType="number"
    android:layout_alignBottom="@+id/textView91"
```

```
android:layout_alignLeft="@+id/dtulangan"  
android:layout_alignStart="@+id/dtulangan"  
android:layout_alignRight="@+id/dtulangan"  
android:layout_alignEnd="@+id/dtulangan" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="Selimut beton = "  
    android:id="@+id/textView92"  
    android:layout_alignBottom="@+id/tsb"  
    android:layout_alignLeft="@+id/textView91"  
    android:layout_alignStart="@+id/textView91" />
```

```
<EditText  
    android:layout_width="30dp"  
    android:layout_height="wrap_content"  
    android:id="@+id/tsb"  
    android:inputType="number"  
    android:layout_below="@+id/dsengkang"  
    android:layout_toRightOf="@+id/textView92"  
    android:layout_toEndOf="@+id/textView92" />
```

```
<Button  
    android:layout_width="wrap_content"
```

```
android:layout_height="wrap_content"  
android:text="Analisis"  
android:id="@+id/hitung"  
android:layout_below="@+id/lps1"  
android:layout_alignLeft="@+id/textView75"  
android:layout_alignStart="@+id/textView75" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text="(Gunakan . untuk angka desimal)"  
    android:id="@+id/textView61"  
    android:textSize="6pt"  
    android:layout_above="@+id/textView64"  
    android:layout_toRightOf="@+id/dtulangan"  
    android:layout_toEndOf="@+id/dtulangan" />
```

```
<ImageView  
    android:layout_width="40dp"  
    android:layout_height="20dp"  
    android:id="@+id/imageView15"  
    android:src="@drawable/mn1"  
    android:layout_below="@+id/hitung"  
    android:layout_alignLeft="@+id/textView81"  
    android:layout_alignStart="@+id/textView81"
```



```
android:layout_marginTop="16dp" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/texmn1"  
    android:layout_alignBottom="@+id/imageView15"  
    android:layout_toRightOf="@+id/textView75"  
    android:layout_alignRight="@+id/textView87"  
    android:layout_alignEnd="@+id/textView87" />
```

```
<ImageView  
    android:layout_width="40dp"  
    android:layout_height="20dp"  
    android:id="@+id/imageView16"  
    android:layout_below="@+id/texmn1"  
    android:layout_alignLeft="@+id/imageView15"  
    android:layout_alignStart="@+id/imageView15"  
    android:layout_marginTop="19dp"  
    android:src="@drawable/mn2"/>
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "
```

```

android:id="@+id/textmn2"
android:layout_alignBottom="@+id/imageView16"
android:layout_alignLeft="@+id/textmn1"
android:layout_alignStart="@+id/textmn1"
android:layout_alignRight="@+id/textmn1"
android:layout_alignEnd="@+id/textmn1" />

```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text=" "
    android:id="@+id/textkon"
    android:layout_below="@+id/imageView16"
    android:layout_alignLeft="@+id/imageView16"
    android:layout_alignStart="@+id/imageView16"
    android:layout_marginTop="21dp"
    android:layout_alignRight="@+id/textView61"
    android:layout_alignEnd="@+id/textView61" />

```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:text=""
    android:id="@+id/textView75"
    android:layout_alignTop="@+id/imageView15"

```

```
android:layout_toRightOf="@+id/imageView15"  
android:layout_toEndOf="@+id/imageView15" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:textAppearance="?android:attr/textAppearanceMedium"  
    android:text=""  
    android:id="@+id/textView79"  
    android:layout_alignTop="@+id/textView78"  
    android:layout_toRightOf="@+id/imageView16"  
    android:layout_toEndOf="@+id/imageView16" />
```

```
<Button  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="hapus"  
    android:id="@+id/btnhapus"  
    android:layout_alignBottom="@+id/hitung"  
    android:layout_alignLeft="@+id/tkn"  
    android:layout_alignStart="@+id/tkn" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="" />
```

```
android:id="@+id/texes13"  
android:layout_below="@+id/texkon"  
android:layout_alignLeft="@+id/texkon"  
android:layout_alignStart="@+id/texkon"  
android:layout_marginTop="24dp" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/texes3"  
    android:layout_below="@+id/texes13"  
    android:layout_toLeftOf="@+id/textView87"  
    android:layout_toStartOf="@+id/textView87" />
```

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text=" "  
    android:id="@+id/texde2"  
    android:layout_marginTop="45dp"  
    android:layout_below="@+id/texes3"  
    android:layout_toRightOf="@+id/texes13"  
    android:layout_toEndOf="@+id/texes13" />
```

</RelativeLayout>

</ScrollView>

