**Software Project Management Plan**

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# PREFACE

Tic-Tac-Toe is a two-player game, played on a 3x3 square, where the winner is the first player to connect three in a row. Despite its simplicity, it is a good exercise for improve reasoning skills. Due to this, it is considered a good game for children to help them improve their acumen. The game was originally played on paper, and was one of the first games played on a computer. The purpose of this project is to develop a new version of the game.

# 1. Overview of the Product

## 1.1 Purpose Scope & Objective

This document serves as the project plan for the enhanced Tic-Tac-Toe game. The document summarizes the key elements of time, cost and resources. It also establishes the scope and describes the limitations of the project.

The objectives are to complete the project by April 26th, 2016, and within budget. A commitment has been made to provide all deliverables by the due date.

## 1.2 Assumptions & Constraints

In the project management world, absolute certainty is an impossibility. As projects are planned and executed, some facts and challenges are known and others must be estimated. This project is being planned with the assumptions that the game will be run computers running Windows. As the project moves forward, the following constraints are to be kept in mind:

- Budget: No budget.

- Time: The project is to be completed by April 26th, 2016.

**1.3 Project Deliverables**

All deliverables requested by the client are listed below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Major Deliverable** | **Planned Delivery Date** | **Author** | **Delivery Mechanism** |
| Product Design and Specifications | 02/17/2016 | All group members | In person |
| Product Interface | 04/15/2016 | All group members | In Person |
| Product with a functional multiplayer game | 04/30/2016 | All group members | In Person |
| Product with a functional Database | 02/17/2016 | All group members | In Person |
| Final Product | 04/30/2016 | All group members | In Person |
| Final Documentation | 04/30/2016 | All group members | As files |
| Maintenance & Support Plan | Throughout the life cycle of the product | All group members | In person |

## 1.4 Schedule & Budget Summary

The project has the following schedule:

• Delivery of baseline project plan: April 2nd, 2016

• Game ready for operation: April 26th, 2016

The project does not have a budget.

## 1.5 Evolution of the Plan

The plan will be updated weekly and on an unscheduled basis as necessary. Scheduled update will occurs every Saturday morning between 8am and 12pm.

All notification of updates will be sent by emails. All team members are also required to log on to GitHub at least twice a week to view changes made by others.

# 2. References

|  |  |  |
| --- | --- | --- |
| **Resource** | **Identifier** | **Description of Use** |
| www.webopedia.com | website | Used for Definitions & Acronyms |
| Object Oriented Intro to software Engineering | Stephen R. Schach  (Vanderbilt University) | Book that teaches how to develop a software product |
| UML Distilled Third Edition: A Brief Guide to the Standard Object Modeling Language | Martin Fowler | Reference book on software modelling |
| GitHub, Google Drive, Dropbox | Source Control | Online document repository |
| QT |  | Cross-platform application framework for developing C++ |

# 

# 3. Definitions & Acronyms

|  |  |
| --- | --- |
| Term | Definition |
| 3T | Tic-Tac-Toe |
| Platform | The hardware and support software with which a program is intended to operate. |
| Database | Is a way to keep a record of information such as the players’ name and score |
| Client/Server System | Relationship between processes running on separate machines. A client initiates the dialog by sending requests to the server asking for information or action. |
| GUI | A graphical user interface is a human-computer interface (i.e., a way for humans to interact with computers) that uses windows, icons and menus and which can be manipulated by a mouse (and often to a limited extent by a keyboard as well). |
| 6x6 Tic-Tac-Toe | A game that is played with two players, X and O, who take turns marking spaces usually in a 6x6 grid. The player that succeeds in placing four respective marks in either a horizontal, vertical, or diagonal row the most wins the game. |

# 4. Project Organization

## 4.1 External Interfaces

The project manager is constantly in contact with the client, Shengli Yuan, for any concerns regarding the project.

## 4.2 Internal Structure

## 4.3 Roles & Responsibilities

The following people are participants in this project and included in the project planning.

|  |  |  |
| --- | --- | --- |
| **Roles** | **Responsibilities** | **Person** |
| Lead | Lead the planning and execution of the project, chair workgroup | Ibra Cisse, Eddie, Jason |
| Project Owners | Ensure adequate resources are available and track project status | Ibra Cisse, Eddie, Jason, Carrie, Alexis, Alfonso |
| Project Workgroup | Plan and design the Commons, advise Implementation Workgroup | Ibra Cisse, Eddie, Jason, Carrie, Alexis, Afonso |
| Project Team Management | The project manager coordinates the project tasks assigned to team members | Ibra Cisse, Eddie, Jason, Carrie, Alexis, Afonso |

## 5. Managerial Process Plans

## 5.1 Start-Up Plan

### Training

No additional staff training is needed for this project

## 5.2 Work Plan

### 5.2.1 Work Activities

Refer to section 5.2.2

### 5.2.2 Schedule Allocation

|  |  |  |
| --- | --- | --- |
| Date | Status | Comments |
| Week 1 | Completed | Formed group and assigned roles. Met with client, to determine the requirements artifacts. Inspected requirements artifacts. |
| Week 2 | Completed | Design pseudocodes; GUI, game logic and database schema.  Start of documentation - produced analysis artifacts, and inspected analysis artifacts. |
| Week 3 | Completed | Began product design – GUI and game logic. Produced software project management plan. |
| Week 4 | completed | Continue product design - GUI and game logic. |
| Week 5 | complete | Continue product design - GUI and game logic. |
| Week 6 |  | Continue product design - GUI and game logic. |
| Week 7 | completed | Completion of product Interface. |
| Week 8 | completed | Completion of product game logic |
| Week 9 | completed | Create database for connectivity to interface. |
| Week 10 | completed | Established connectivity from database to interface. |
| Week 11 | Completed | Tested connectivity between database and interface. |
| Week 12 | completed | Start product design – game AI |
| Week 13 | In progress | Continue product design – game AI |
| Week 14 | In progress | Complete documentation |
| Week 15 | In Progress | Delivery of the product |
| Week 16 | To be determined | Product maintenance & support |

\*Product testing, SQA walkthroughs, performance feedback, error handling, and customer communication were continuously applied throughout the life cycle of the product.

### 5.2.3 Resource Allocation

See section 4.3 Roles & Responsibilities

### 5.2.4 Budget Allocation

No budget.

**5.3 Control Plan**

Any change made to any document that has already been reviewed has to be approved by all team members. The team will have to ensure that the changes are feasible and permissible within the time and budget constraints of the project.

### 5.3.1 Requirements Management

|  |  |  |
| --- | --- | --- |
| **Requirements Management Activities** | **Performed By Whom** | **Comments** |
| Team communication | Jason, Ibra | Major improvement toward team communication and work ethics |
| Setup communication tools | Eddie | Meetings and One on One review with each team member is done by Eddie and Ibra. Each team member already evaluated and given a standard of where they stand. |

### 5.3.2 Schedule Control

If the work scheduled in section 1.4 gets behind, the owner of the task will spend extra time on the project beyond what has been scheduled to ensure delivery date.

### 5.3.3 Resource Control

Resources are allocated as mentioned in section 4.3. Each resource is responsible for the task assigned to him/her. If a task gets behind schedule, the resource will need to spend extra time to make up for the time loss.

### 5.3.4 Budget Control

No budget.

### 5.3.5 Reporting & Communication Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Information** | **Frequency** | **From** | **To** | **Medium** |
| Produce analysis artifacts, and inspected analysis  artifacts | 2 | All (done during a meeting) | All (done during a meeting) | -meeting  -emails  -voicemails |
| Design the Winning Combination for the game | 2 | All (done during a meeting) | All (done during a meeting) | -meeting  -emails  -voicemails |
| Designing the game | 6 | All (done during a meeting) | All (done during a meeting) | -meeting  -emails  -voicemails |
| Testing | 4 | All (done during a meeting) | All (done during a meeting) | -meeting  -emails  -voicemails |
| Documentation | 3 | All (done during a meeting) | All (done during a meeting) | -meeting  -emails  -voicemails |

### 5.3.6 Measurement Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Measure Required** | **Frequency Collected** | **Collected By Whom** | **Analyzed By Whom** | **Used By Whom** |
| Produce analysis artifacts, and inspected analysis artifacts | Every two days | Project manager | Project manager | Team lead and sub team lead. Passed to each Developer and SQA as well as secretary. |
| Designing the game | Every three days | Project manager | Project manager | All members of the team |

## 

## 5.4 Risk Management Plan

The risk management process will identify potential risk sources; assess individual risks and impacts on performance, cost, and schedule.

|  |  |  |
| --- | --- | --- |
| **Risk Management Activity** | **Performed By Whom** | **Comments** |
| Project Scope | Project manager | The project manager will ensure that the following risks are understood and how to avoid them:  Risks that the scope is not understood, requirements not documented properly, requirements not agreed upon by customer |
| Management | Project manager | Project manager is not actively engaged in project, project issues are not addressed, changes are not controlled and project scope grows beyond original boundaries |
| Technology | Project manager | Client infrastructure is not reliable |

## 5.5 Closeout Plan

|  |  |  |
| --- | --- | --- |
| **Closeout Activity** | **Performed By Whom** | **Comments** |
| Staff reassignment plan | Project manager | Re-Assigned roles based on team members performance in order to bring the best of each team member. Several roles were altered in order to bring a fast and nature environment for the team to make major improvement and speedy progress. |
| Archiving project materials | All team members | All documentation and project codes along with builds will be left in the repository for anyone to check out and make improvement. |
| Preparation of a final report to include lessons learned and an analysis of project objectives achieved | Project manager | In progress…. |

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# 6. Technical Process Plans

## 6.1 Process Model

This project will be implemented and executed using the unified life-cycle model.

**6.2 Methods, Tools, & Techniques**

This project develops a system for use on a personal computer using a visual interface that would be built using C++ with the QT environment, and MySQL databases.

### Programming Environment

Use C++ with the QT environment. The main extension used is the new GIT extension from Microsoft TFS. Using QT Creator facilitated the creation of GUI interface.

### Database Environment

The chosen database is MySQL that allows easy scaling and fault tolerant deployment. It is a document oriented database that allows modification of the schema with zero downtime.

### Version Control

GIT is the version control tool, used and the repository of the project files resides on GITHUB, a public GIT hosting provider. https://github.com/Amatarasu/

### Documentation

* Visio for all diagrams, flowchart, draw.io
* GitHub, DropBox, and Google Drive for all documents
* Microsoft Project for the project management
* GitHub to easily communicate with

### Testing

The testing workflow of the Unified Process will be performed using non-execution based testing and execution-based testing. Along the non-execution testing, the inspection testing was applied, which covered each module design for: overview, preparation, inspection, rework and follow up. For a completed testing phase, Glass Box was more suited to our design along with pathway testing with top-down integration.

Each section or portion of the code was tested by going through expected and unexpected input which produced outcomes. Each unexpected outcome will be thrown into an exception handler to prevent crash from the program.

## 6.3 Infrastructure Plan

The hardware resources are at least four computers (prefer Intel Core i5-3330 Processor). Each of these computers should have at least 2GB RAM and a minimum of 60 GB of disk space.

## 6.4 Product Acceptance Plan

The customer accompanied by the lead will test the final product for acceptance.

## 6.5 Deployment Plan

Will be demonstrated in class.

# 7. Supporting Process Plans

## 7.1 Configuration Management Plan

All the project deliverables are to be considered as configuration items. The configuration item as well as its file would be named after the document like Documentation, Installation and followed by the version number. For example, all the preliminary versions that are submitted to the client for review would be named with the file name followed by 0.1, 0.2. After the client reviews and approves an item, the version would change from 0.1 to 1.0 and distributed to all team members. Informal updates will be numbered with 1.1, 1.2, etc.

## 7.2 Product Testing & Reviews Plan

Testing and Review will be addressed as a part of the Software Quality Assurance and Verification & Validation Plan.

## 7.3 Document & Work Product Plan

### Requirements

|  |  |
| --- | --- |
| Version | 0.1 |
| Date | Feb 12th, 2016 |
| Author | Ibra Cisse, Carrie, Eddie, Jason |
| Access information | DropBox, GitHub, Google Drive |

### Product Specification

|  |  |
| --- | --- |
| Version | 0.1 |
| Date | Feb 12th, 2016 |
| Author | Carrie, Ibra Cisse, Jason |
| Access information | Drop box and GitHub |

|  |  |
| --- | --- |
| Version | 0.2 |
| Date | March 28th, 2016 |
| Author | Carrie, Ibra Cisse, Jason |
| Access information | Drop box and GitHub |
| Version | 0.3 |
| Date | April 30th, 2016 |
| Author | Carrie, Ibra Cisse, Jason |
| Access information | Drop box and GitHub |

### Design Documentation

|  |  |
| --- | --- |
| Version | 0.1 |
| Date | Feb 12th, 2016 |
| Author | Ibra Cisse, Jason |
| Access information | Drop box and GitHub |

### Implementation Documentation

|  |  |
| --- | --- |
| Version | 0.1 |
| Date | Feb 12th, 2016 |
| Author | Ibra Cisse, Jason |
| Access information | Drop box and GitHub |

|  |  |
| --- | --- |
| Version | 0.2 |
| Date | March 28th, 2016 |
| Author | Ibra Cisse, Jason |
| Access information | Drop box and GitHub |

### Test Documentation

|  |  |
| --- | --- |
| Version | 0.1 |
| Date | Feb 14th, 2016 |
| Author | Ibra Cisse, Jason |
| Access information | Drop box and GitHub |

## 

|  |  |
| --- | --- |
| Version | 0.2 |
| Date | March 28th, 2016 |
| Author | Ibra Cisse, Jason, Alfonso |
| Access information | DropBox and GitHub |

## 7.4 Quality Assurance Plan

|  |  |
| --- | --- |
| Version | 0.1 |
| Date | Feb 20th, 2016 |
| Author | Ibra Cisse |
| Access information | Drop box and GitHub |

## 7.5 Project Progress Reviews

## 7.6 Issue Management

Any major problems faced by the team members will immediately be reported to the lead

Lead handles roles assignment and development phase either from code phases, test phase, design, phase, test phase, or implementation phase depending on the progress of product.

## 7.7 Version Management

|  |  |  |
| --- | --- | --- |
| **Change Management Activities** | **Performed By Whom** | **Comments** |
| Software management plan v1.0, v1.1 | Ibra Cisse, Eddie, Jason, Carrie, Alexis, and Afonso | First presentation is poor. Power Point revision and editing required to ensure requirements are met. |
| Requirements v1.0 | Ibra Cisse, Eddie, Jason, Carrie, Alexis, and Afonso | First presentation is poor. Power Point revision and editing required to ensure requirements are met. |
| Specifications v1.0 | Ibra Cisse, Eddie, Jason, Carrie, Alexis, and Afonso | First presentation is poor. Power Point revision and editing required to ensure requirements are met. |
| Requirements V1.1 | Ibra Cisse, Eddie, Jason, Carrie, Alexis, and Afonso | Had to change the languages from C# to QT, then each member learned QT. |
| Specifications v1.1 | Ibra Cisse, Eddie, Jason, Carrie, Alexis, and Afonso | Re-assignment of roles and improved team communication as well as the test plans for each phase. |

## 7.8 Subcontract Management (Acquisition Management) Plan

## 7.9 Process Improvement Plan

# Document Control

## Change History

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Description (Including Page #’s)** |
| 1.0 | 02/17/2016 | Ibra Cisse, Jason | Specification |
| 1.0 | 02/17/2013 | Ibra Cisse, Jason | Requirements |
| 1.0 | 02/17/2016 | Ibra Cisse, Jason | Software Management PLAN |
| 1.0 | 02/17/2016 | All Team | Presentation slides |

## 

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Description (Including Page #’s)** |
| 1.1 | 03/28/2016 | Ibra Cisse, Jason | Specification |
| 1.1 | 03/28/2016 | Ibra Cisse, Jason | Requirements |
| 1.1 | 03/28/2016 | Ibra Cisse, Jason | Software Management PLAN |
| 1.1 | 03/28/2016 | All Team | Presentation slides |

## Document Storage

https://github.com/Amatarasu

## Document Owner

* Ibra Cisse

# 

# Appendices

|  |  |  |
| --- | --- | --- |
| **Appendix** | **Title** | **Location Or Link** |
| None | Software Management Plan | https://github.com/Amatarasu76 |