CHAPTER 2
LITERATURE REVIEW AND THEORETICAL BACKGROUND

2.1. Review of Literature

The kinds of literature were searched through database engines such as google scholar using the keyword "customer complaint." Based on that search, it can be found around 876 articles during the past 10 years.

Table 2 1 Literature Review About Customer's Complaint

Sectors	Cause of Complaint	Author
Railways	Waiting Time	Vanniarajan and Stephen (2008)
Tourism	Service quality	Ekinci (2003)
Bus Station	Layout	Eboli and Mazzulla (2007)
Gas and Electricity Suppliers	Product quality	J.D. Power (2007)
Bank	Hospitality	Jham and Khan (2008)
Health Care	Waiting Time	Andaleeb (1998)
Consultancy	Service quality	Sonne (1999)

2.1.1. Customer's Complaints Caused by Waiting Time

Patwary et al. (2016), monitoring the waiting time in many sectors is essential because not all people has more time in that day. Based on Vania and Stephen's survey of passengers in Southern Railways station, the customer waiting time average maximal that they want is five minutes. According to Tarsani (1998), patients' waiting time at health care is an indicator of health care quality. Long waiting times can create crowd risks and increase complaint rates. This type of complaint may occur when a customer calls a company, such as a call center, and experiences long hold times. It may also occur when a customer has to wait in line for service, such as waiting for a table at a restaurant. If a customer complains about the waiting time, must be understood that their time is valuable. Apologize to the customer for making them wait and, if possible, explain the reasons why the waiting time happens.

2.1.2. Customer Complaints Caused by Service Quality

According to Tjiptono (2017), service quality is the thing that can impress customers. With the lack of service quality, the probability of customers using the product or service from the company again is small. Aliana (2015) states that

service quality represents the company's credibility. With good service quality, the company's service or product is of high quality. Abdya (2019) says that service quality, especially hospitality, can affect the mood of customers. With good service quality then, customers can feel good.

2.1.3. Customer Complaints Caused by Product Quality

According to Gallarza (2016), product quality is the primary attention of customers. Product quality can make customers sustain to use company's product or service. Only sometimes do customers focus on the cheapest price because quality is essential rather than the price.

2.1.4. Customer Complaints Caused by Layout / Shop Condition

According to Amoah (2016), the layout should be arranged in systematic mapping. The layout determines customer moving where their direction. However, a good mapping without a direction clue will appear in customer complaints. So, the excellent layout includes direction clues.

2.2. Theoretical Background

2.2.1. Definition of Waiting Time

McGuire (2010) states that waiting time is a certain amount of time consumers spend to complete purchasing activities. In general, research has shown that when waiting time increases, then satisfaction decreases. In addition, when the waiting duration increases, the affective reaction to waiting becomes more negative and less acceptable.

According to Bielen et al. (2007), waiting time satisfaction is defined as the conditions felt by consumers during the process of waiting for a service that will be given. Waiting time affects service satisfaction, and when waiting time can be managed well, customers give a good assessment of the service given. According to Yazid (2004) for companies, if in the process of business, there is ineffective time, they will lose maximum profit because, besides time being money in the business, adequate time is a factor of customer satisfaction; if customers feel satisfied with the company performance they will be repeat order or come back to use the company again

2.2.2. Factors Affecting Time

According to Trisetiawan (2014), the factors affecting timeliness are :

1. Lack of officers

   The imbalance between demand and the number of officers causes delays in delivering goods to the customer. To solve this case, it needs to do mapping and employee recruitment.

2. Peak Season

   Peak season is a busy time when business occurs more than usual. There is a specific time when the number of customers increases drastically like national holidays such as Eid Fitri or Christmas.

3. Product Searching

   In a tangible product business, there is an activity to search for products in the inventory. If an automatic system covers this activity, it can be easy to search for products in a large inventory with fewer products inside.

2.2.3. On-Time Indicators

According to Mahendra Arief (2014), indicators of being on time are :

1. On-Time Order

   Companies providing products or services must serve on time.

2. No Late Orders

   Companies need to be responsible for not delaying the booking process.

3. Promises to Complete Order On Time

   Companies give commitment to finishing orders on time to customers.

2.2.4. Understanding of Customer Satisfaction

Kotler et al. (2006) define customer satisfaction as a consumer's feeling, whether it is a form of pleasure or dissatisfaction that arises from comparing the appearance of a product with the expectations of the consumer on the product. Kotler (2003) said that a superior company is a company that succeeds in satisfying and pleasing customers. Customer satisfaction can also be interpreted as an evaluation response from perception, as stated by Fandy Tjiptono and Gregorius Chandra (2005) that customer satisfaction is the consumer's response to the evaluation of the perception of the difference between expectations and actual performance of the product as perceived after consuming the product.

Customer satisfaction is the pleased or disappointed feeling arising from comparing performance perception products and expectations. According to Hunts (1997) the definitions of customer satisfaction can be classified into five categories, such as :

1. Normative Deficit perspective

   Customer satisfaction compares actual (outcomes) with culturally acceptable results.

2. Equity perspective

   Customer satisfaction compares benefits or gains derived from the social exchange.

3. Normative Standard Perspective

   Customer satisfaction as a comparison between the actual result with the customer's standard expectations (which are formed from experience and beliefs/perceptions about performance levels that should have been received from certain customers).

4. Procedural Justice Perspective

   Customer satisfaction shows consumer beliefs or perceptions that have been treated fairly.

5. Attributional perspective

   Customer satisfaction is determined by the presence or absence of confirmation of expectations and the source of the cause of disconfirmation.

In their observation, Cronin et al. (1992) successfully proved that customer satisfaction is determined by evaluating customer's perception of the quality of services provided.

2.2.5. Measuring Customer Satisfaction

Freddy (2002) states there is no best measure of customer satisfaction. There are similarities in how to measure customer satisfaction. There are six core concepts regarding the objects of measurement: overall customer satisfaction, customer satisfaction dimension, confirmation expectation, repurchase intention, willingness to recommend, and customer dissatisfaction.

2.2.6. Information System

Tafri Muhyuzir (2001) state that a system is a set of subsystems, elements, and procedures that interact with each other to accomplish some objective or target, and Information is data that has been processed be an important form that can be used by the user as the input for the decision making. From that explanation, Information System is gathered data that are grouped and calculated into a combination of information that is integrated and can be used by individuals or parties for an objective.

2.2.7. Information System Development

Information, according to Tafri Muhyuzir (2001), is data that has been transformed into a significant form that a user may use as the basis for making decisions. Systems are made up of a number of interconnected subsystems, components, and processes that work together to accomplish a specific goal or objective. This argument states that an information system is a collection of data that has been organized and calculated into a mixture of integrated information that can be used by individuals or organizations to achieve a purpose. Information system development, according to Wicaksono et al. (2020), is the process of locating solutions or resolving the issue in an organized or object-oriented way. Systems developed based on well-established work processes and procedures are typically prioritized in structured development. At the same time, object-oriented system development emphasizes system creation and the role of objects involved in the system. System development structured information consists of several activities/stages (gradually), i.e., system analysis stage (analyst), system construction (construction), coding (coding), system testing (testing), and system maintenance stage (maintenance). At the same time, the development of object-oriented information systems consists of the stages of analysis (inception), design (elaboration), and construction.

2.2.8. SDLC (System Development Life Cycle)

According to Jackson (2009), The Development Life Cycle (SDLC) is a required cycle/process in the manufacture/development of information systems. SDLC has five main processes, namely:

1) Planning

This step is the planning of resources, costs, and other requirements to develop an implementation schedule work.

2) Analysis

Includes analyzing system requirements and databases, finding solutions to problems, and brainstorming in a team to find the proper case examples as models.

3) Design

Includes designing the user interface, the database, and systems based on requirements.

4) Implementation

Covers application testing and conducting user training.

5) Support

Performs periodic maintenance to keep the system in order to operate correctly.

2.2.9. Waterfall

Wahid's (2020) waterfall method is one of the System Development Life models Cycle (SDLC), which is often used in software development, and the process is carried out systematically and sequentially like a waterfall. Waterfall method was first introduced by Winston Royce in 1970. This development method is linear in that the stages start from planning to maintaining stage. The stages of the waterfall method can be seen in Figure 2.1.

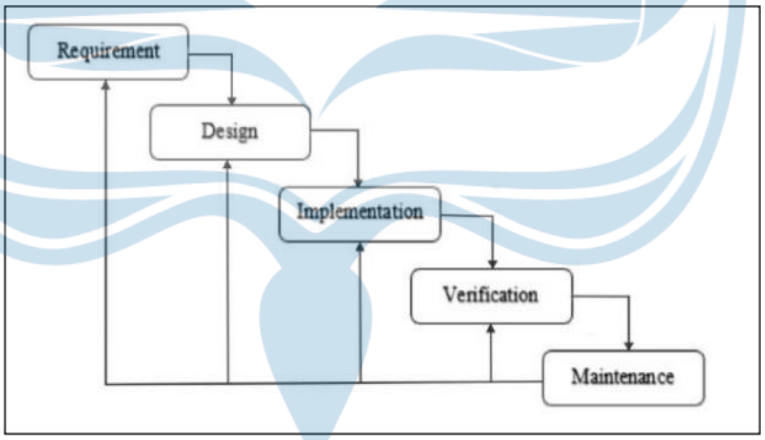
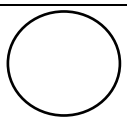


Figure 2 1. Waterfall Method Stages

2.2.10. Data Flow Diagram

The diagram uses notations to describe the system data flow; it is beneficial to understand the system logically, structurally, and clearly. DFD is a tool to describe or explain the system divided into three levels: context diagrams, zero diagrams, and detailed diagrams (Kendall K.E et al., 2003).

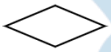
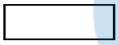
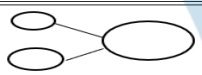
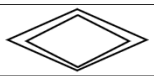
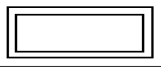
Table 2 2 Data Flow Diagram Symbol

Symbol	Used For
	Function
	Database
	Input/output
	Flow

2.2.11. Entity Relationship Diagram

An entity relationship diagram describes the relationship between data objects that have relationships between entities ERD is used to structure data and relationships between data and to describe it; notations, symbols, and charts are used (Brady & Loonam, 2010)

Table 2 3 ERD Symbol

Symbol	Used for
	Attribute
	Relationship
	Entity
	Key attribute
	Composite attribute
	Cultivated Attribute
	Weak entity relationship
	Weak entity

2.2.12. Barcode

An artificial identification called a barcode, also known as barcoding, resembles a black bar with a white space between it to symbolize the alphanumeric letters. The approved language for barcodes is UPC (Universal Product Code), a symbology that uses optical data that can be read by an optical scanner (barcode scanner). Typical stores, shops, and retailers make heavy use of the UPC-A to track the movement of goods, display attribute and value (including inventory stock), and make it simpler for the operator to update the inventory level of their things, Palmer (1995).

The business must comprehend the barcode numbering scheme in order to prevent deception while employing the barcode number approach. UPC-A code format. As in the barcode number "3 12345 - 67890 6," the initial digits of the barcode number in UPC-A codes can be used to identify a product's characteristics. The drugs and pharmaceutical items are indicated by the first digit, "3." The "2" in "212345 - 99291 2" is another illustration. The "2" in the barcode's initial digit order designates a set of goods that are sold by weight. The company code is defined by the second through fifth numbers, while the product code is indicated by the sixth through twelfth. For instance, the product code is represented by the 99291 2 in the barcode "2 12345 - 99291 2.".

Figure 2 2 UPC-A Barcode

Utilizing Picture 2.2 as an example, the UPC-A Code can be read and processed in three stages. Find the three clusters of longer lines in Picture 2.3 to start**.**

Figure 2 3 Three Longer Line Barcode UPC-A

Next, take note of the bar's four distinct widths. Each vertical bar can be applied in one of four different widths (black or white). These will be referred to as widths 1, 2, 3, or 4 for the remainder of this treatment, depending on their thickness.

Once the bar's width has been established, the value will then be 1213 2122 1411 2122 2122 2122 2122 2122 1312 1231 1231. Then, as illustrated in the image below, translate those codes into a 1–10 scale.

Table 2 4 The Code For Interpeting Four Barcode Width Levels Into Numbers

Width Level	Number
3112	9
1213	8
1312	7
1114	6
1231	5
1132	4
1411	3
2122	2
2221	1
3211	0

The barcode number in Picture 2.1 shows the outcome of converting the 4-levels-barcode width into numbers 8 23222 22755.

Since there is a chance that other parties would tamper with the system and create a fake barcode on their behalf, it is dangerous for the user of this information system to be required to comprehend how to read and generate the UPC-A barcode number manually. For instance, after receiving the goods, the warehouse personnel can use the phony barcode to sync the data for the inventory items with the genuine data.

2.2.13. Barcode Scanner

The optical scanner instrument known as a barcode scanner is used by retailers, warehouses, and other commercial enterprises to read barcodes. According to Santa P (2015), using a barcode scanner can help with issues like:

a. Error Number One

The item code content is not visible due to an external distraction (scratches, etc.), which is the cause of the number error.

b. Eyes Distraction

Because the number is employed as the trigger for the input process in the situation of eyes distraction, this can be observed.

c. data entry error

Data entry errors occur when data from the product is entered incorrectly into a calculator; lack of concentration is a major cause factor.

2.2.14. Support Software

Support software is the application used to collect, organize, respond, and to report requests related to customer support

1. XAMPP

   XAMPP is an installation package for Apache, PHP, and Instant MySQL that we can use to help install these three products. Most importantly, XAMPP is free, and we can get it from http://www.apachefriends.org. It is a development of LAMP (Linux Apache, MySQL, PHP, and PERL). This XAMPP is a project non-profit developed by Apache Friends founded by Kai 'Oswald' Seidler and Kay Vogelgesang in 2002, their project This aims to promote the use of the Apache web server (Sidik, 2012).

2. HTML & PHP

   According to Adhi Prasetio (2014), Hypertext Markup Language is a protocol to format a web document that can be read in a browser using various computer platforms. According to Raharjo and Heryanto (2010), HTML theory is the language used in web documents for exchanging web documents. The HTML document structure consists of an opening tag and a closing tag. The W3C built HTML version 1.0 and is constantly evolving. HyperText Markup Language is a text-based code language to create a web page; its existence is known as the *.htm or *.html extension (Madcoms, 2009).

3. MYSQL

According to Arief Rudyanto (2011:152), MYSQL theoretical basis is a type of database server very well known and widely used to build web applications that use databases as a source and data management.

According to Liza Yulianti and Harry Aspriono (2011), MYSQL theory is a database system widely used for web application development because the data processing is simple, has good security, and is easy to obtain. Abdul Kadir (2008) is a prevalent type of database server because it uses SQL as the primary language to access its database. MYSQL is open source, so this software is equipped with the source code (the code used to create MYSQL),

its executable form, or code that can be run directly by the operating system. MySQL (My Structured Query Language), commonly read as "ma-se-kuel," is an open-source database creation program that anyone can use and is not banned. The advantage of MySQL is that it uses the standard SQL Query Language (Structured Query Language).

SQL is a structured query language standardized for all database access programs such as Oracle, Postgres SQL, SQL Server, and others (Madcoms, 2008).