Battleship Project

**Project Description:** Create a Battleship Game using Python that allows users to play the classic naval combat game against a computer opponent. The system will utilize dictionaries to track positions of ships and implement CSV files to store information about the game progress.

**Skills/Objectives:**

1. **Python Programming:**
   * Utilize Python for implementing the Battleship game.
   * Implement algorithms for game logic and decision making.
2. **Data Structures:**
   * Represent the game board and ship positions using dictionaries for efficient tracking.
   * Utilize CSV files to store and retrieve game progress data.
3. **User Interface (UI):**
   * Develop a simple text-based UI for user interaction.
   * Enable users to input coordinates to guess the opponent's ship positions and display the game board.
4. **Algorithmic Understanding:**
   * Demonstrate understanding and application of game logic for placing ships, checking hits, and determining the winner.
5. **Troubleshooting:**
   * Implement error handling mechanisms for potential issues during gameplay, such as invalid user inputs.
   * Troubleshoot and resolve any bugs or errors identified during the testing phase.

**Project Phases:**

1. **Planning:**
   * Define project goals, emphasizing the implementation of game logic and data storage using dictionaries and CSV files.
   * Identify necessary data structures for efficient implementation of the game board and ship positions.
   * Plan the user interface for accepting user inputs and displaying game progress.
2. **Design:**
   * Develop the basic structure of the Battleship game, incorporating dictionaries for tracking ship positions and CSV files for storing game progress.
   * Implement the UI for user interaction and displaying game boards.
   * Conduct initial tests to ensure basic functionality.
3. **Testing and Feedback:**
   * Collect bug reports and issues identified during testing.
   * Gather user feedback on the game mechanics and overall user experience.
   * Revise the code based on testing and feedback.
4. **Documentation:**
   * Provide comprehensive setup instructions for running the Battleship game.
   * Include explanations of the game logic and data structures used.
   * Document the Python code with clear explanations and comments.
   * Develop troubleshooting guidelines for common issues that may arise during gameplay.

**Python Libraries:**

* Utilize standard Python libraries for file I/O operations.
* Implement algorithms using Python standard libraries for game logic.
* Utilize CSV module for reading and writing CSV files.
* Optionally, use additional libraries for enhanced user interaction, such as curses for a more interactive text-based UI.