University of Dhaka

Department of Computer Science and Engineering

Project Report
Fundamentals of Programming Lab: CSE 1211

Project Name:
Crossing Enemy

Team Members:
Md. Saim Ahmmed Utsho (41-Leader)
Md. Imran Shorif Shuvo (56)
Sabbir Ahmed (36)

1. Introduction

Crossing Enemy is a simple 2d maze action game. This game consists of some colorful levels and nicely placed cookies alongside some gruesome enemies out there.

2. Objectives

In this very game, there exists a hero and some enemies. Enemies always want to attack the hero. In our game, there is a single main character which is the hero, and it's surrounded by a handful of enemies. Different types of walls exist there and some gems can be found here and there. The hero has to collect all the gems given at a certain level. And this is the main theme of our game. After all the gems are collected in a single level, the hero has to reach the door and eventually be promoted to the next level. When the hero comes in contact with any of the enemies, instantly the game is over. As the higher level arrives, the game becomes harder and harder. Whenever the game ends, the score is automatically saved.

3. Project Features

There are many attractive features out there. Among them, these are the most fascinating ones-

- The main character can move both horizontally and vertically.
- Spanning the whole game, a user can use both a mouse & keyboard.
- After collecting all the cookies, when the character touches the door, eventually it gets promoted to the next level.
- A very surprising feature is also added here. There's a special cookie that makes the enemy futile for just once. So that, for one collision, the game won't be over. But after that, any collision causes a game over.
- There's a scoreboard saved automatically on the home doc. All the high scores are saved there.

4. Project Modules

The project is being done modular nicely. Several header files and pre-processors are included here. Describing them below-

- init.h

In this header file, we've initialized all the pre-requisites precisely. All the global variables are declared here.

- menu.h

Buttons are created in this specific header file.

- play.h

This very header file is our main header file among all. In this file, all the objects like cookies, enemies, and doors are created. The movements of all the enemies are also handled here. We've also detected the collisions between our main character and the enemies in this segment. Cookies' collection of our main character is also implemented here.

- player.h

In this section, the movement and the collisions between our main character and the walls are described here.

- player2.h

Same as mentioned above.

- score.h

In this section, we handled the input-output signals of the keyboard. The scoreboard mechanism that means showing the high score function is also implemented here.

- texture.h

In this segment, we've implemented a texture wrapper class to make our code easier. This helps us to implement the other functionalities as well.

5. Team Member Responsibilities

Project Crossing Enemy consists of three team members. They are- Md. Saim Ahmmed Utsho, Md. Imran Shorif Shuvo & Sabbir Ahmed. The responsibilities of regarding members are given below-

- Md. Saim Ahmmed Utsho

Developed the backbone of the entire gaming interface and the UI/UX corner. As well as implemented all the header files accordingly.

- Md. Imran Shorif Shuvo

Designed and mapped the wall structure of the game according to the levels as well as the enemy position. And added the buttons of the home doc.

- Sabbir Ahmed

Improved and enhanced the cookies including a special cookie which makes the enemy futile. And also worked on the mapping of the wall of levels 3, 4.

6. Platform, Library & Tools

Platform: LINUX Kernel-based OSs like POP OS, Ubuntu, etc.

All the libraries and tools are mentioned below-

- VS Code

- C
- C++
- SDL Library (pure)

7. Limitations

Although we tried our best, yet there are some limitations that can't be avoided. These are as follows-

- The cookies are not yet randomized, it just fixedly placed at specific points. So, every time a user opens the interface, he observes the same thing.
- The enemies can't throw any special obstacles towards the main character.

8. Conclusions

Through this project, we've learned various things. Among them, teamwork comes first. Throughout this entire time span, we've grown as a team. On the technical side, we've learned the usage of SDL library and some basic things of file input-output handling. Firstly, before starting this collab, we didn't even dare to imagine such huge projects to be done; but after the whole thing set and done, we've got to know that, already this hectic thing is thoroughly done by us. Throughout the entire journey, we observe that the covid pandemic has hit us hard too much. We can't meet our partners, the very teammates in person. Hence the collab didn't come out as fruitful as it'd be when doing offline in-person contact. Had we learned about OOP, our project would be fancier we can suppose surely.

9. Future plan

We're not set and done here. We're determined to work with this project in the upcoming years also. We cherish to enhance, optimize and nourish the whole gaming interface and also the UI/UX things. We dream that hopefully, one day you all can find our game on the google play store. Hoping for the day!

Repositories

GitHub Repository: https://github.com/coder-saim/Crossing-Enemy

Youtube Video: https://youtu.be/eS3oHmVpz-c

References

The references all are given below:

- Beginning Game Programming v2.0, Lazy Foo' Productions. Last updated January 9, 2021. [https://lazyfoo.net/tutorials/SDL/]
- SDL Wiki. [https://wiki.libsdl.org]
- Canva, Graphic design Software. [https://www.canva.com/]