University of Dhaka

Department of Computer Science and Engineering

Project Report:
Fundamentals of Programming Lab(CSE-1211)

Project Name:
The Living Dead

Team Members
1.Sudipto Das Sukanto
2.Sajib Saha
3.Tasnia Shahrin

1.Introduction

The living dead is an endless running game where the players take the role of a young man who has to run through the forest, collecting fire as powers, and avoid obstacles(zombie) by jumping unless he collides with them. It is a single player game where the zombie is animated. Collecting fires and killing enemies by using this power will score points for the player. The goal is to survive as long as possible in the game and score as much as possible.

2.Objectives

The main objective of the game is to implement the C/C++ language in some practical field and develop an application or game with it. By making the game, to expand the knowledge of C/C++ language is also intended. The game is developed using SDL2 library functions to improve our thinking ability and game development. So the application of SDL2 library is also another objective. Developing a project using custom header files in a modular way is a goal of the project too. Moreover, this game can engage people in an entertaining way. So giving people thrilling experiences through the gameplay is also a motive of the game

3.Project Features

The project contains general game features like menu page, instruction page and basic running game features like jumping, colliding with the obstacles and collecting fires.

Menu Features:
The menu page of the game shows five options to the player. New Game,Highest score,Instruction, Credits and Exit.

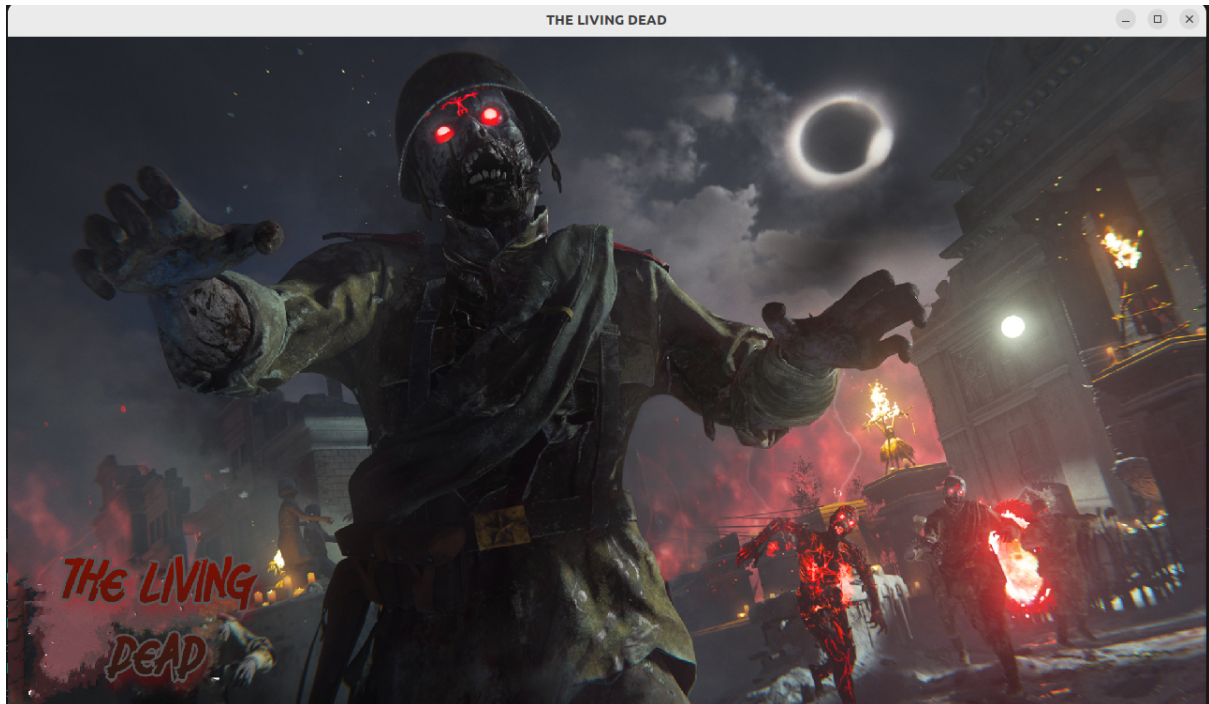**New Game Features** : If the player clicks the new game option,then the game will be started.

When the game starts,it brings the player to a forest path where the player meets some animated zombies. The zombies move towards the player. The player can jump over them by pressing the up key. The player can collect fires by running. Each collected fire is equivalent to power. The number of fires appears on the right corner of the screen as a score.
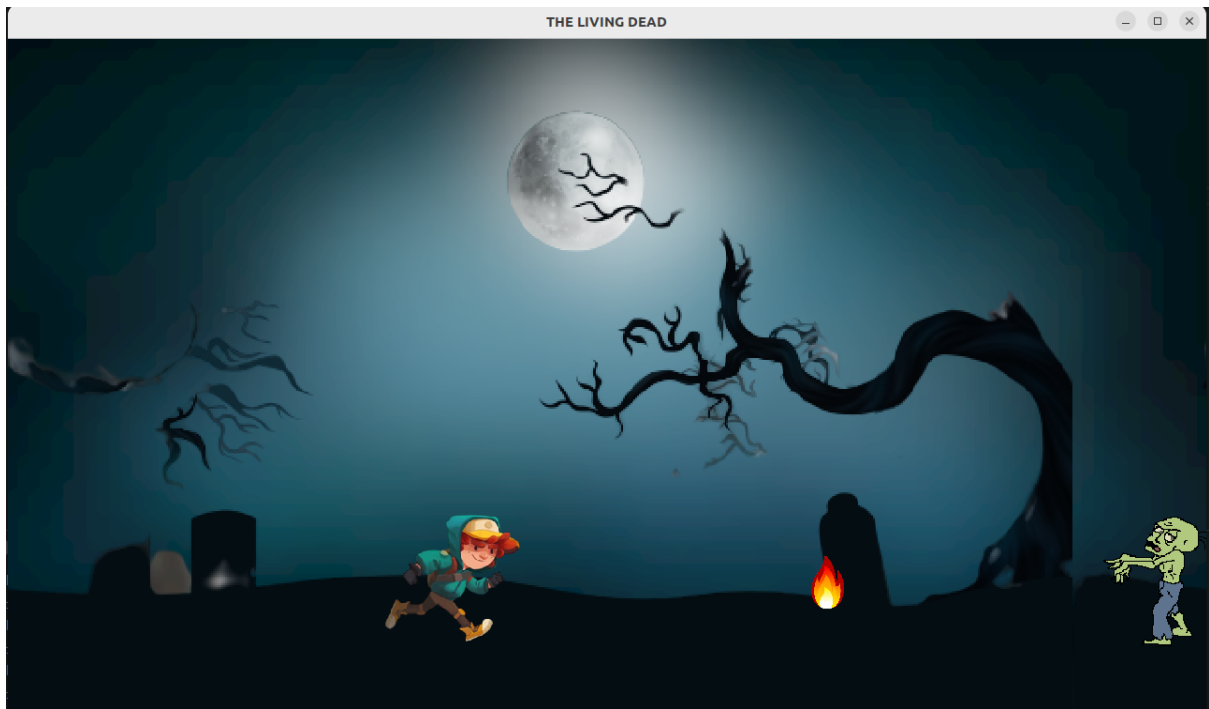
Score Features : The player can score by collecting fires. Each fire increases the score by 10. The score appears in the right corner of the screen . After the end of the game, the score will appear on the screen.

Instruction Feature: If the player clicks on instruction, the instructions regarding the gameplay appear on the screen.

INSTRUCTION

Target

YOU HAVE TO AVOID COLLISION WITH THE ZOMBIE AND STAY IN THE GAME AS LONG AS YOU CAN SURVIVE

SCORE COUNT

YOU HAVE TO COLLECT THE FIRE COIN AND STAY IN THE GAME BECAUSE THERE IS A TIME FACTOR . PER COIN WILL ADD 10 TO THE SCORE .
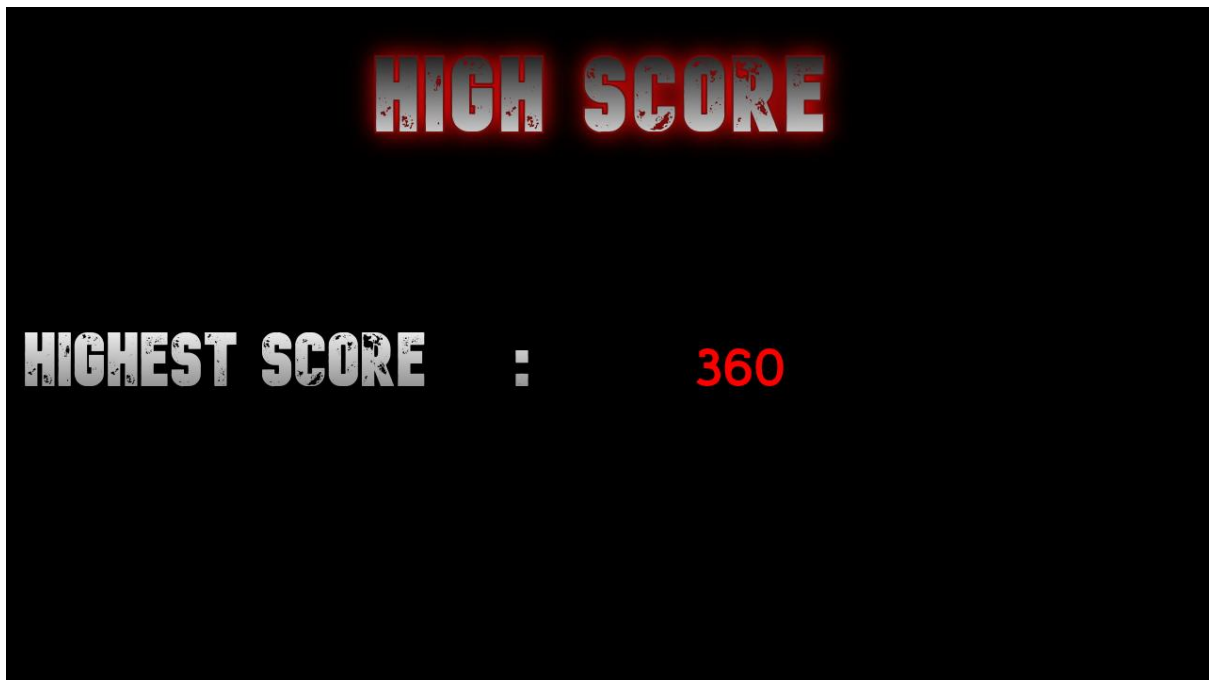
CONTROL

WHILE PRESSING THE RIGHT . LEFT . UP . DOWN KEY THE CHARACTER WILL MOVE ACCORDINGLY TO IT

Game Over Features : Each time the player collides with the obstacles ,the game gets over. After the game, the gameover writing and the score appears on the screen.
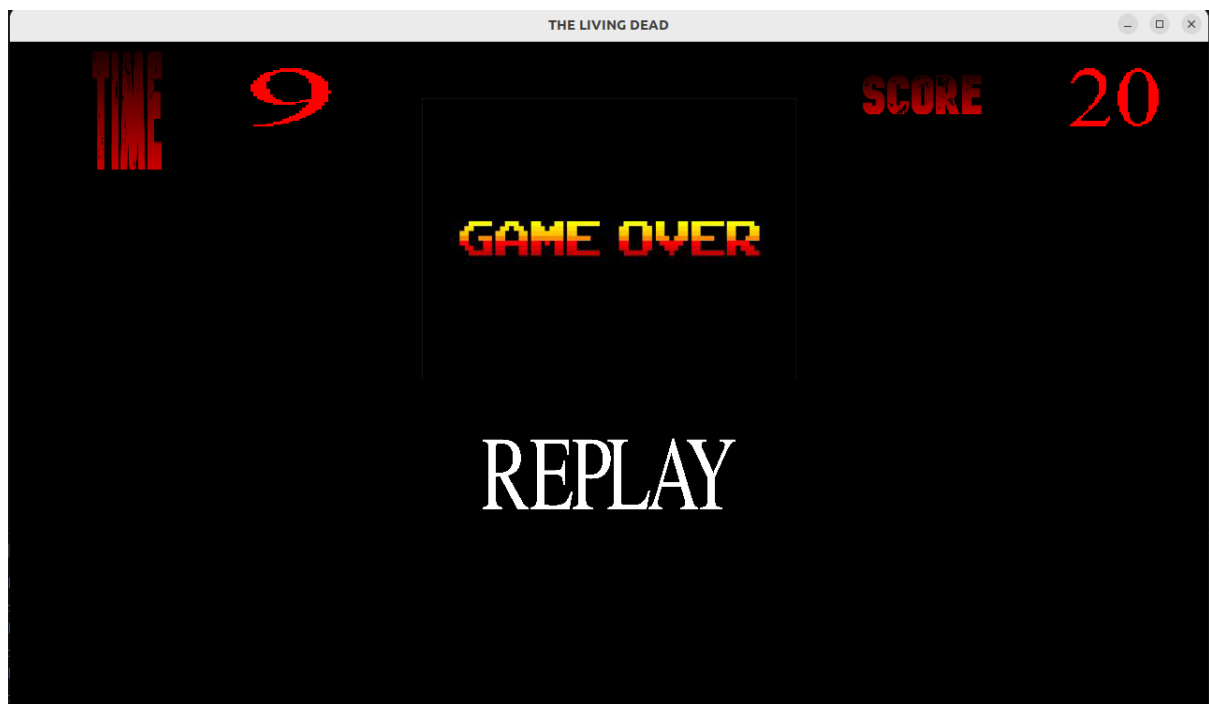
Highscore Features : If the player clicks on the Highscore, the new highest score appears on the screen .

4.Project Modules

In this C programming-based project, media, music, font is included using SDL(Simple Direct Media Layer). The header files which are used in this game,are described separately below:

- **for initialising and shutdown functions:**
  #include <SDL2/SDL.h>

- **for rendering images and graphics on screen**
  #include <SDL2/SDL_image.h>

- **for using SDL_Delay() functions**
  #include <SDL2/SDL_timer.h>

5.Team Member Responsibilities

1. Sudipto Das Sukanto(Roll:29)

- man related work like animating and rendering the man.
- User interfaces related work like mouse handling and key handling.
- Character Coding
- Structured game source code writing .
- Background related work like rendering and animating the background

2.Sajib Saha(Roll:44)

- Menu part design
- Graphics designing
- Saving the name and score in the files and showing them on the screen.
- Adding all the sounds to the game
- Score related works like converting the score into ttf and projecting it on the screen.

3.Tasnia Shahrin(Roll:25)

- Game Logic Design
- Fire related works like rendering the fire and collecting it.
- Controlling the man like jumping functions and related key works
- Obstacles related works like rendering, preventing the obstacles from overlapping and detecting collision of the man and the obstacles

6.Platform, Library & Tools

Platform: Ubuntu 20.10 and this game can be played on all Linux platforms and Windows 10.

7.Library:

The game is built using the C/C++ language and SDL2 supporting library: libsdl2-dev , libsdl2-image-dev , libsdl2-mixer-dev

8. Tools:

Sublime Text, Codeblocs, Online image converter and resizer

9.Limitations

Though the project was interesting and we tried so hard to make the game a perfect one, there remain some limitations. We could show the highest score but we couldn't show the individual score with the player name. We couldn't make separate header files.

10.Conclusions

This is the first time we have developed any kind of game . At first we had thought to make a full role playing game with a well developed character. But as we never had built a game before, we failed to achieve this fully and also experienced many hurdles. We had no idea about animation or building up an application. So we did not have any idea about where or how to start. We had to learn things from the very beginning. Even after learning things we found it difficult to apply our ideas fully because of the lack of necessary images on the internet. Even for some technical parts, we could not find any proper directions on the internet which was difficult. However, we

have learned a great deal through this project. We have learned to use SDL header libraries. We have gained experience about basic game development. Our problem solving skills also increased. Moreover, we also learnt to handle problems and find solutions ourselves. We worked as a team so our communication and coordination skills were also enhanced. We learnt to write proper modular codes. As developing a game is quite different from regular C/C++ problems, we had to imply the C/C++ knowledge in a different way. Though it seemed hard at first, it definitely improved our coding skills and we learnt new and effective things from it. We will surely make use of them in our future projects.

11.Future plan

We want to make this game more interesting and super addictive. We would like to add some more characters. We wrote our code in a way that has made future extensions and updates very easy and fast. We may add some more features and give our running man some super powers. The graphics and the controlling elements in this game were quite limited. We want to develop better graphics and animation skills and use them in our game.

12.Repositories

GitHub Repository:

Youtube Video:

13.References

1.https://wiki.libsdl.org/SDL2/FrontPage
2.https://lazyfoo.net/tutorials/SDL/

3.https://dev.to/noah11012/using-sdl2-opening-a-window-79c?fbclid=IwAR3hmza3SeAMvssibjwVrrb4JYP0VqqpyKfkijNCrtyiQQoe41uCPnitUmo