**Project Title**: Console-Based Battleship Game

**Objective**:  
To create a console-based version of the classic Battleship game, applying the programming concepts learned in the Programming Fundamentals (PF) course.

**Overview**:  
As an undergraduate Computer Science student who just completed the second semester, I developed this project to demonstrate my understanding of the key concepts taught in the Programming Fundamentals (PF) course. The project is a console-based Battleship game built using C++. It allows players to place ships on a grid and engage in turn-based combat against a computer opponent. The game includes features such as saving progress to a text file, resuming from a saved file, and random power-ups that enhance gameplay.

**Tools and Technologies Used**:

* **Programming Language**: C++
* **Development Environment**: Visual Studio

**Key Features**:

* **Grid Initialization and Display**: The game initializes a grid and displays it for both the player and the computer.
* **Ship Placement**: Players can select and place ships on their grid.
* **Random Number Generation**: The game uses random numbers to place ships and introduce power-ups.
* **File Handling**: The game allows players to save their progress to a .txt file and resume from that saved file.
* **Power-Ups**: Random power-ups appear during the game, adding an element of surprise and strategy.

**Learning Outcomes**:  
This project provided an opportunity to apply the programming concepts learned in my PF course, such as data types, variables, control statements, loops, and file handling. I also gained experience in game development and learned how to manage and manipulate game states effectively.

**Future Improvements**:

* Implement a more sophisticated AI for the computer opponent.
* Introduce a multiplayer mode for two players to compete.
* Enhance the user interface with better visuals and interactivity.

**Conclusion**:  
This project was a valuable learning experience, allowing me to put into practice the skills acquired during my Programming Fundamentals course. The additional features like game saving and power-ups provided a deeper understanding of file handling and game logic.