

Project: Spiritual War



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Course:

CSC-103 Object Oriented Programming

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- **Spiritual War**

- This is arcade game similar to space shooter in which a player dodges enemy bullet and try to survive whilst killing his opponents(enemies). The hero moves around with keyboard and kills his opponents by firing back at the enemies.

- **Object Oriented Concepts**

This game includes these object-oriented programming concepts:

- **Interface:**

Interfaces are employed to define a contract for classes to implement specific functionalities. The IMovement interface, **For example**, outlines methods for object movement, enabling developers to create custom movement behaviors by implementing this interface. This fosters flexibility and interoperability, as different movement behaviors can be easily integrated into the framework.

- **Singleton Pattern:**

The Singleton pattern ensures that only one instance of a class is created, which is particularly useful for managing global game state or resources. In the context of the framework, the Singleton pattern is applied to the Game class to ensure that only a single instance of the game exists at any given time. This prevents unintended duplication of game instances and simplifies access to game-related functionalities.

- **Enumeration:**

Enumerations are employed to represent a fixed set of named constants, providing a more expressive and type-safe way to work with data. Within the framework, enumerations are used to define the direction and type of enemies, enhancing code readability and maintainability. By using enumerations, developers can easily identify and manage different enemy types and directions within the game.

- **Encapsulation:**

Encapsulation is a concept where you bundle together data and the methods that operate on that data. It's like putting things in a box, so you only have to worry about what's inside that box. For instance, in our framework, we encapsulate certain game features to keep them separate and easy to work with. This helps prevent accidental changes to important parts of the game

- **Rules & Regulations**

- Hero must avoid hitting the enemies by himself
- Hero must avoid the rocket of enemies
- Hero should defeat all different enemies using bullets

- **Goal Of the Game**

- In this game, the player's objective is clear: guide the hero through challenges, survive enemy encounters, and achieve the highest score possible. The hero's main task is simple yet demanding: survive while eliminating all enemies. Success relies on the hero's agility and strategic prowess, as they navigate obstacles, evade traps, and defeat adversaries to emerge triumphant. Victory is attained by clearing the game, defeating all enemies, and securing the highest score.

- **WireFrames**

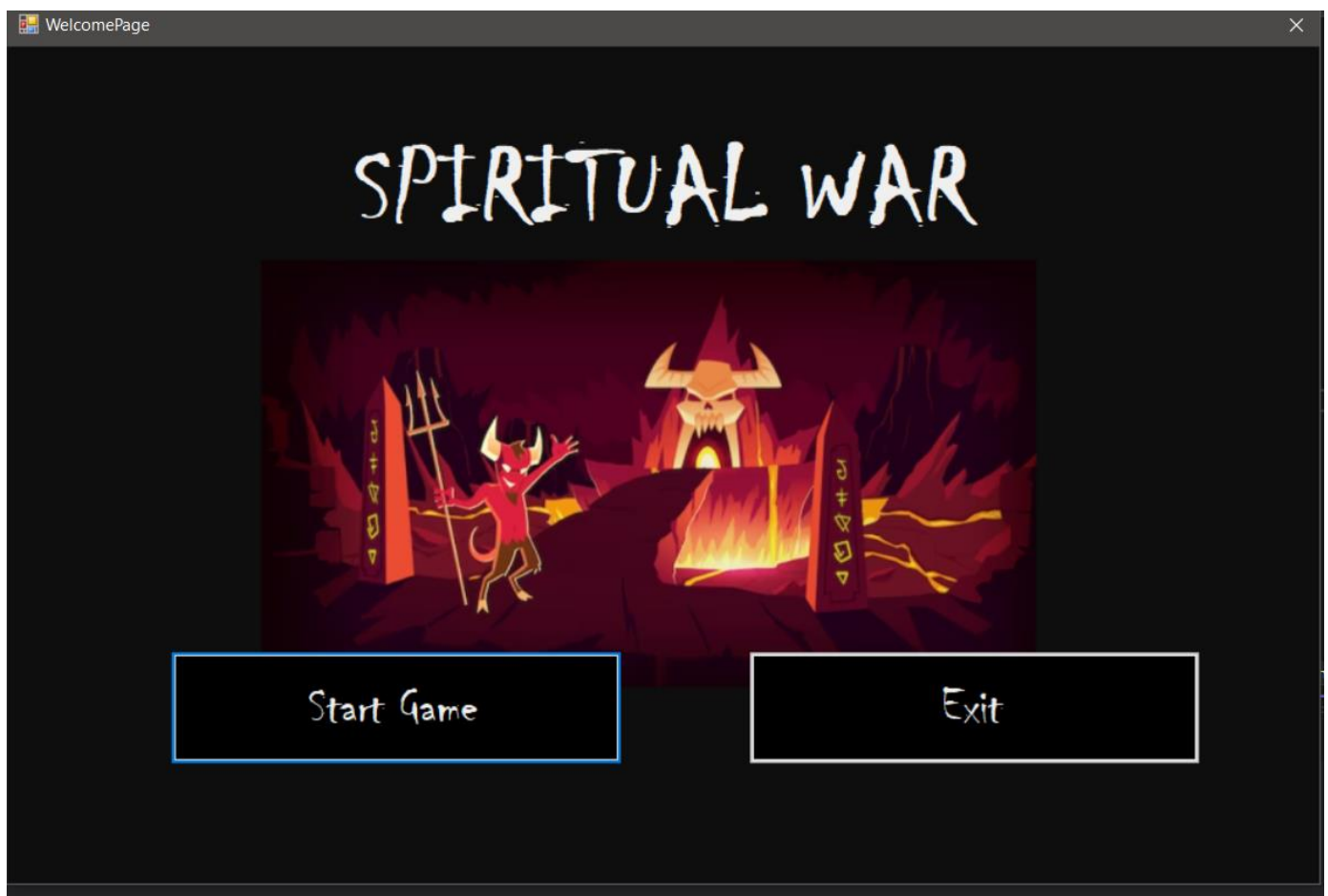


Figure 1: Welcome Page

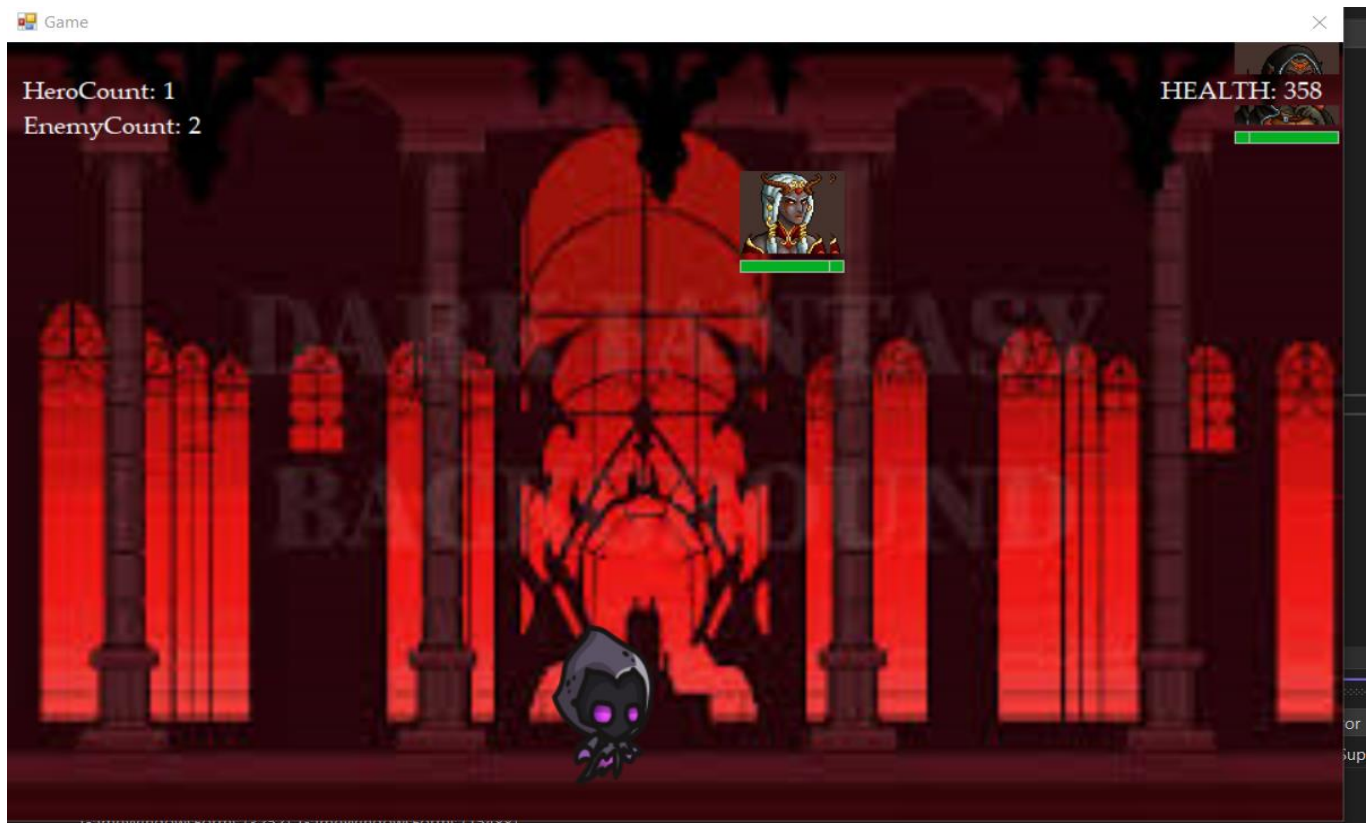


Figure 2: Game

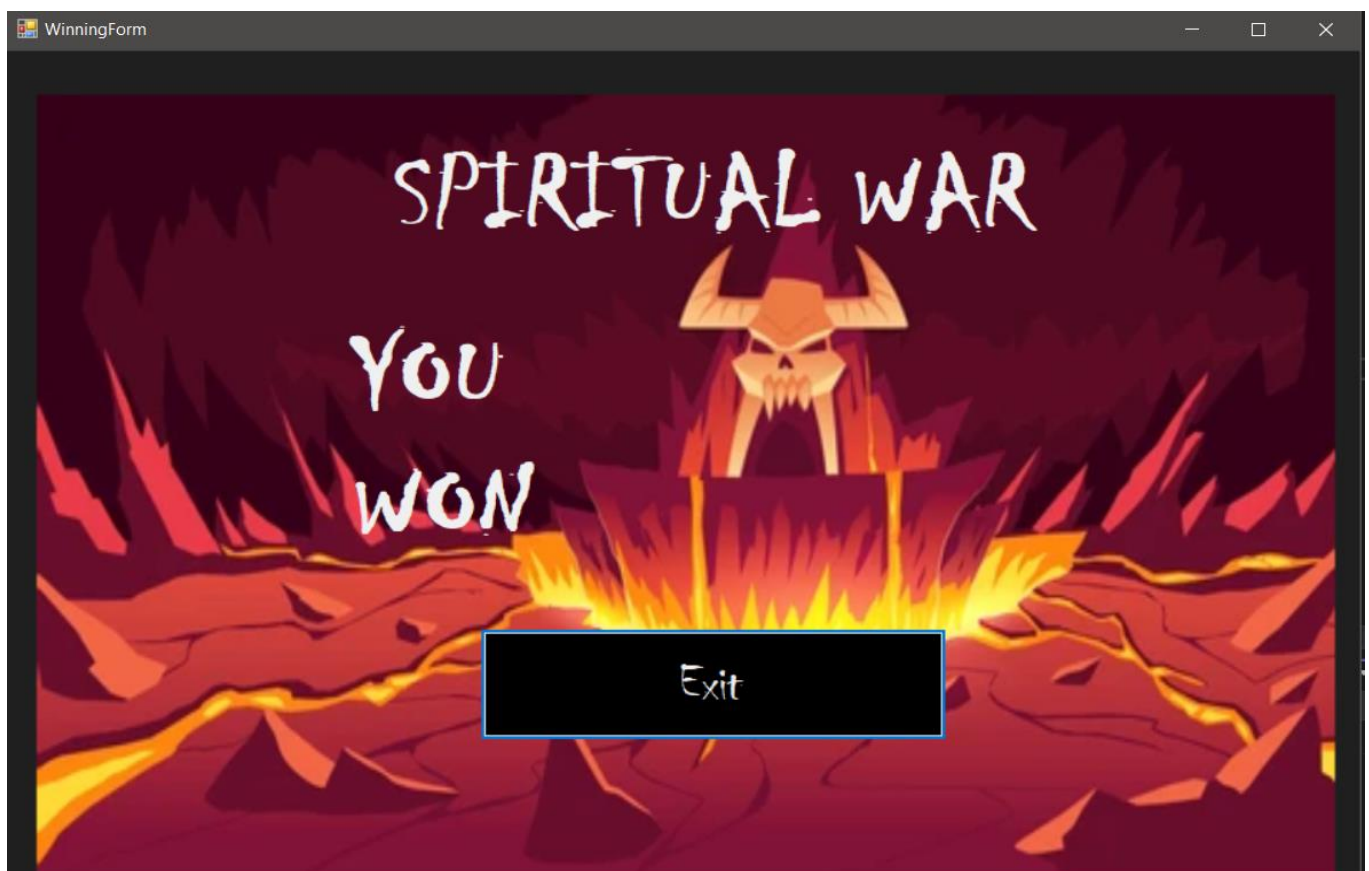


Figure 3: You Won

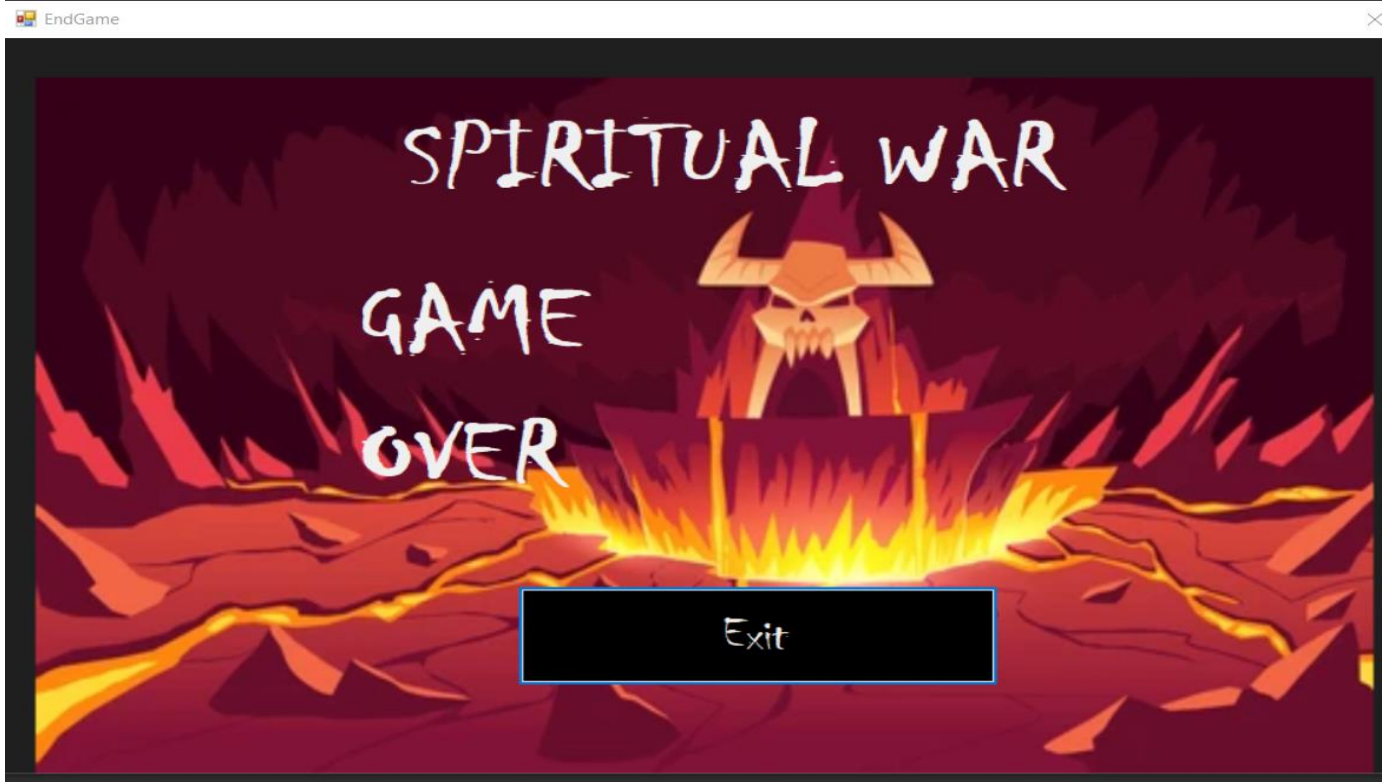
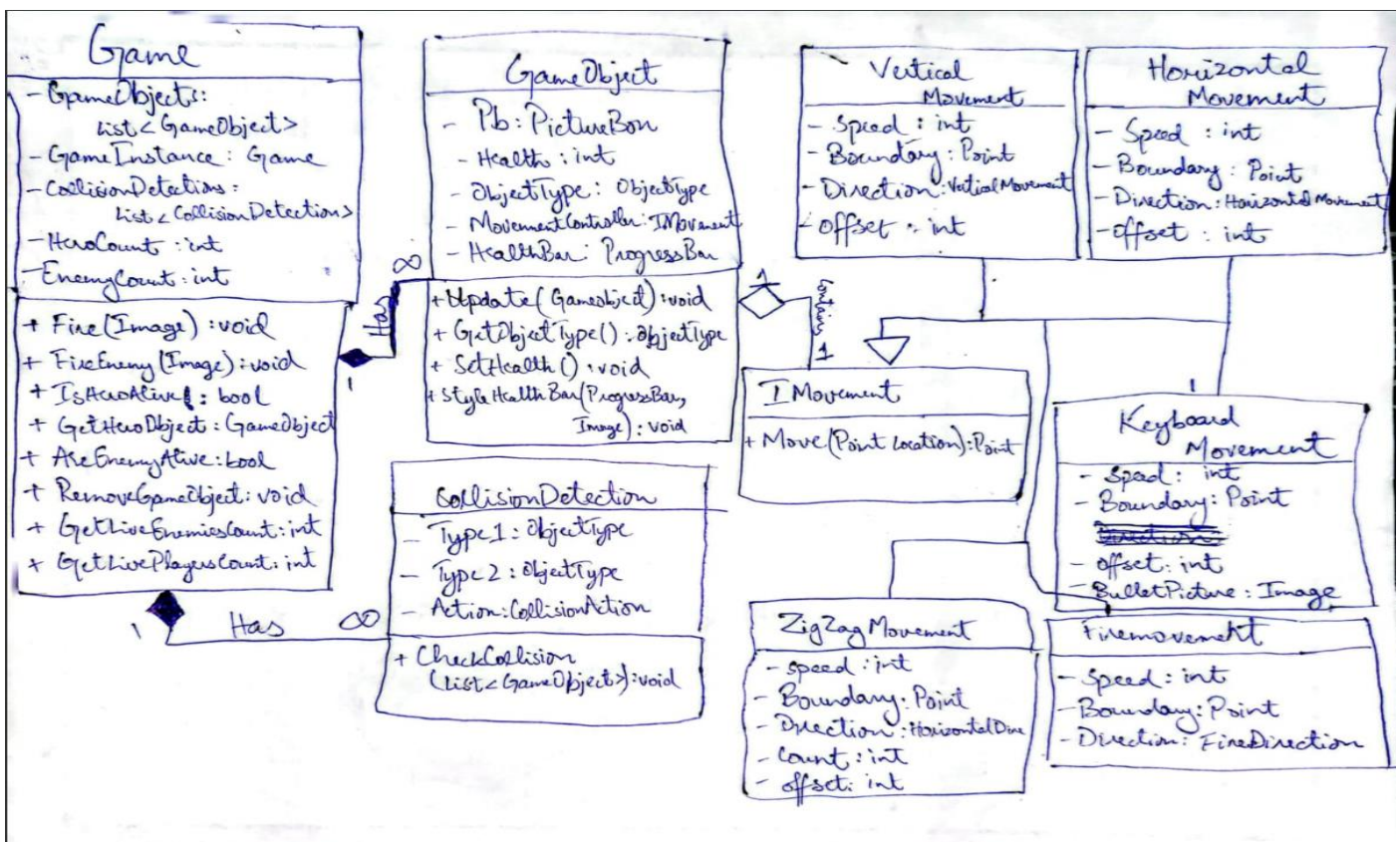


Figure 4: Game Over

- CRC Model



- **Conclusion of The Game**

- In conclusion, our invasion game is built using a smart approach called object-oriented programming, which helps us organize our code neatly. We use things like interfaces, which are like blueprints for how different parts of the game should behave, and enumerations, which are like lists of options for certain things in the game.
Behind the scenes, we have a strong framework that does a lot of the heavy lifting, like making sure the graphics look good and handling how the game responds to what you do. This framework makes it easier for us to focus on making the game fun and exciting without getting bogged down in technical details.
Overall, our game is designed to be easy to play but still challenging enough to keep you hooked. So get ready to take control of your ship, plan your moves carefully, and emerge as the ultimate champion of the battlefield!