Software Development Lifecycle

Waterfall model of ATM system

The reasons for choosing the waterfall model:

The design and development of ATM has been very perfect. There are many related mature development technologies and development documentation on the market.

When we analyze the requirements of ATM, we refer to some of the relevant complete scope documents.The development of ATM system is follow the linear sequential flow, you can't return back to changing the requirements when you implement your coding. so making a perfect requirements analysis report is very important.Furthermore,the needs of the system are very clear and comprehensive, and there is no or little change during the development process.

ATM System Project features:

1. Small demand scale
2. High demand clarity
3. High requirement of customer information ability
4. Low customer interface requirements
5. An industry in which the rules of the industry are simple or already mastered.
6. Mature technology needs to be adopted

A brief introduction to the waterfall model:

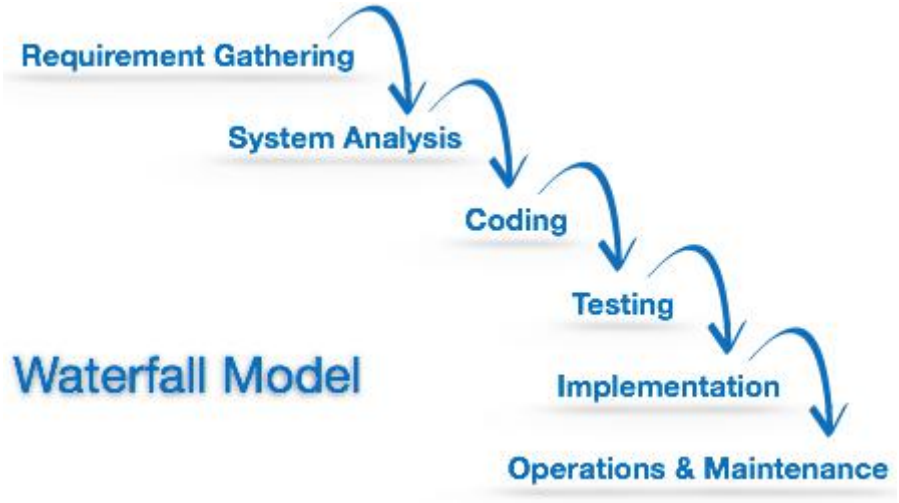


Figure1:waterfall model

1. **Gathering System and software requirements:** gathering the product requirements by reading some scope statement and product requirements document.

2. **Requirement Analysis:** Generating system functional requirements analysis documents.
3. **Design:** Generating the software architecture chart:flow chart and some UML Diagrams.
4. **Coding:** the development, proving, and integration of software.
5. **Testing:** the systematic discovery and debugging of defects.
6. **Operations:** the system operating and maintenance of complete systems.

when the first phase is finished then only the second phase will start and so on.This model assumes that everything is carried out and taken place perfectly as planned in the previous stage and there is no need to think about the past issues that may arise in the next phase. This model does not work smoothly if there are some issues left at the previous step. The sequential nature of model does not allow us go back and undo or redo our actions.This model is best suited when developers already have designed and developed similar software in the past and are aware of all its domains.[1]

The advantages and disadvantages:

Advantages	Disadvantages
▪ Easy to explain to the users. ▪ Structures approach. ▪ Stages and activities are well defined. ▪ Helps to plan and schedule the project. ▪ Verification at each stage ensures early detection of errors/misunderstanding. ▪ Each phase has specific deliverables.	▪ Assumes that the requirements of a system can be frozen. ▪ Very difficult to go back to any stage after it finished. ▪ A little flexibility and adjusting scope is difficult and expensive. ▪ Costly and required more time, in addition to the detailed plan.

Figure 2: advantages and diadvantages[4]

Implementation process:

- **Gather requirements**

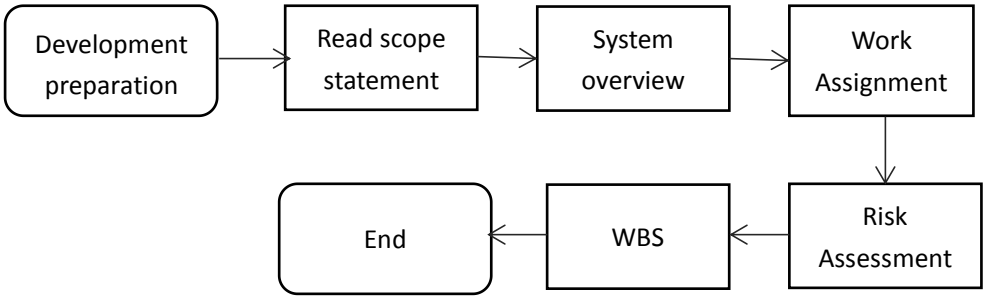
1. Purpose

This phase is to gather requirements and understand the scope to determine the plan for the development.

2. Products
   - ✓ ATM Requirement Analysis

- ✓ Risk Assessment Table
- ✓ Work Breakdown Structure

3. Procedure

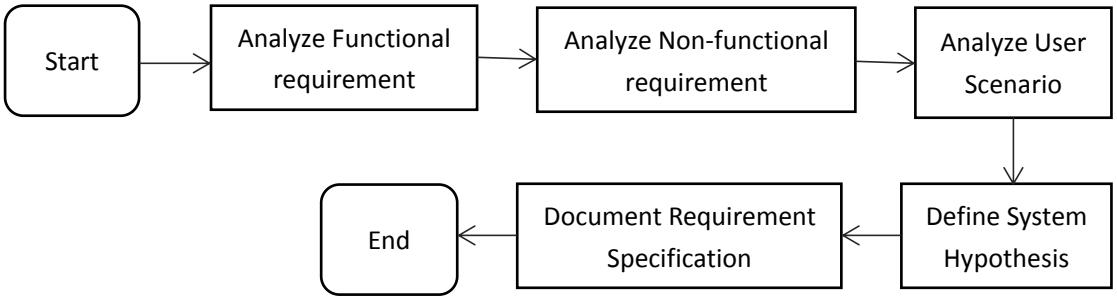


- **Requirement Analysis**

1. Purpose

This phase is to analyze the requirements, including functional and non-functional, and to analyze the user roles and user scenarios.

2. Products
   - ✓ Functional Requirements Table
   - ✓ Non-Functional Requirements Table
   - ✓ User Scenario Table
   - ✓ Requirement Specification
3. Procedure



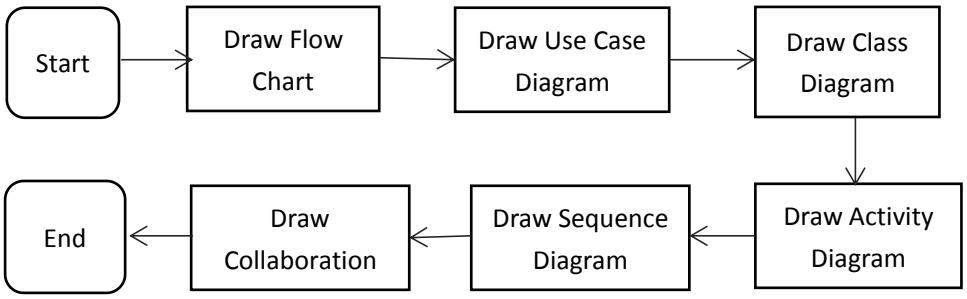
- **Design**

1. Purpose

This phase is to guide designers to implement software products that meet the requirements of ATM system.

2. Products
   - ✓ Flow Chart
   - ✓ Use Case Diagram
   - ✓ Class Diagram
   - ✓ Activity Diagram
   - ✓ Sequence Diagram
   - ✓ Collaboration Diagram

3. Procedure

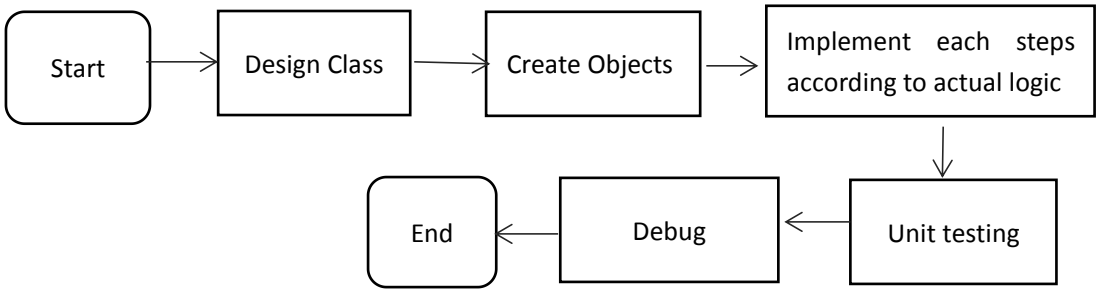


- **Implementation**

1. Purpose

This phase is to make the documents into executable codes, as well as the testing when one part is finished.

2. Products
   - ✓ Source Code
3. Procedure



Reference:

[1]https://en.wikipedia.org/wiki/Waterfall_model

[2]http://www.doc88.com/p-9734149893046.html

[3]http://blog.csdn.net/u012758367/article/details/48750755##2

[4]《Object-Oriented Analysis And Design With Applications》 Grady Booch