Final Project Report
of
AirPlane Sky-Force Game

Institute of Information Technology, NSTU
Course Title: Software Project Lab I

Course Code: SE-2112

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Team Name: The Still Variable

Project Supervisor:

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Team Members:

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2. Kamruzzaman Shekh(ASH1825035M)
3. Anwar Kabir Sajib(ASH1825038M)

Introduction

In the fast growing field of software engineering and development and even more rapidly growing sector of game development the future is hard to predict. We are working with this game as our software project lab-II.SPL-II is a 3 credit course and as part of our degree we choose this type of work for doing better with development cycle, development period, graphics, scripting, adopting new technology, animation. In general software project is a project focusing on the creation of software. Consequently, Success can be measured by taking a look at the resulting software. In a game project, the product is a game. But and here comes the point: A game is much more than just its software. It has to provide content to become enjoyable. Just like a web server: without content the server is useless, and the quality cannot be measured. This has an important effect on the game project as a whole. The software part of the project is not the only one, and it must be considered in connection to all other parts: The environment of the game, the story, characters, game plays, the artwork, and so on.

Software Project Description

Story

It is very interesting to play our own developed game . Beside these It is more interesting to watch anyone else playing our own developed game . with these inspiration we are starting our project Airplane sky-force game . This project was developed during the 3rd semester of BSSE 1st Batch, IIT,NSTU, from January 2019 to end of the semester . Playing games on PC or Desktop is a very excellent way of passing leisure. Various games are available today . airplane sky-force is a popular game in Bangladesh . Nokia 1210 model mobile gives scope to play this game which was not available at any other mobile phone.as new new android mobile came in our market ,the previous version of Nokia will be vanished . we think that People will get themselves entertained playing this game with in pc or desktop version.

Requirements

A **requirement** is a quality or qualification that you must have in order to be allowed to do something or to be suitable for something

1. There will be a air fighter who continuously throw bullet and destroy enemy who are coming from opposite direction.
2. Opposite direction enemy will be 4 or 5 type different colour airplane.
3. Air fighter must have a life strength.
4. There must be some level.
5. Fighter Airplane can through 2 or 3 times its special bullet package.
6. Background scenery will change dynamically.
7. Game will continue a time period which user define type.
8. There will also some air fighter model.one can buy these model with his or her obtain coin..

Proposed Process Model

In our project AirPlane Sky-force we maintain waterfall model . As we know that It is very simple to understand and use. In a Waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases. Waterfall model is the earliest SDLC approach that was used for software development.

In "**The Waterfall**" approach, the whole process of *software development* is divided into separate phases. The outcome of one phase acts as the input for the next phase sequentially. This means that any phase in the development process begins only if the previous phase is complete. The waterfall model is a sequential design process in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of **Conception, Initiation, Analysis, Design, Construction, Testing, Production/Implementation and Maintenance.**
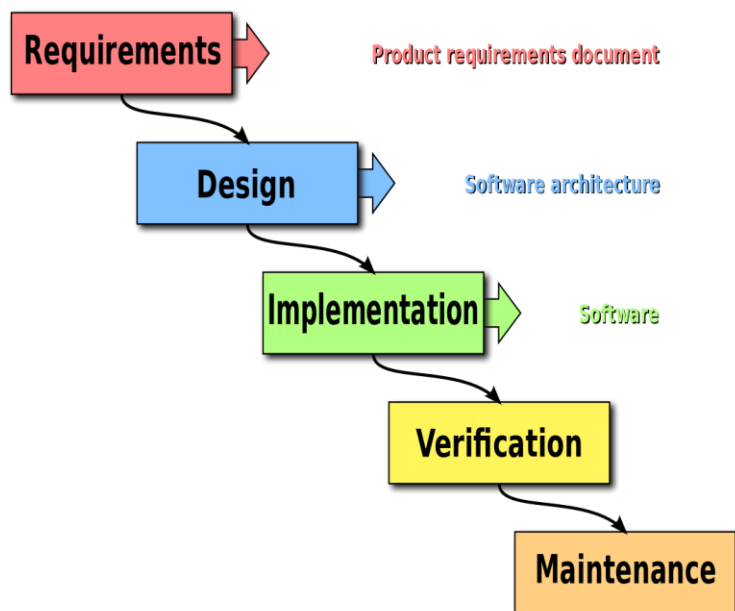

Fig 1 : Waterfall Model

Project Team (Including Team Hierarchy)

Team Name : The Still Variable

Fig 2: Team Hierarchy

Proposed Timeline and Actual Timeline

Table 01: Proposed Timeline

Task	Deadline
Project Proposal	Within first week of February
Requirement Analysis, Specification	Within third week of February
Designing, Study	From 2nd week of February to 3rd week of March
Coding	From 1st week of March to third week of March
Testing	From third week of March to 2nd week of April

Table 02: Actual Timeline

Task	Deadline
Project Proposal	Within first week of February
Requirement Analysis, Specification	Within third week of February
Designing, Study	From 2nd week of February to 3rd week of March
Coding	From 1st week of March to third week of April
Testing	From third week of April to 1st week of May

Requirements Traceability Matrix

A **Traceability Matrix** is a document that co-relates any two-baseline documents that require a many-to-many relationship to check the completeness of the relationship. It is used to track the requirements and to check the current project requirements are met.

Req1 = Create an air fighter
Req2 = Main frame Create
Req3 = Destroy enemy
Req4 = 4 or 5 type different colour airplane.

Req5= Create some level life strength

Req6= Background scenery will change dynamically

Req7= Throwing bullet and movement of airfighter

Req8=score counting

Traceability Matrix Table Num:01

Requirement Test Case	Req1	Req2	Req3	Req4	Req5	Req6	Req7	Req8
TC1	✔							
TC2	✔			✔				
TC3			✔					
TC4				✔	✔			
TC5			✔					
TC6				✔	✔		✔	
TC7		✔		✔		✔	✔	
TC8					✔	✔		
TC9	✔	✔	✔	✔	✔	✔	✔	✔
TC10	✔	✔	✔	✔	✔	✔	✔	✔

Traceability Matrix Table Num:02

Requirement Class Name	Req1	Req2	Req3	Req4	Req5	Req6	Req7
Receive Thread	✔						
Image class			✔				
Player class				✔			
Home class		✔					
Enemy class					✔		
GameManager					✔		
Game_Maintaining						✔	
Home Class							✔

Tools

- ➤ **Languages :** In our project we using object oriented programming language JAVA

- ➤ **IDEs :** Everybody has used NETBEANS and Eclipse as IDE to develop the project.

Future Directions

As we know that today android mobile are more available and popular in ourselves that's why we want to upgrade our project and the Later versions may be developed for **Android.**

Software Project Metrics

Code Level

LOC : Source lines of code (SLOC), also known as lines of code (LOC), is a software metric used to measure the size of a computer program by counting the number of lines in the text of the program's source code.

NCLOC : Non-Comment Lines of Code is used to determine the amount of non-commented source lines of code. It counts all lines that are not regular comments, Javadoc comments or blank.

COLC : Number of commented line of code in a program.

Density of Comment: Percentage of commented line .

Table number: 03

Number of LOC	871
Number of NCLOC	388
Number of CLOC	483
Density of Comments[CLOC/LOC]	0.5545
Average LOC in a class	97

Design Level

No Package	1(SkyForce_MainFrame)
No Sub-packages,	0
No Classes,	9
No Interfaces,	2(Player, KeyListener)
No Abstract classes	0
Public attributes[static variable percentage	21
No Methods	42
No Methods per class	5

Collaboration

Project collaboration is a method by which teams and team leaders plan, coordinate, control and monitor the project they are working on. This collaborative process works across

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departmental, corporate and national boundaries and helps especially with projects as they grow in complexity.

Simply, to collaborate means to work together towards a common goal. Sounds just like project work,

Here are a few things we can do to give collaboration a healthy start in our organization.

Communicate. As a project manager you know that good communication is the foundation of everything, so it goes with installing a collaborative environment. Not only must you properly communicate, but get your team to do so, too.

Train. Like learning anything new, we need guidance and direction. Set up a training session for our team to teach them how to use and why they need online project management tools that make project collaboration possible.

Change. Old habits die hard, but you need to get your team to move away from old methods of communications, like emails, and get comfortable with more interactive and collaborative communications.

Share. That's what collaboration is all about, and it won't work unless you break down the virtual walls that have separated team members in the past. For example, share you calendars, that way everyone is on the same page with deadlines, meetings, etc.

Check-in. When you lead a project you don't set the path and let it run its course. The same goes with implementing collaboration. That's why you must monitor and have regular meetings with them to field questions and track their progress.

Anwar kabir Sajib: Completed the colour full stage of the Programming.

Kamruzaman: Decided about the very first starting frames. Testing , improving algorithms.

Emran Hossain: Testing , improving algorithms.

LOC addition, deletion by each project member

NAME	Addition	Deletion
Anwar Kabir Sajib	556	0
Kamruzzaman Shekh	1018	379
Emran Hossain	238	0

contributions to master, excluding merge commits

kamruzzamanshekh #1
26 commits 1,018 ++ 379 --

EmranShakib #2
3 commits 238 ++ 0 --
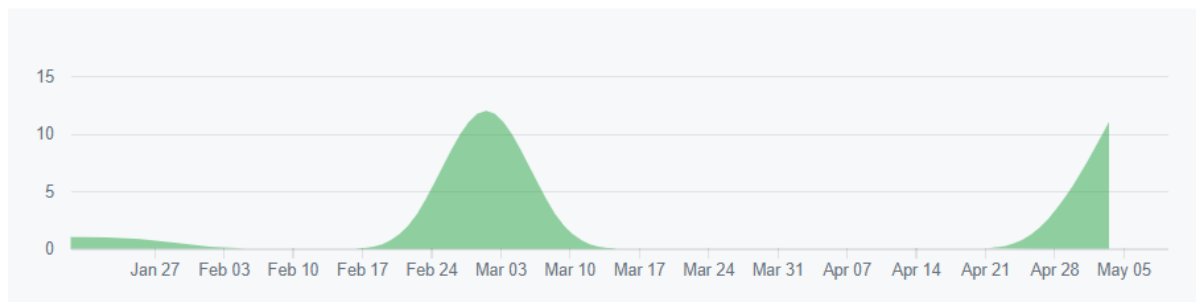
Anwarkabir #3
2 commits 0 ++ 0 --

Fig: Individual Contribution Graph

Software Project Deliverables

1. Source Code
2. Project Report
3. Final Presentation
4. Software Requirement Specification

Summary

It is very interesting to play your own developed game. It is more interesting to watch anyone else playing your own game. This project will deliver the homemade childhood version of cricket online. Beside these ,this project also build up a collaboration with team member and also get an experience to work with various person.

References

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4. https://www.javatpoint.com/collections-in-java(5-02-2019)