

Project Plan
Organizational Alert System

For
CS 895 MSE Project
Department of Computer Science
Kansas State University

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1. Introduction

This project plan details the phases, activities, schedule, and milestones for this project.

2. Schedule

2.1 Phase 1: Planning

The planning phase will detail the goals, objectives, and basic requirements of the project. It will include an executable prototype that demonstrates the the Server GUI and a basic server connection to show feasibility.

2.1.1 Phase 1 Deliverables:

- Vision Document - an overview of the project, basic requirements and use cases.
- Project Plan - a description of the phases, the project schedule with Gantt chart, and COCOMOII cost estimate.
- Software Quality Assurance Plan - a description of the documentation, the evaluation metrics, the testing procedures, and tools used.
- Presentation - a presentation to the project committee will mark the end of Phase 1.

2.2 Phase 2. Architecture

The architecture phase will elaborate the details of the system design and architecture.

2.2.1 Phase 2 Deliverables:

- Action Items - created from feedback during Phase 1 Presentation.
- Changes to the Vision Document and Project Plan - these will be updated as the project evolves.
- Formal Requirements Specification - This will provide a formal specification of the Rest API and the client.
- Architecture Design - This document will specify the architectural details of the system with UML diagrams.
- Test Plan - this document will detail the required tests. The tests will be based on use cases and requirements and designed to show that the requirements have been satisfied.
- Formal Technical Inspection - A checklist will be created based on the requirements and two MSE student peers will be asked to use the checklist to evaluate the application.
- Presentation - a presentation to the project committee will mark the end of Phase 2.

2.3 Phase 3: Implementation/Production

This phase will implement the application in a semi-production environment. This will allow me to test all aspects of the application in a real-world setting.

2.3.1 Phase 3 Deliverables:

- Action Items - created from feedback during Phase 2 Presentation
- User Manual - a manual for the installation and use of the application.
- Component Design - this document will contain all UML model-based diagrams necessary to document the design of the system.
- Source Code - the application source code.
- Assessment Evaluation - this document will detail the results of the testing carried out on the application.
- Project Evaluation - a review by myself of the project and process, methodologies, and whether initial goals were achieved.
- References - a list of citations for all references contained in all documents in the project portfolio
- Formal Technical Inspection Letters - Letters from two MSE students who have evaluated my project against the checklist items.

3. Task Schedule

Task Name	Start	Finish
Phase 1 - Planning		
Create Prototype	8/26/18	9/26/18
Create Phase 1 Documentation	9/10/18	10/30/18
Milestone - Phase 1 Presentation	11/5/18	11/10/18
Phase 2 - Architecture		
Create and Update Documentation	11/10/18	3/22/19
Server Application Development	11/10/18	12/24/18
Client Application Development	12/24/18	3/12/19
Formal Technical Inspection	3/12/19	3/22/19
Milestone - Phase 2 Presentation	3/12/19	3/22/19
Phase 3 - Testing & Implementation		
Create and Update Documentation	3/22/19	4/30/19
Complete Test Cases	3/22/19	4/5/19
Complete Deployment	4/5/19	4/19/19
Milestone - Final Presentation	4/19/19	4/30/19

4. Cost Estimate

As this is a personal project there will not be any actual costs associated. This cost estimate uses my current pay scale for similar project to estimate the financial costs, and the the COCOMO II Model to estimate the required time.

4.1 COCOMO II Model

Estimated Object Points

Object Type	Complexity - Weight		
	Simple	Medium	Difficult
Screens	6	3	
Reports	2	1	
Components	2	4	2

The object points are weighted as follows:

simple	1
Medium	2
Difficult	3

Object points adjusted for weight:

$$(6 \times 1) + (2 \times 1) + (2 \times 1) + (3 \times 2) + (1 \times 2) + (4 \times 2) + (2 \times 3) = 32$$

Cost Drivers Used in Calculations

Cost Driver	Value	Factor	Description
Product Factors			
LANG	Java	53	SLOC/FP conversion
RELY	High	1.10	Reliability: Human life may be saved
DATA	Low	0.9	No databases, all required data is generated
CPLX	Nominal	1.0	The 5 areas are nominally complex
RUSE	Low	0.95	No reuse

DOCU	Nominal	1.0	Right-sized to life-cycle needs
Platform Factors			
	Platform Factors all nominal		
Personnel Factors			
ACAP	Low	1.19	Analyst and Designer has limited experience
PCAP	Nominal	1.0	Single Programmer; average skills
PCON	N/A	1	No turnover. Personal Project
APEX	High	0.88	[Boehm, et. al] lists 3 years of experience as High
PLEX	High	0.91	3+ years Platform Experience
LTEX	High	0.91	3+ years Java Experience
Project Factors			
TOOL	Low	1.17	0 Experience with some of the tools
SCED	Low	1.14	Low indicates a slightly compressed timeline

Early Design Model Multipliers

RCPX	0.94	RELY, DATA, CPLX, DOCU
RUSE	.95	RUSE
PDIF	N/A (1)	TIME, STORE, PVOL
PERS	1.19	ACAP, PCAP, PCON
FCIL	1.17	TOOL
SCED	1.14	SCED
Earch	1.42	Early Design Architecture Effort Multiplier

4.2 Cocomo II Effort Equation :

$$PM = A \times (\text{Size})^E \times \text{EAF}$$

Where A = 2.94, and E is an aggregation of scale drivers(I used 1.0) and size is the language modifier multiplied by the function point estimation divided by 1000. PM is Person-Months.

$$PM = 2.94 \times (1.7) \times 1.42 = 7.09$$

I currently charge freelance programming work by the job, but I'd like to get \$30 an hour, so that is the figure I'll use for this estimation. Estimating 140 hours in a man-month, multiplied by 5.43 man-months my financial cost estimate for this project would be \$22,806.00.

5. Architecture Elaboration Plan

The following items must be completed prior to the architecture presentation.

- All action items resulting from the first presentation will be addressed
- The Vision Document will be updated to enumerate all requirements.
- The Project Plan will be updated with evolving cost estimation.
- A Formal Requirements Specification document will be created that will enumerate and detail the system requirements.
- An Architecture Design will be created that will use UML models to document the architecture of the system.
- A Test Plan document will be created that will detail the test cases that will be performed.
- A Formal Technical Inspection will be carried out by two peers using a Checklist of evaluation criteria that I will provide to them.
- An executable prototype will be created and with sufficient functionality to demonstrate the system requirements.

6. Formal Technical Inspection

My project will be evaluated by :

Richard Waliser
Thaddeus Tuck

7. References

Boehm, B. W. (2009). *Software cost estimation with Cocomo II*. Upper Saddle River, NJ: Prentice Hall.

Kuppa, K. (n.d.). Airline Reservation System [Scholarly project]. Retrieved from http://people.cs.ksu.edu/~kaavya/Vision Document_MSE_Phase I.pdf

Lastrapes, J. RCRA Enforcement and Compliance History (REACH) System (2018)