Software Development Management Plan
Reservation Management System

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1.0 Introduction

Definitions

Acronyms	Definitions
B&B	Bed and Breakfast
COCOMO	Constructive Cost Model
RMS	Reservation Management System
TDEV	associates project development time

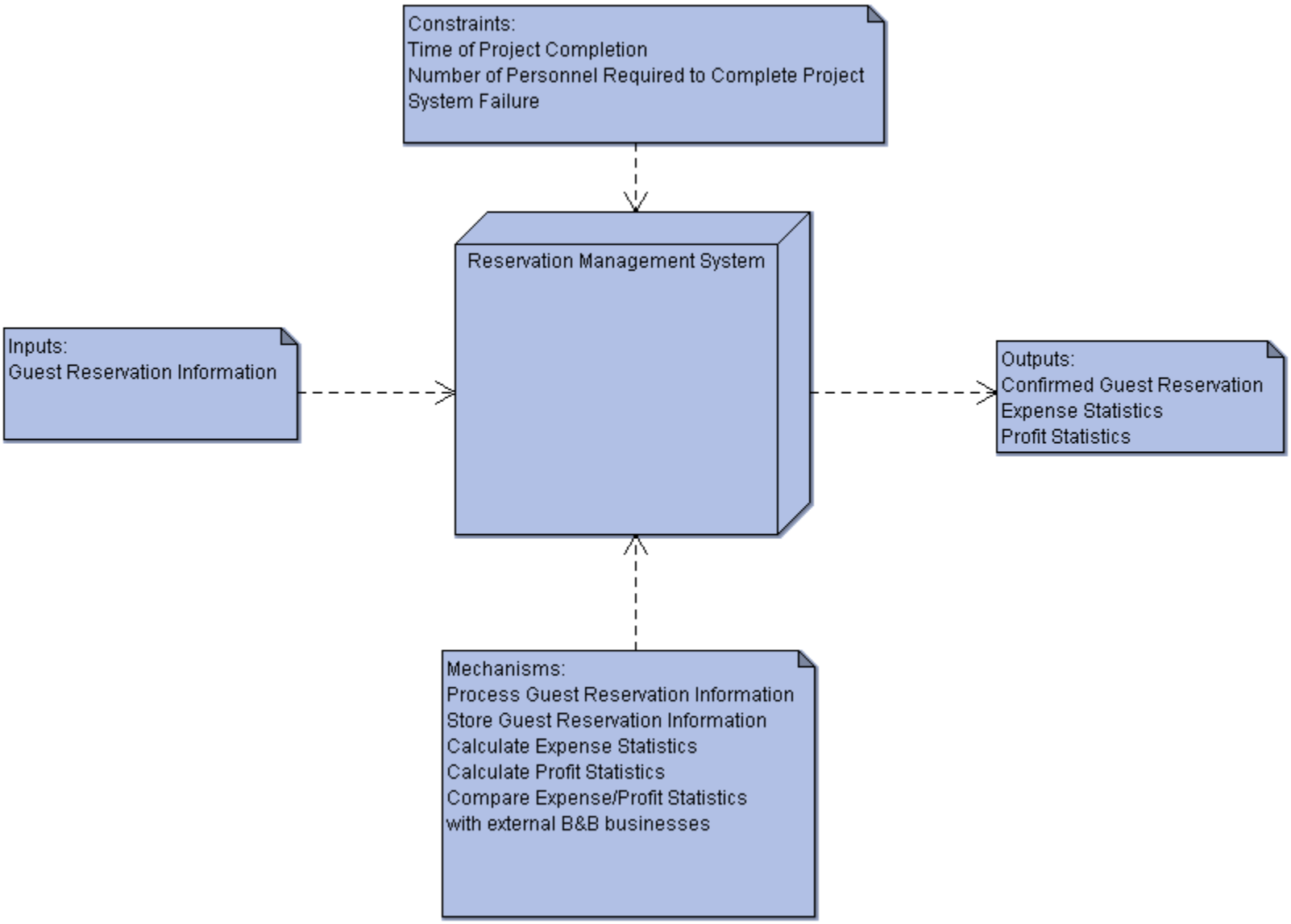
Following is the Statement of Need received from our customer pertaining to the reason why we are undertaking the RMS project.

Statement of Need
John and Jane are starting a bed-and-breakfast (B&B) in a small New England town. They will have three bedrooms for guests. They want a system to manage the reservations and to monitor expenses and profits. When a potential customer calls for a reservation, they will check the calendar, and if there is a vacancy, they will enter the customer name, address, and phone number, dates, agreed upon price, credit card number, and room numbers. Reservations must be guaranteed by 1 day's payment. Reservations will be held without guarantee for an agreed upon time. If not guaranteed by that date, the reservation will be dropped.

The RMS system will enhance guest reservation management of guest for Jane & John B&B business. The goals of the RMS system include:

- Create guest reservations via automated processes
- Store guest information using a database
- Provide internal business expense and profit statistics
- Compare internal business expense/profit statistics and compare the statistics with competing B&B businesses

1.1 Project scope
The RMS diagram is below with associated input, outputs, constraints, and mechanisms.



1.2 Major software functions

Based on the above RMS diagram. The RMS is decomposed into seven functions.

1. Input Guest Data (interface, database)
2. Process Guest Data (database, Internet (Web Server))
3. Store Guest Data (database)
4. Output Guest Data (interface)
5. Process Internal Expense Statistics (database)
6. Process Internal Profit Statistics (database)
7. Compare Internal Expense/Profit Statistics with External B&B Businesses (Internet (Web Server), database)

2.0 Project Estimates

2.2 Estimation techniques applied and results

We will use two estimation models that will determine the following values of project duration, project effort, project size, staff size and productivity. Empirical estimation model and Constructive Cost Model (COCOMO) will be used for RMS development.

2.2.1 Empirical Model Estimation Technique

Project duration, project effort, and staff size will be determined using the empirical model of estimation.

2.2.2 Estimate for Empirical Model

Jane and Joe B&B business needs the RMS implemented within their business in one year. The duration for this project will be 12 months.

duration of project = 12 months

The estimated project effort will be 15,000 hour staff months.

effort needed for project = 1,500 staff months

The project staff size is the effort divide by the duration of project.

project staff size = 1500 / 12

125 development personnel are calculated.

Productivity is average staff size divide by human effort.

Productivity (P) = 125 / 1500

Productivity = .08

2.2.3 COCOMO Model Estimation Technique

We will use a semidetached mode of the COCOMO estimation method for the RMS. The reason for use of the semidetached mode is the fact that the RMS utilizes a database. Effort, TDEV (project duration time), average staff size, and productivity will be determined using the COCOMO model.

2.2.4 Estimate for COCOMO Model

Effort will be based on the formula for a semidetached mode.

$E = 3.0 \times (Size)^{1.12}$

Size pertains to how many lines of code the RMS will contain. A baseline estimate for the number of lines of code that the RMS system will contain will be 5,000.

$E = 3.0 \times (5000)^{1.12}$

41684 will be the value associated with the project's human effort.

The project development time (TDEV) will be based on the formula for a semidetached mode.

$TDEV = 2.5 \times (E)^{0.35}$

Where E is the human effort calculated above.

$TDEV = 2.5 \times (41684)^{0.35}$

103 Will be the value associated with the project development time.

Average staff size is the human effort divided by the project development time (TDEV)

Average Staff Size (SS) = 41684 / 103

405 development personnel are calculated.

Productivity is average staff size divide by human effort.

Productivity (P) = 405 / 41684

Productivity = .009

2.3 Reconciled Estimate

Productivity for the RMS project is at .08 using an empirical estimation. Productivity for the RMS project is at .009 using a COCOMO estimation. We will use 125 development personnel based on our empirical estimation.

2.4 Project Resources

This project will require ninety software engineers, fifteen database designers, ten website developers, and ten technical writers for a total of 125 personnel.

Functions	Personnel	Computer Hardware	Computer Software
Input Guest Data (interface, database)	Software Engineer Database Designer	Computer System, Touch Screen	Windows Microsoft Access
Process Guest Data (database, Internet(Web Server))	Software Engineer Database Designer Website Developer	Computer System Network Connection to Internet Web Server	Windows Network Software Website
Store Guest Data (database)	Software Engineer Database Developer	Computer System	Microsoft Access
Output Guest Data (interface)	Software Engineer	Computer System Touch Screen	Windows
Process Internal Expense /Profit Statistics (database)	Software Engineer Database Developer	Computer System	Microsoft Access
Compare Internal Expense/Profit Statistics	Software Engineer Database Developer Website Developer	Computer System Web Server	Website

3.0 Risk Management

3.1 Project Risks

Product Size:
This risk is associated with the overall size of the RMS.

Business:
This risk is associated with economic constraints.

Stakeholders:
This risks is associated with miscommunications between the development team and stakeholders and between stakeholders and the development team.

Process:
This risk is associated with the quality of the product

Development:
This risk involves the resources necessary to complete the project..

Staff Size & Experience:
This risk is dependent of the competence and experience of the development team personnel.

Technology:
This risk involves software and hardware components of the project that will become obsolete

3.2 Risk Table
Weighted impact for each risk will be calculated using the formula.
Risk Impact X Probability = Weighted Impact

Impact	Risk Impact
1-catastrophic	>500k
2-critical	*100k to 500k*
3-marginal	*1k to 100k*
4-negligible	*<1k*

Probability	Range
Uncertain	.1 - .4
Likely	.5 - .7
Most Likely	.7 - .9

Category	Risks	Risk Impact	Probability	Weighted Impact	Impact
Product Size	Calculated product size is lower than expected.	$100,000	.6	$60,000	3
Business	Project will not be supported by funding.	$500,000	.2	$100,000	2
Stakeholders	Customer misinforms development team of proper requirements.	$10,000	.7	$7,000	3
Process	Development team misses required software deadlines.	$50,000	.5	$25,000	3
Development	Web server is inoperable.	$5,000	.6	$3,000	3
Staff Size & Experience	Incompetent/Inexperienced developers on development team	$50,000	.4	$20,000	3

3.3 Overview of Risk Mitigation, Monitoring, Management

Below are the controls to mitigate the above risks.

Risks	Controls
Calculated product size is lower than expected.	Accurate calculation of product size
Project will not be supported by funding.	Ensure all stakeholders have access to funding resources and ensure continuity based off contracts
Customer misinforms development team of proper requirements.	Communication training courses for development team
Development team misses required software deadlines.	Deadline dates are clearly stated and known to all members of development team
Web server is inoperable.	Regular scheduled maintenance
Incompetent/Inexperienced developers on development team	Continuity training for all development personnel to ensure skills are maintained and learn new skills to evolving technology

4.0 Project Schedule

4.1 Project task set

We will use the spiral process for the development of the RMS software. A description of the framework activities and task set are below. Due to the iterative nature of this process model, all phases and tasks will be repeated four times (once iteration = three months).

Communication:

Tasks:

Development team is introduced to customer's statement of need.
Development team begin analysis of RMS software requirements specifications
RMS Software Requirements Specification document is published
Milestone (All Above Tasks Complete)

Planning:

Tasks:

Development of Quality Assurance Plan
Publish RMS Software Requirements Specification
Publish RMS Software Design Specification
Publish RMS Website Specifications
Publish RMS Test Plan
Risk Assessment Meeting
Milestone (All Above Tasks Complete)

Modeling:

Tasks:

RMS Windows Operating System Specifications
RMS MySQL Database Specifications
RMS Web Server Specifications
RMS Web Server Specifications
RMS Security Specifications
Publish RMS Software Design Document
Milestone (All Above Tasks Complete)

Construction:

Tasks:

Coding:

Software (Client-Side/Server-Side)
RMS Test Plan
Milestone(All Above Tasks Complete)

Testing:

Code Testing
Publish 1st ,2nd ,3rd,final draft of RMS User's Reference
Milestone(All Above Tasks Complete)

Deployment:

Tasks:

Implement 1st, 2nd, 3rd , final delivery modes of RMS software package.
Feedback Meetings
Milestone(All Above Tasks Complete)

4.2 Timeline chart

Click Excel chart below to open up project chart.

gnatt_chart1.xlsx

5.0 Staff Organization

The RMS development team is described in this section.

5.1 Team structure

Group leadership for the RMS development team will be distributed. All team members will contribute.

RMS Interface Development Team

· Software Engineers:
Responsible for the designing of user interfaces pertaining to the RMS.

RMS Database Development Team

· Database Designers:
Responsible for the development of all database software and servers.

RMS Website Development Team

· Website Developers:
Responsible for the development of the RMS website

RMS Documentation Team

· Technical Writers:
Responsible for the RMS documentation

5.2 Management reporting and communication

· Project Manager:
Responsible for the overall RMS project planning and development.

6.0 Tracking and Control Mechanisms

6.1 Change management and control

Change management will be implemented for all components of the RMS which include the interface that users will interact with, all databases, and websites. Before the design phase, we will use prototypes to simulate the change process.

6.2 Quality assurance and control
RMS quality assurance and change follows:

All users will be notified of any changes to the RMS.
Any changes to the RMS configuration will be informed through proper communication channels.
Changes or updates to the RMS database will be strictly controlled.
Version changes to the RMS system will be reviewed at feedback meetings.
Refer to the RMS Software Testing Specification Document for more information.