

CHAPTER 3

METHODOLOGY

This chapter is the main part of this system because it has the design, prototype, research and related software and hardware for this system. This chapter describes method and techniques that has been used to develop Student Attendance for Examination System. Besides that, this chapter includes a detailed study of the business needs of the organization. In enhance to that the software and hardware requirement has been discovered.

3.1 INTRODUCTION

Methodology is codified set of recommended by practices, sometimes accompanied by training materials, formal educational programs, worksheets, and diagramming tools. It documented a set of procedures and guideline for one or more phase of the software life cycle, such as analysis and design. Many methodologies include a diagramming notation for documenting the results of the procedures are acceptable quality. Example of methodologies in software engineering are Extreme Programming (XP), Rational Unified Process (RUP), Iterative model and so on. Rapid Application Development has been implemented during the development process of attendance system using barcode scanner.

3.2 RAPID APPLICATION DEVELOPMENT (RAD)

Rapid Application Development (RAD) is a software development process that initially develops in the 1980s by James Martin. This methodology focuses on building application in very short time. Commonly, RAD methodology describe about the application that can

be designed and developed within 60-90 days. The methodology is development lifecycle designed to give much faster development and higher-quality results than those achieved with the traditional lifecycle. The key objectives of RAD are high-speed, high quality and low cost. The RAD lifecycle composes of four stages. They are planning phase, design phase, development phase and cutover phase. **Figure 3.1** show the phase that implementation in RAD methodology.

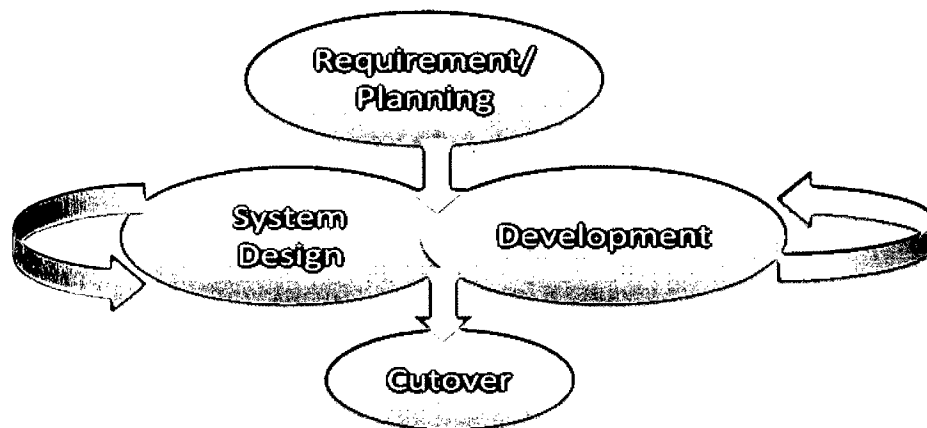


Figure 3.1 Phase in SDLC

The RAD planning phase is initial process to gather the specific requirement of the system that will develop. In additional, the phase defines the business function and data subject areas that the system's scope. Planning is the key of successful a system development. So, this phase should be conducted properly.

During design phase, analyst convert the description of the alternative solution into logical and then physical system specification. Complete the analysis by creating action diagrams defining the interactions between process and data. System procedures are designed and preliminary layouts of screens are develops. The programmers are ready to be return over for construction phase.

In the development phase, the code will be generated as well as database descriptions for the final product. The design that was created during the design phases is added. The last phase is the cutover phase. When the cutover phase occurs, a variety of actions are needed, comprehensive testing, training of the end-users, organizational changes and the operation parallel with the previous system until the new system.

3.2.1 Planning phase

At this stage, it developed a planning document which provides the basis for acquiring the resources needed to achieve a solution. It also established a high-level view of the intended project and determines its goal. A detailed study of this system is also included. The analysis gathers the requirements of the study of this system. The phase is one of the important phases as many communication gaps arise in this phase and this leads to validation errors and bugs in the software program. Requirement analysis often has to be a lot of communication to and from to understand these requirements.

The proposed system is the enhancement for the current manual system with additional features. After a detailed study of the manual system, a systematic and consistent system is designed. This will lead to an effective outcome in which many unwanted problems can be avoided. The existing system uses less function in gathering student's information. There will be data redundancy when changing the contents of data manually which consumes time to access student's information or analysis of the student detail. The chance of making mistakes is very high in a manual system. Therefore, the proposed system can be the perfect solution because the digitized system has primary key, constraints, foreign key for each table and maintains the referential integrity for the data.

Moreover, the manual system is lacking security because it can be easily destroyed by the act of nature or unauthorized people. This Student Attendance for Final Examination System can overcome this problem where each process or transaction is protected by the username and password. A Gantt chart was created as one of the activities involved in the planning phase. In the Gantt chart, all activities in the development of the