**FINAL REPORT: LOST IN THE WOOD**

**Introduction**

Python is widespread programming used in the industrial context for various kinds of IT projects. With the upgradation of this python programming language, several unique features of its function have been incorporated through modules and libraries. The purpose of this study is to develop a game as a project by using these modules and libraries. Hence, the Turtle library and Tkinter module have been used in this project to create the project. The main objective has been accomplished by making this project successful as it brings the math and computational concept to project members.

**Project description**

The project theme can be understood from the name of the project “*Lost in the Wood*” which emphasizes creating wood and a person who would get trapped in it. Turtle is a pre-installed library in Python that has been used to create woods, traps and a black rectangular-shaped dot for movement. Another rectangular black dot is located in the top left corner of the interface which acts as the endpoint to complete the game. Tkinter is a module of Python that is used for facilitating the Graphical User Interface (GUI) where the player would be able to interact with the application. The game is played into three segments where the first segment allows only one player to play the game. Likewise, two players for the second stage and three to four players for the third stage is set for this game. The black flickering moving dot would pass from the multiple passages that existed between the woods and meet the top left corner black dot which is a finishing line. The game is considered finished if the moving dot gets into a trap. The winning and losing in “Lost in the Wood” game is decided by points degradation on touching the woods. Once the points reach zero then the game will be over and the player will lose the game.

**Use Cases**

The gaming program is run on python programming. “Lost in the Woods” is an interesting game that is programmed with the best function of python programming. Turtle library and Tkinter module are used to operate this game successfully.

**Use Case 1**

Actor of the used Case: The first player

Stakeholders:Python programmers

Description:The first player or the actor of the use case plays the game. S/he uses the keys 1, R, U and D to operate the game successfully.

**Use Case 2**

Actor of the use case: The second player

Stakeholders: Python programmer

Description: The actor uses the keys like A, D, W, S for the operation of the game.

**Use Case 3**

Actor of the use case: The third player

Stakeholder: Python programmers

Description: The third player uses the keys like G, J, Y, H for the operation of the game.

**Use Case 4**

Actor of the use case: The fourth player

Stakeholder: Python programmer

Description: The fourth player uses the keys like CBFV for the operation of the game.

**Gaming Interface**

**First Stage**

**Second Stage**

**Third Stage**

One Player

Two Players

Three player

**UML model**

The four use cases are used and applied properly in this game project in a successful way. The UML model is one of the most important modeling languages. The objective of this model is to define the visualization of the process that is designed. The visual language of the UML system operates the function of the game on the basis of the Turtle library and Tkinter module (Abdumalikovich, 2022). Codes, different kinds of complex programming applications in this game with the process of the UML model. All the use cases are designed according to the easy gateway to enter the game successfully. The use of the Turtle library and Tkinter module are designed as the best function for the effective operation of the “Lost in the Woods” game.

**State Diagram**

**Player Select**

**Game**

**Stage 1**

**Stage 2**

**Stage 3**

Every stage or phase in the above diagram indicates a specific state of the project. A state diagram is drawn with an intention to understand the response from the web application as a final product (Agárdi, 2022). Likewise, a state diagram also conveys the type or status of various inputs that need to be given. From the above state diagram, it can be said that the function of Game application takes place in a total of three stages corresponding to the number of players involved in it. Hence, the status of an application as well as end-user has been described through this state diagram. Similarly, the state diagram also outlines the type of input that can be given to the Game application. For example, a ‘Start’ as input shows the direct access to the game instead of doing any registration. Likewise, numbers of players are given as input to the different stages of the game and it justifies the restriction from single player joining in the game to multiplayer.

**Customer journey Map**

**Positive Experience**

**Negative Experience**

**Customer Journey**

The above diagram outlines the experience of customer with this Game application (Shiratori, Trevisan & Mascarenhas, 2021). It showcase that a customer will experience both positive and negative aspects in the journey of reaching “Lost in the Wood” online game. For instance, if a customer likes to play the game then, it is a positive experience of this journey. Whenever customer does not find online game then it is considered as negative experience. Likewise, the customer journey ends up with a positive experience of successfully playing the “Lost in the Wood”.

**Testing strategy**

The testing of a game is one of the most important steps in preparing gaming software. As the gaming industry is becoming very complex time by time either computer games or mobile games. So, the developers have become more serious about the testing process of the games. Testing is a type of method for delivering a high-quality game. The main aim of the testing is to make sure that it can be error-free and has no noticeable issues. This process is done before launching the game and it is a part of the developing process of the game. Creating test scenarios, collaborating closely with team members, ensuring that the new functionalities are properly integrated, and, of course, ensuring that the aforementioned difficulties are no longer occurring are all fundamental components of the development process.

The testing process is gone through many processes before the launching of the game as after launching the game, fixing bugs is more costly than the developing phase. The testing can provide various benefits for the game software like it can help to identify the loopholes in the games and can report them. It can also help to understand the improvement areas in the game. It can give the developers an idea about the possible risks that may occur in the market. The automation testing technologies such as Appium, Robotium and Calabash can help the game to be tested properly. The testing strategies that the gaming process has taken are-

1. *Functionality testing*- with the help of this method bugs or errors of the game can be identified which may help to improve the overall user experience (Miranskyy, Zhang & Doliskani, 2021). It is a type of complex testing method which is under the black-box testing technique category. It took a lot of time to execute as it looked for the issues related to the gameplay, graphics, audio-visual etc. This testing process also helped us to understand whether the process of installation would go smoothly or not.
2. *Compatibility testing*- It is a very important testing method for a game like Lost in the woods as it can help to check if the game is able to run on the different devices or on the Operating Systems. The main aim of the method is to ensure if the gaming process is functioning properly or not based on the software configuration, hardware and graphics of the game. It can also help to understand if the user interface of the game can fit to the screen size of different computer devices or not. And if it can maintain the quality of the game all the time or not. As a whole this testing method helped us to understand the workability and the stability of the gaming software and helped to ensure the compatibility between various testing environments.
3. *Play testing*- another testing method that we did in this procedure is play testing process. In this process the game is played for analyzing the features which are non-functional like difficulty levels, balance, fun factor etc. Here, a chosen group of users tested the workflow by playing the game's unfinished versions. This process is more about judging the game than any other facts. It helped us to understand if the game can work in a well-structured way.

**Implantation**

The goal of the game is to educate the learners with 2D models. This game can only be played on a personal computer.In this game, there is a forest and some gardens in the same forest. Four players will move randomly in the forest. They will have to move in the forest very carefully because there are many loopholes in the forest as a part of the game. If a player will bash a tree s/he will be out of the game. There are also many traps in the garden. If a player falls in any trap s/he has to resume the game from the start point and the player’s life span will also be reduced. There are 3 three levels in the game. This game will be played in those levels. One player plays in the first level, two players play in the second level and three or 4 players play the game in the four level.

**Specification of the game**

Name: Lost in the Woods

Type: 2D PUZ

Game model: Four-player video game

Game Platform: PC (Windows)

Rule: 15 currencies should be collected in 250 seconds

Operation: This game is played with the help of keyboard keys control

Objective: Guide the player’s proper direction to earn 15 currencies

**Conclusion**

From the above evaluation, it has been concluded that online Game “Lost in the Wood” is a successful group project. The attributes of online game justified that it would contribute a lot in the Gaming industry and this factor is a major benchmark of project success. Similarly, the report outlines the testing strategies and customer journey in order to showcase the perspective of developer as well as customer. The online game application is simple, however, sophistication is reflected in the functionalities where the interface provides three stages as per the number of players.

**References**

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