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Software Project Management Plan (SPMP) for Automated Ticket Issuing System for Dhaka Subway Systems

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Revision History

Revision	***Date***	***Authors***	***Description***
Version 1.0	December 6, 2017	Ahmed, Md. Rashed Khondoker, Md. Hasan Haque, Md. Ashabul Bhattacharjee, Susmoy Rahman, Md. Zahid	First Version

Contents

Introduction

This document addresses the requirements for automated system of subway-ticket issuing for Dhaka Subway Systems. The ideal audience for this document is the designers and the Dhaka Subway System (DSS) of the project. It is the controlling document for this project. It specifies the technical and managerial approaches to develop the software product. As such it is the companion document to Requirements Analysis Document (RAD). Changes in either may imply changes in the other document. All technical and managerial activities required to turn over the deliverables to the BR are included. This includes scheduling, identification of tasks, and factors that may impact the project and planning.

Process Model

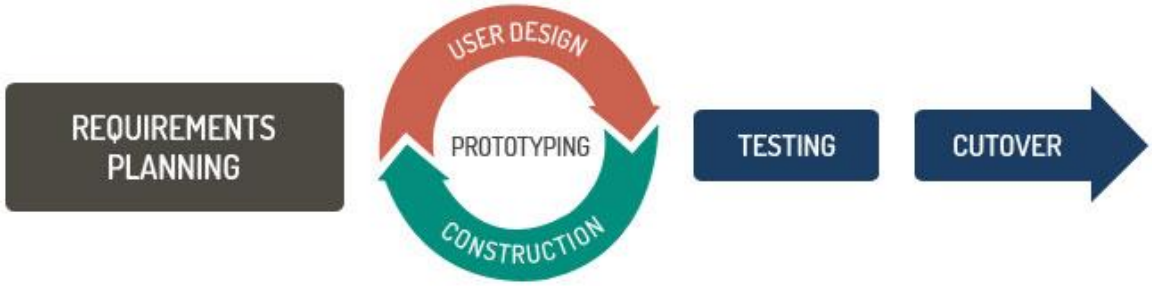
Software Model

Rapid Application Development (RAD) is a software development methodology that focuses on building applications in a very short amount of time; traditionally with compromises with usability, features and execution speed. This methodology gathers customer requirements through workshops or focus groups, early testing of the prototype by the customer using iterative concept, reuse of the existing prototypes, continuous integration and rapid delivery. The term generally describes applications that can be designed and developed within 60-90 days. The important aspect for this model to be successful is to make sure that the prototype developed is reusable.

Reasons of choosing this model

1. Changing requirements can be accommodated.
2. Progress can be measured.
3. Encourages customer feedback.
4. Increases reusability of components.
5. Prevents cost overruns.
6. Prevents runaway schedules (RAD needs a team already disciplined in time management)
7. To save development time, possibly at expense of economy or product quality
8. The business requirements for a system can be fully satisfied even if some of its operational requirements are not satisfied. The acceptability of a system can be assessed against the agreed minimum useful set of requirements rather than all requirements

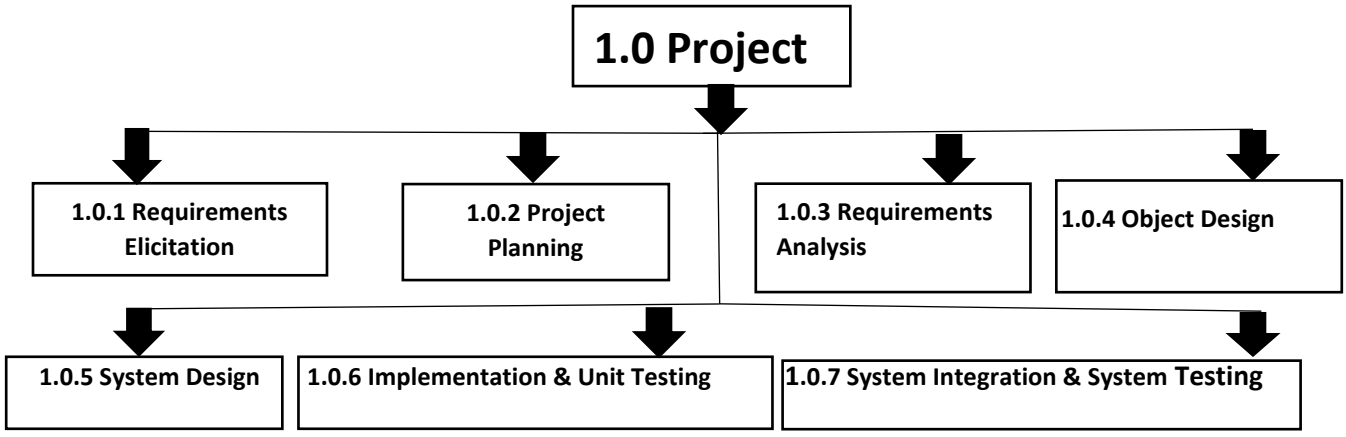
Software Life Cycle Flow Chart



Quality Gates for Each phase of SW Development

Increased quality is a primary focus of the Rapid Application Development methodology, but the term has a different meaning than is traditionally associated with Custom Application development. In case of RAD quality in development was both the degree to which an application conforms to specifications and a lack of defects once the application delivered. According to RAD quality is defined as both the degree to which a delivered application meets the needs of users as well as the degree to which a delivered system has low maintenance costs. RAD attempts to deliver on quality through the heavy involving of users in the analysis and particularly the design stages.

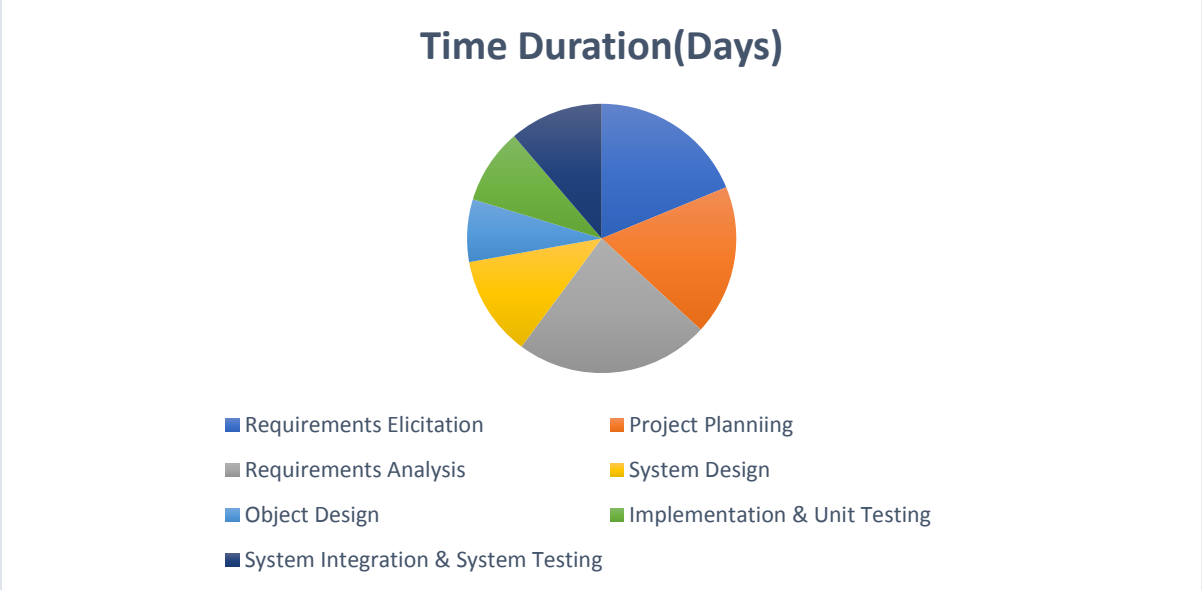
List of Task:



Estimation for each task:

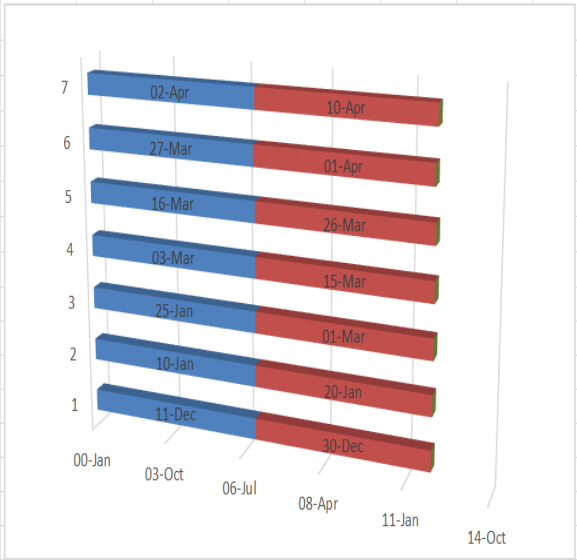
Task Of Phase	Days	Hours
Requirements Elicitation	25	200
Project Planning	23	184
Requirements Analysis	30	240
System Design	15	120
Object Design	9	72
Implementation & Unit Testing	11	88
System Integration & System Testing	14	112

- Total days are 105 days and working days are 75 days.



Schedule the Task

Start Date	End Date	Project Phases
11-Dec	30-Dec	Requirements Elicitation
10-Jan	20-Jan	Project Planning
25-Jan	01-Mar	Requirements Analysis
03-Mar	15-Mar	System Design
16-Mar	26-Mar	Code Design
27-Mar	01-Apr	Implementation & Unit Testing
02-Apr	10-Apr	System Integration & System Testing



Prepare List of Milestone

Date	Project Milestones
January 2	Project Presentation by Dhaka Subway Systems
March 9 – 14	Analysis Review
March 28	Project Review with Dhaka Subway Systems
April 5	Code Design Review
March 30	Project Agreement
April 6	Internal Project Review
April 14	Project Acceptance by Dhaka Subway Systems

Staffing Plan

The purpose staffing plan is to make certain the project has sufficient staff with the right skills and experience to ensure a successful project completion.

Role Requirements

The following is a detailed breakdown of the roles required to execute the project. It includes the project role, the project responsibility of the role, skills required, number of staff required fulfilling the role, the estimated start date and the expected duration the staff resource will be needed on the project.

Role	Project Responsibility	Skills Required	No. of Staffs Required	Estimated Start Date	Duration Required
Java Developer	Java Development	Java programming expert(J2ME,J2EE)BSc in Software Engineering	8	11 December, 2017	30 March, 2018
Web Developer	Web Development	HTML,CSS,XHTML,XML,AJAX, JavaScript , PHP (Strong knowledge in MVC Platform)	4	11 December, 2017	30 March, 2018
Database Management	Full control in Database	Expert in Oracle10g,SQL, MYSQL	3	11 December, 2017	30 March, 2018
Software Engineer	Software Testing And Quality Assurance	Strong Knowledge in Capability Maturity Model Integration(CMMI) & Spice, ISO 9001:2000 for Software	2	11 December, 2017	30 March, 2018

Staff Assigned to Roles

The following is a detailed breakdown of the actual staff assigned to the project role, the amount of Full Time Equivalent (FTE) requested for the role, the actual FTE acquired the labor rate and unit of the labor rate for the resource and the source from which the resource is recruited.

Role	Name	Requested FTE FY YY-YY	Acquired FTE FY YY-YY	Rate	Rate Unit
Java Developer	1.Hamid 2.Asif 3.Monem	FY 2017-2018	FY 2017-2018	$30 $10 $20	Hour
Web Developer	1.Yamin	FY 2017-2018	FY 2017-2018	$10	Hour
Database Management	1.Sourov	FY 2017-2018	FY 2017-2018	$20	Hour
Software Engineer	1.Jahid 2.Fahim	FY 2017-2018	FY 2017-2018	$20 $30	Hour
Total:	7				

Staff Resource Loading Chart

The following includes the estimated effort in Full Time Equivalent (FTE) days required by month for each staff resource assigned to the project.

Role	Number of Staff Required	July	Aug	Sept	Oct	Total
Java Developer	8	15	20	10	15	60
Web Developer	4	15	15	10	20	60
Database Management	3	20	15	20	15	70
Software Engineer	2	15	20	15	20	70
Total:	17	65	70	55	70	260

Monitoring & Controlling Mechanism

Prescribe the reporting mechanisms, report formats, review and audit mechanisms, and so on such as other tools and techniques to be used in monitoring and controlling adherence to the SPMP. Project monitoring should occur at the level of work packages. Include monitoring and controlling mechanisms for the project support functions (quality assurance, configuration management, documentation and training). A table may be used to show the reporting and communication plan for the project. The communication table can show the regular reports and communication expected of the project, such as weekly status reports, regular reviews, or as-needed communication. The exact types of communication vary between groups, but it is useful to identify the planned means at the start of the project

Communication and Reporting Plan

Information Communicated	From	To	Time Period
Status report	Project Team	Project Manager	Weekly
Status report	Project Manger	Software Manager, Project Team	Weekly
Project Review	Project Team	Software Manager	Monthly

Risk Management

Here, this section mentions not only a number of possible risks for the project but also actions or measures are described to prevent or to reduce the risks.

Risk Information Sheet (RIS)

Identification	***Category***	***Probability***	***Impact***	***RMMM Plan***
Risk with respect to staff turnover	ST	65%	2	Improve working environment, increase salary; Monitor the team member's general attitude; Assign backup team member.
Risks with respect to the lack of training tool	DE	70%	3	Improve development environment.
Risks with respect to the customer	CU	40%	3	Focus on the agreed user requirements, which express the wishes of the customer.

LIST OF DELIVERABLES:

This System documentation basically explains the principles of operation. The delivery consists of a presentation of the system, a demonstration of the working system and the successful passing of the acceptance test. Dhaka Subway Systems expects the acceptance test to be successfully demonstrated remotely via the Internet April 14, 2018 from 10:30 am to 1.30pm. All work deliverables will be on April 14, 2018.

Deliverable work products:

Name	Standard	Preparer	Reviewer	Date	Distribution List
Software Design specification	IEEE 1063-2001	IEEE 1063-2001	Project manager	January 2,2018	Reviewer, PM, Consultant 1, Programmer1,Technical writer
End-user documentation	IEEE 830-1993	Technical writer 1	Consultant 2	February 4,2018	Reviewer, PM, Document expository
software	IEEE 1016-1998	Requirements	Requirements	February 14,2018	
Software project management plan	IEEE 1074-1997	Project Manager	Bangladesh Railway committee	March 18,2018	Document repository, Preparer, PM,
Software test plan	Software test plan	Verification engineer	Project manager	March 22,201	Document repository,

	template(from IEEE 829-1998)			8	Preparer, Reviewer, PM, Programmer 1
Software quality assurance plan	IEEE 730-2002	Quality analyst	Project Manager	March 25,2018	Reviewer ,PM
Software verification	IEEE 1012-1998	Verification engineer 1	Project manager	April 8,2018	Document repository

Non -deliverable work products:

Name	Standard	Preparer	Reviewer	Review due	Distribution List
Project team meeting minutes	Meeting minutes template	Project Manager	Meeting participants	24 hours after meeting	Reviewer, Document repository
Design review summaries	Technical Agenda template	Software Designer	review participants	72 hours prior to review	Reviewer, Document repository
project	quality	quality	Meeting	N/A	Document
Project team meeting agendas	Meeting Agenda template	Project Manager	Meeting participants	24 hours	Document repository , Reviewer

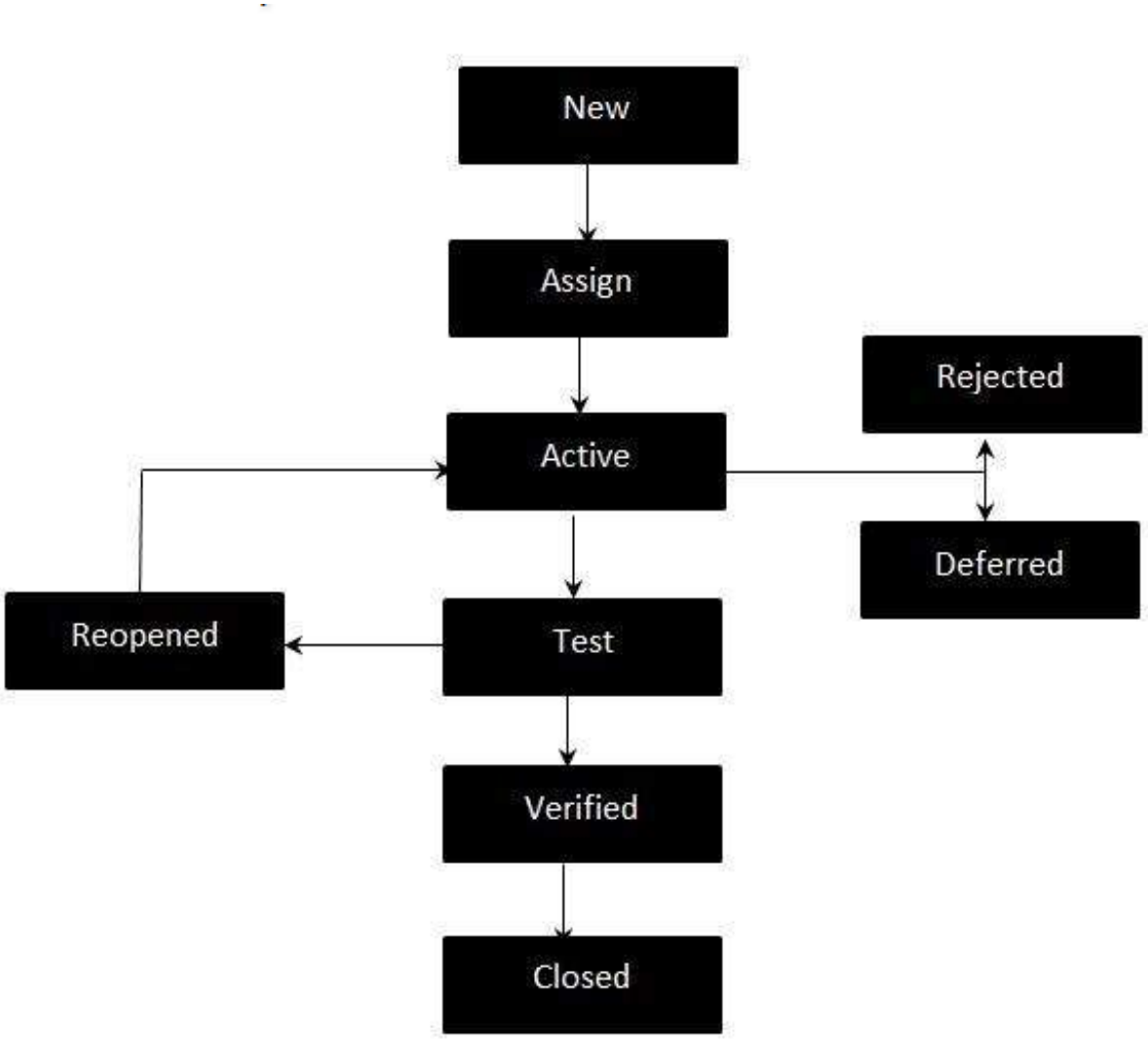
DEFECT TRACKING PROCESSES:

This document is details of process to bug or defect follows. It also details the way in which a bug or defect is entered in to the bug tracking database.

Process of defect tracking:

1. Open Defects using bug or defect template and bug tracking software.
2. The Defect is being addressed by the developer and investigation is under progress.
3. The Defect is being addressed by the developer and investigation is under progress. At this stage there are two possible outcomes, like: Deferred or Rejected.
4. When the defect is NOT fixed, QA reopens/reactivates the defect.
5. A defect can be rejected for any of the 3 reasons; Duplicate defect, not a Defect, Non Reproducible.
6. When a defect cannot be addressed in that particular cycle it is deferred to future release.
7. The Defect is fixed and ready for testing.
8. The Defect that is retested and the test have been verified by QA.
9. The final state of the defect that can be closed after the QA retesting or can be closed if the defect is duplicate or considered as NOT a defect.

Defect Life Cycle Process:



Priority Level	Description	Response Time
High	A defect occurred in credit transaction. Some users complain that sometimes the system show transaction error instead of valid credit card. This problem causes a major functional problem.	Defect should be responded to administration and also developers to handle the situation within 24 hours
Medium	A defect occurred due to multiple ticket purchasing. This problem cause the system too much delay and slow	Defect should be responded by developers within 2 working days.
Low	A defect occurred in keyboard system. This problem cause a little bit uncomfortable user to use that system	A response action plan should be provided within 5 working days and should be resolved before test exit.

Metrics:

Metrics	Description	Tracking Tool
Schedule	Milestones	MS Project
Staff Usage	Graph of person used per month Both projected and actual	MS Excel
Expenditures	Graph of total expenditures over time Both Projected actual	MS Excel
No. of Requirements	Graph of total requirements Identified per module over time	MS Excel
No. of Requirements Defects	Graph of number of defects identified per module over time	MS Excel
No. of Objects	Graph of number of objects identified over time	MS Excel
Coding Progress	Number of objects coded	MS Excel
Coding Size	Lines of code measured daily	MS Excel
Test Progress	Unit test causes passed over time	MS Excel
Defect Tracking	Number of codes defects	MS Excel
Test Progress	Number of integration test Passes over time	MS Excel
Defect Tracking	Number of code defects test Passed over time	MS Excel

Postmortem

The entire project plan follows the model, a modified RAD model. Three prototypes have to be delivered: A graphical user interface, a functional prototype and a system integration prototype. Analysis is started after Project Planning is finished. System Design is followed by Code Design. Important Milestones are the Analysis Review March 9-14, the Project Status on March 14, the Project Review on March 28 and the Code Design Review on April 5. Implementation and Unit Testing are scheduled to overlap significantly. System Integration is scheduled to immediately follow Unit Testing. System Testing starts immediately after system integration and leads to the Dhaka Subway Systems Acceptance Test on April 23, 2018.

THE END

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