

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Method of collecting data

Data collection method is a technique or method used by the author to collect data. Data collection was carried out to obtain the information needed in order to achieve the research objectives. There are several methods of data collection that can be done in a study. This data collection method can be used alone, but can also be used by combining two or more methods.

1. Interview

Writing important things or content in interviews is an activity of noting main points of information starting from the topic of conversation, goals, and other important things that are assembled into a conclusion through a listening process that requires concentration and full attention from the listener to understand the content of the conversation. delivered (Harefa, 2019).

Here are names of people who I has interviewed them (Dr. Nizar Seggaf (lecturer at UTM), Kholilarrahman (Student at UTM), Hak Errami (Student at UB)

2. Observation

Observation is a method of collecting data by observing the object of research directly and then drawing conclusions from all activities on the object (Sentosa, 2017).

3. Literature Study

Literature study is used to collect secondary data from companies, theoretical basis and information related to this research

3.2 Development Method

To carry out research, a system development methodology is needed, because the system development methodology requires information and data to be able to achieve the desired results. Therefore, the method used by the author is the Waterfall method, the application of the Waterfall method is as follows:

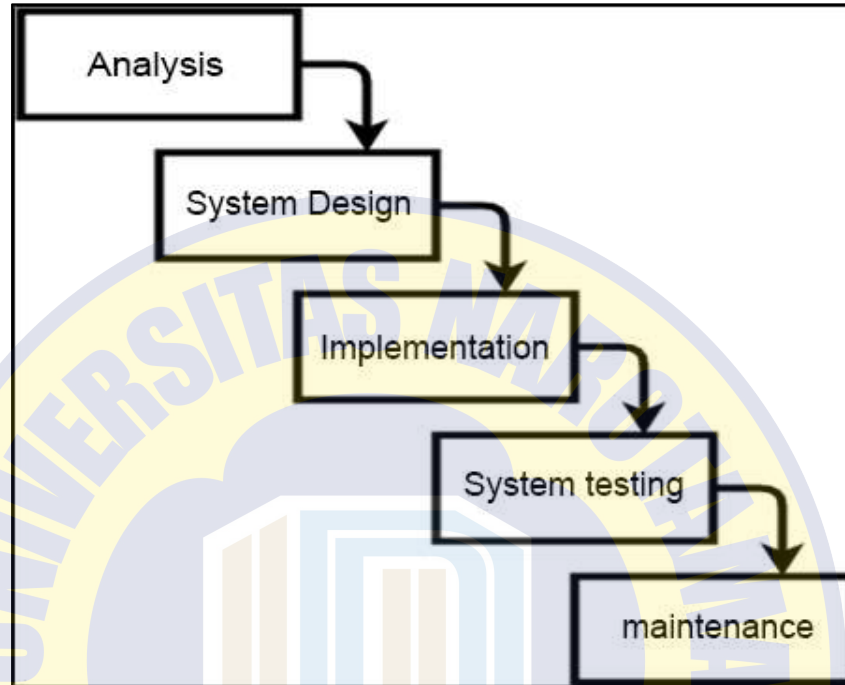


Figure 3.1 Waterfall Model

(Source: Rosa Shalahuddin, 2018)

In Figure 3.1 there are several stages of the Waterfall method. The following are the stages of the Waterfall method developed in the e-learning system as follows:

1. Needs Analysis, namely the needs on this website, namely information processing of e-learning systems. Software requirements include e-learning data and reports that can be viewed by the admin. The software needed is Sublime Text 3 and a MySQL database in the phpMyAdmin application and the Xampp database server
2. System Design, in designing this website the author uses structured programming and combines two tools, namely system tools and application tools, on system tools using Unified Modeling Language (UML) including Use

Case Diagrams and Activity Diagrams. For database design using Entity Relationship Diagram (ERD).

3. Implementation, at this stage, the software design is realized as a series of programs or program units. The results of the designs that have been made previously can be implemented
4. System testing, to test the program that has been made, whether it is correct or not, it is appropriate or not, tested manually by using Blackbox. If an error is found on the website when the website is used, the cause can be easily found. Before this website can be accessed by users, the author uses Blackbox testing by checking first such as the customer login form and the owner login form as administrator and trying all components in the application so as to minimize errors.
5. Maintenance, which is the final stage of maintenance which also includes the installation and system repair process if an error/bug is found that was not found in the testing stage. To fulfill the creation of the web, the author uses hardware with computer or laptop specifications.

3.3 Requirements Analysis

Needs analysis is very necessary to determine the need for e-learning information systems at Trunojoyo University Madura. This can be done in stages as shown in the flowchart below:

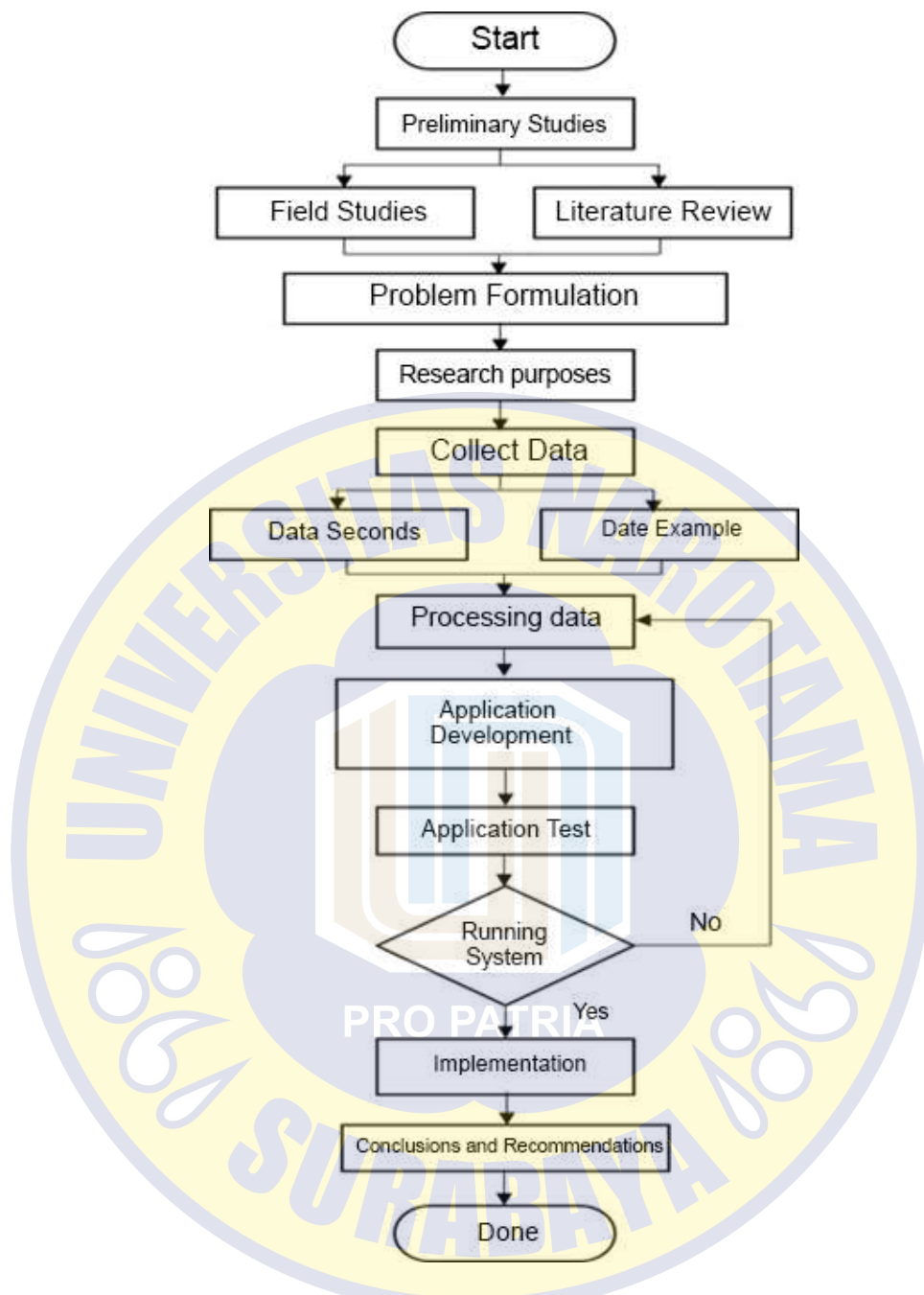


Figure 3.2 Needs Analysis

Based on Figure 3.2 above, the implementation stage is carried out, the results obtained must be related to the existing theory, then conclusions can be drawn whose final results will be summarized in a study, so that the research will end with the provision of strategic initiatives proposed to improve research results. The results of the study can be used as consideration by the Trunojoyo Madura University in improving academic services at Trunojoyo Madura University.