Arithmetic Expression Evaluator

Version <1.0>

Revision History

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| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 09/23/2023 | 1.0 | Updated Project Management Section | Vivian Lara |
| 09/23/2023 | 1.1 | Updated Annexes & Introduction Section | Aryan Kevat |
| 09/23/2023 | 1.2 | Updated Introduction | Elizabeth Channel |
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# Introduction

The following document is called the *Software Development Plan*. It contains all information needed in ensuring the Arithmetic Expression Evaluator project stays on path.

## Purpose

The purpose of the *Software Development Plan* is to organize and keep track of all the information necessary to ensure the management of the project is successful. Included in the plan are details of the growth and development of the project software. It will be used in all aspects of the process by numerous people to keep the project going in the correct direction.

Below is a list of the people who will use the *Software Development Plan*:

* **Project Manager** — The project manager will use the *Software Development Plan* to ensure the project process is running smoothly and on-time. They will refer to this plan when planning project development and all it requires (e.g., resources, scheduling. Etc.)
* **Project Team** — The project tea will use this plan to keep track of their responsibilities. This includes, what projects aspects they need to do and when they need to be done by.

## Scope

This *Software Development Plan* includes all details regarding the Arithmetic Expression Evaluator Project. It details the project overview, organization of the project, and management.

The information given in the document is in compliance with the project requirements and will be used to ensure the process follows such requirements.

## Definitions, Acronyms, and Abbreviations

See the Project Glossary.

## References

* **Meeting logs** — Meeting logs taken by the documenter contained in a file labeled `Meeting Docs.txt` in the root of the project’s git repository.
* **Project description** — A generalized description of the project goals can be found in `Documentation/Project-Description.pdf` within the project git repository.
* **Glossary** — See Project Glossary in Annexes section

## Overview

The *Software Development Plan* contains the following information:

Project Overview — The Overview will provide the purpose, scope, and objectives of the Arithmetic Expression Evaluator project. It will define the assumptions of our problem space and the constraints on the development process. In addition, it will provide a description of the deliverables that the project will deliver.

Project Organization — The Project Organization section will detail the organization process used during this Arithmetic Expression Evaluator. It will include a list of roles and responsibilities of each team member as well as a list of external actors in the project development.

Project Management Process — The Project Management Process will detail the scheduling of the project including phases and release dates. It also will explain how the project is overviewed. Additionally, it will define the process for managing the project’s resources, requirements, quality, configuration, and associated risks.

Applicable Plans and Guidelines — The Applicable Plans and Guidelines will describe the project development process, methods and techniques followed, and tools used.

Annex — The Annex will include any additional material used during the project as well as the Project Glossary.

# Project Overview

## Project Purpose, Scope, and Objectives

[A brief description of the purpose and objectives of this project and a brief description of what deliverables the project is expected to deliver.]

## Assumptions and Constraints

[A list of assumptions that this plan is based and any constraints, for example. staff, equipment, schedule, that apply to the project.]

## Project Deliverables

[A list of the artifacts to be created during the project, including target delivery dates. The text below is provided as an example.]

Deliverables for each project phase are identified in the Development Case. Deliverables are delivered towards the end of the iteration, as specified in section *4.2.4 Project Schedule*.

## Evolution of the Software Development Plan

[A table of proposed versions of the **Software Development Plan**, and the criteria for the unscheduled revision and reissue of this plan. The text below is provided as an example.]

The *Software Development Plan* will be revised prior to the start of each Iteration phase.

# Project Organization

## Organizational Structure

**Leader** — will submit any assignments/deliverables. In charge of the main communication with the professor and/or TA as needed.

**GitHub Manager** — will ensure GitHub is up to date and organized.

**Coder/Tester** — will be the ones who write the primary code and ensure test cases pass.

**Quality Control** — will look over everything before submitting and ensure code follows best practices and formatting.

**Documentation** — will ensure this document is kept up to date and accurate as well as log communication of team members such as meetings.

## External Interfaces

Professor Hossein Saiedian  
Office: Eaton Hall 3012

Office Hours: Tuesdays and Thursdays, 1:00-2:00 PM (and by appointment)  
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## Roles and Responsibilities

|  |  |
| --- | --- |
| **Person** | **Unified Process for EDUcation Role** |
| Jeff M Burns | Lead |
| Chris Cooper | GitHub manager |
| Aryan Kevat | Code/tester |
| Ashley Vierling | Code/tester |
| Elizabeth Channel | Documentation |
| Vivian Lara | Quality control |

# Management Process

## Project Estimates

[Provide the estimated cost and schedule for the project, as well as the basis for those estimates, and the points and circumstances in the project when re-estimation will occur.]

## Project Plan

[This section contains the schedule and resources for the project.]

### Phase Plan

[Include the following:

 a Gantt chart showing the allocation of time to the project phases (Not necessarily detailed to the activity level; this type of Gantt Chart is providing along with the Iteration Plans themselves; Provide an Overview of the project Timeline with the major miles stones]

 identify **major milestones** with their achievement criteria

Define any important release points and demos.]

[If available, refer to the related **Iteration Plan Documents** for more details]

### Iteration Objectives

[Briefly list the objectives to be accomplished for each of the iterations and Refer to the related **Iteration Plan Documents** for more details.]

### Releases

[A brief description of each software release and whether it’s demo, beta, and so on.]

### Project Schedule

[Diagrams or tables showing target dates for completion of iterations and phases, release points, demos, and other milestones.]

### Project Resourcing

 [Identify the numbers and type of staff required here, including any special skills or experience, scheduled by project phase or iteration.

List any special training project team members will require, with target dates for when this training should be completed.]

## Project Monitoring and Control

 [The following is a checklist of items to consider:

* Requirements Management: Specify the information and control mechanisms which will be collected and used for measuring, reporting, and controlling changes to the product requirements.
* Quality Control: Describe the timing and methods to be used to control the quality of the project deliverables and how to take corrective action when required. Include techniques, metrics, criteria, and procedures used for evaluation— this will include walkthroughs, inspections, and reviews. Note that this is in addition to the Test Plan, which is not enclosed in the Software Development Plan.
* Reporting and Measurement: Describe reports to be generated. Specify which metrics should be collected and why. **OR** if available, refer to the **Project Measurements and Project Measurements** document
* Risk Management: Describe the approach that will be used to identify, analyze, prioritize, monitor and mitigate risks. If available, refer to the **Risk List** document.
* Configuration Management: Describe the process by which problems and changes are submitted, reviewed, and dispositioned. Describe how project or product artifacts are to be named, marked, and numbered, including system software, plans, models, components, test software, results and data, executables, and so on. Describe retention policies, and the back-up, disaster, and recovery plans. **OR** if Available, Refer to the **Configuration Management Plan** document

The text that follows is provided as an example.]

## **Requirements Management**

The requirements for this system are captured in the Vision document. Requested changes to requirements are captured in Change Requests, and are approved as part of the Configuration Management process.

## **Quality Control**

Defects will be recorded and tracked as Change Requests, and defect metrics will be gathered (see Reporting and Measurement below).

All deliverables are required to go through the appropriate review process, as described in the Development Case. The review is required to ensure that each deliverable is of acceptable quality, using guidelines and checklists.

Any defects found during review which are not corrected prior to releasing for integration must be captured as Change Requests so that they are not forgotten.

## **Reporting and Measurement**

Updated schedule estimates, and metrics summary reports, will be generated at the end of each iteration.

The Minimal Set of Metrics, as described in the RUP Guidelines: Metrics will be gathered on a weekly basis. These include:

Earned value for completed tasks. This is used to re-estimate the schedule and budget for the remainder of the project, and/or to identify need for scope changes.

Total defects open and closed – shown as a trend graph. This is used to help estimate the effort remaining to correct defects.

Acceptance test cases passing – shown as a trend graph. This is used to demonstrate progress to stakeholders.

*Refer to the Project Measurements Document (AAA-BBB-X.Y.doc) for detailed information.*

## **Risk Management**

Risks will be identified in Inception Phase using the steps identified in the RUP for Small Projects activity “Identify and Assess Risks”. Project risk is evaluated at least once per iteration and documented in this table.

*Refer to the Risk List Document (CCC-DDD-X.Y.doc) for detailed information.*

## **Configuration Management**

Appropriate tools will be selected which provide a database of Change Requests and a controlled versioned repository of project artifacts.

All source code, test scripts, and data files are included in baselines. Documentation related to the source code is also included in the baseline, such as design documentation. All customer deliverable artifacts are included in the final baseline of the iteration, including executables.

The Change Requests are reviewed and approved by one member of the project, the Change Control Manager role.

*Refer to the Configuration Management Plan (EEE-FFF-X.Y.doc) for detailed information.*

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# Annexes

The project will follow the UPEDU process.

## **Project Glossary**

**Order of operations / operator precedence** — A list of rules that describe the order in which to perform operations within an expression, often used in mathematics and computer programming

PEMDAS (Parenthesis, Exponent, Multiplication, Division, Addition, Subtraction) — A common convention for order of operations from first to last, i.e., exponent operations outside a set of parentheses should be performed after operations within the parentheses, but before any multiplication or division operations outside the parentheses.