## 

## American International University- Bangladesh (AIUB)

## Department of Computer Science

**CSC4125: Software Development Project Management**

**Summer 2020-2021**

**Section: C**

## Project Title:

## Developing the Software Development Project Management Plan for Dhaka Subway Systems Automated Ticket Issuing System.

Group Members

|  |  |
| --- | --- |
| **Name** | **ID** |
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**Revision History**

|  |  |  |
| --- | --- | --- |
| 1.0.1 | Choosing a model, overall activity planning and control project management | 21 July,2021 |
| 1.0.2 | Final revision of project with all correction | 4 August, 2021 |

**Introduction:**

This paper offers an outline of our software development project management plan for Dhaka Subway Systems' Automated Ticket Issuing System. The project's goal is to offer public access to automated ticket sales.This paper will cover the different criteria that will be applied to the process model, task list, task computation, deliverable process, and monitoring process of the described application. We will utilize the project under management criteria as part of the strategy planning, feasibility analysis, and project planning.

**Process Model:**

a. Choosing a Model:

The first Process Model to be introduced was the Waterfall Model. It is really easy to comprehend and utilize. In a waterfall model, each phase must be completed before moving on to the next, and the stages must not overlap. The Waterfall model is the most basic SDLC technique for software development.The waterfall model depicts the software development process as a sequential flow of events. This indicates that any step of the development process may start only after the preceding one has finished. The stages in this waterfall model do not overlap. Teams do not require constant contact and can be self-contained until special integrations are necessary.Members of the team can also work with their own and are just needed to give status reports every now and then (when compared to an agile approach).

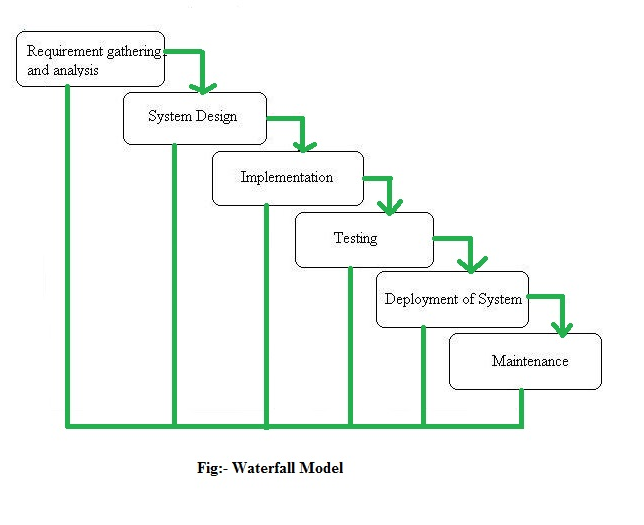
b. Why choosing this Model:

* Written requirements, which are generally compiled into a single document and used to verify each step, are created with restrictions and the project's functional and non-functional demands across these five phases. Statements, risks, dependencies, success measures, and completion timeframes are all specified.
* A high-level design (HLD) is produced to explain the goal, scope, general traffic flow of each component, and interconnection points (topology), followed by a detailed

design that allows subject matter experts (SMEs) to execute the HLD design to exact specifications.

* Implementation teams work to the design to create, code, implement, and test the solution. It is crucial that the single written document be as clear as possible, as the team who designs the system may or may not be the same. If changes are required during the implementation phase (due to unforeseen issues with the design, integrations, or even changes to the intended function of the system), this necessitates that a new design be created and signed off on before the implementation is completed.If modifications are needed during the implementation phase (due to unanticipated difficulties with the design, integrations, or even changes to the system's intended function), a new design must be produced and signed off on before the project can be finished.
* In the verification phase, acceptance tests are deployed and run, and the developed solution is further evaluated against the criteria to ensure that the project fulfills original expectations. If it doesn't, an investigation is carried out to identify the problems, followed by a review to decide any necessary steps.
* Finally, a specific management team makes scheduled modifications as problems arise or new versions of goods are required (maybe because they are no longer supported). Each stage of the Waterfall Model may only proceed after all of the preceding stages have been completed and signed off.
* As its project scope is generally constant, cost and timescales can be decided early on.
* By completing a system definition early in the project, modifications to systems are kept to a minimum, lowering the expense of fixing and changing designs.
* When you take a systematic approach to a project, everyone knows what needs to be done and when it has to be done. Small businesses can efficiently arrange their time over a set period of time.
* As its documentation specifies in reasonable detail how any SME of the product or ability is needed to perform the task, a project may lose important people without too much difficulties if it has thorough documentation and designs.

c. Software development life cycle flow chart:



**Quality gate for each phase of software development**

|  |  |
| --- | --- |
| **Phase** | **Quality Gate** |
| Analysis of Requirements | Inspection |
| System Design | Inspection |
| Program design | Inspection |
| Coding | Inspection and Software testing |
| Testing | Software testing |

**List of tasks (**Work Breakdown Structure, **WBS):**

* Requirement Elicitation
* Project Planning
* Requirement Analysis and SRS Document review
* System Prototype Design
* Project Design Review with Clients
* Implementation and Unit Testing
* Object Oriented Design Review
* Project Agreement
* System Integration and System Testing
* Internal Project Review – Functional Prototype Testing
* Project Acceptance by Client

**Estimation for each task (COCOMO 81):**

The mode of software development project we have is Embedded System type. It has -

* Database part
* Graphical User Interface (GUI) part
* Communication part

COCOMO81 Constants: c = 3.6, k = 1.20, t = 0.32

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project** | **Design** | | **Coding** | | **Testing** | | **Total** | |
| wm | (%) | wm | (%) | wm | (%) | wm | SLOC |
| Dhaka Subway Systems Automated Ticket Issuing System | 8.5 | (14) | 22.7 | (38) | 28.2 | (47) | 59.5 | 26500 |

Estimation of development effort:

Embedded: **Effort = 3.6(Size)1.20 PM** (**PM: Person Months) [Size: 26.5 kdsi]**

**= 3.6(26.5)1.20 PM**

= 184 PM

**Estimation of development time:**

Embedded: **Tdev = 2.5(Effort)0.32 Months**

**= 2.5(184)0.32 Months**

**= 13 Months**

**Required number of people:**

**Total number of people required = Effort/ Development time**

**= 184/13**

**= 14**

**So, 14 engineers will have to work for (12+1) months = (365+30) days = 395 days**

|  |  |  |
| --- | --- | --- |
| **Task of Phase** | **Days** | **Hours** |
| Requirements Elicitation | 55 | 440 |
| Project Planning | 57 | 456 |
| Requirements Analysis | 50 | 400 |
| System Design | 63 | 504 |
| Object Oriented Design | 53 | 424 |
| Implementation and Unit Test | 58 | 464 |
| System Integration and System testing | 59 | 472 |

N.B. Engineers perform for 8 hours each day, five days per week. The project will take

395 working days to complete.

**Tasks Scheduling:**

|  |  |
| --- | --- |
| **Date** | **Project Phases** |
| July 1, 2021 - July 31, 2021 | Requirement Elicitation |
| August 1, 2021 – September 15, 2021 | Project Planning |
| September 16, 2021 – November 20, 2021 | Requirement Analysis |
| November 21, 2021 – January 31, 2022 | System Design |
| February 1, 2022 – March 25, 2022 | Object Design |
| March 26, 2022 – May 22, 2022 | Implementation and Unit Testing |
| May 23, 2022 – July 31, 2022 | System Integration and System Testing |

N.B. Holidays are included in the time period but are not considered as working days for

a select few. Only 80% of an engineer's day is expected to be spent developing software,

with the other 20% spent reading emails, attending meetings, and working on process

improvement projects.

**List of milestones**

|  |  |
| --- | --- |
| **Date** | **Project Milestones** |
| June 25, 2021 | Software Requirement Presentation by Client |
| July 1, 2021 – July 25, , 2021 | Analysis Review |
| September 16, 2021 | Project Plan Review by Client |
| March 26, 2022 | Object Design Review |
| May 21, 2022 | Demo Prototype Software |
| June 15, 2022 | Internal Project Review (Functional Prototype) |
| August 1, 2022 | Project Acceptance by Client |

**Staffing Plan (Assigning of tasks to Software Engineers)**

Staffing plan is prepared to make for certain reasons. In a project it is always need to be count in the plan that the sufficient staff with the right skills and experience to ensure the successful project completion. The following table is a detail breakdown of the roles and required stuff plan in order to execute the project. It includes the project role, the responsibility and the number of stuff required for the project.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Role** | **Name** | **Est. Working Hours** | **Key Project Phase** | **Number of Stuff Required** | **Hourly Rate**  **(taka)** |
| Project Manager | Habiba Nasreen | 600 | ALL | 01 | 208 |
| Requirements Analyst (Lead) | Nazia Tabassum | 400 | Requirements | 01 | 188 |
| Requirements Analysts | 1. Ria Huq 2. Polash Islam 3. Ridita Ghosh | 200  160  150 | Requirements | 03 | 125 |
| Software Engineers (Lead) | 1. Kallol Sarker 2. Siddiq Arman | 300  300 | System Allocation & Design | 02 | 167 |
| Software  Engineers | 1. Naim Hassan 2. Isman Rahman | 150  150 | System Allocation | 02 | 125 |
| Programmers (Lead) | 1. Shakil Hossen 2. Sharabon Ethen | 250  250 | Implementation | 02 | 146 |
| Programmers | 1. Behula Mostafa 2. Jashim Khan | 100  90 | Implementation | 02 | 104 |
| Verification Engineer | Mahmud Saif | 60 | Requirements,Design,Implementation | 01 | 83 |

**Monitoring and Controlling Mechanism**

Project Meeting for Monitoring

Project Name:Developing the Software Development Project Management Plan for Dhaka

Subway Systems Automated Ticket Issuing System

Schedule Prepared By**:** Tia Rani

Meeting Date: 1st August, 2021

Meeting Goal**:** Monitoring and Controlling the process

|  |  |  |
| --- | --- | --- |
| **1. Meeting Objective** | | |
| The main aim of this meeting is the monitoring of employee work and the work process and the staff is given a new meeting schedule after these have been monitored. | | |
| **2. Attendee’s** | | |
| **Name** | **Department/Group** | **Email** |
| Habiba Nasreen | SE Department | habiba@gmail.com |
| Nazia Tabassum | SE Department | nazia@gmail.com |
| Kallol Sarker | SE Department | kallol@gmail.com |
| Shakil Hossen | SE Department | shakil@yahoo.com |
| Siddiq Arman | SE Department | siddiq@gmail.com |
| Sharabon Ethen | SE Department | sharabon@gmail.com |
| Mahmud Saif | SE Department | mahmud@gmail.com |
| Jashim Khan | SE Department | Khan01@yahoo.com |
| Naim Hassan | SE Department | naim@gmail.com |
| Behula Mostafa | SE Department | behula@gmail.com |
| Ishman Rahman | SE Department | ishman@gmail.com |
| Ridita Ghosh | SE Department | ridita@gmail.com |
| Polash Islam | SE Department | polash@yahoo.com |
| Ria Huq | SE Department | ria@gmail.com |

**Risk Management**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risks** | **Category** | **Probability** | **Impact** | **RMMM** |
| Lack of training on tools and equipment | DE | 50% | 2 | Provide more training for process tools |
| Customer if changes requirement | PS | 40% | 1 | Continually communicate with customer and before starting the implementation again confirmed thee requirement |
| Inexperienced staff | ST | 20% | 1 | Provide training by the experts |

**List of Deliverables**

* Software Requirements Specification
* User Manual
* System Design Document
* Code Modules
* Software Alpha Version
* Software Beta Version
* Test Case
* Test Plan
* Software Final Version

**Defect Tracking Process:**

* Selenium
* HP-UFT
* LoadRunner
* Jira
* BugZilla
* Trac
* HP ALM

**Metrics:**

* Metrics for monitoring test execution
* Metrics for monitoring defects
* Probability Impact Matrix
* Strong Matrix Organization

**Post-mortem**

Meeting Date: 5th August, 2022

Reviewed By: Habiba Nasreen

|  |  |  |
| --- | --- | --- |
| **Item** | **Assigned to** | **Review** |
| Requirement Analysis | Nazia Tabassum  Ria Huq | Completed |
| System Design and Allocation | Kallol Sarker  Siddiq Arman  Naim Hassan  Isman Rahman | Completed |
| Program Design | Shakil Hossen  Sharabon Ethen | Completed |
| Coding | Mahmud Saif  Behula Mostafa  Jashim Khan | Completed |
| Testing | Polash Islam  Ridita Ghosh | Completed |