

Code Academy: Maze Escape Challenge  
Full Stack Development Stream - Batch 3  
Homework 1 – Week 3 Due Date: Nov 27th, 2023 @11:59 pm

**Problem Statement: Maze Escape Game in C#**

Welcome, brave developer, to the Maze Escape Challenge! Your task is to create a Maze Game in C# that will challenge the players to navigate from the 'Entrance' to the 'Exit' of a mysterious maze.

**Game Features:**

**Maze Generation:** Implement a method to generate a random maze with walls, an entrance, and an exit. The maze should be represented as a 2D grid.

**Player Movement:** Allow the player to move through the maze using keyboard inputs (**U for Up, L for Left, D for Down, R for Right**).

Ensure that the player cannot move through walls or beyond the maze boundaries.

**Display:** Create a user-friendly console interface that displays the maze, the player's current position, and any special features (Entrance, Exit).

**Winning Condition:** Declare the player as the winner when they reach the 'Exit' of the maze. Display a victory message and the time taken to escape.

**Bonus Feature (Optional):** Add an element of challenge, such as traps or obstacles, that the player needs to navigate around.

**Additional Guidelines:**

- Use C# methods/functions to modularize your code.
  - Utilize appropriate data structures (arrays, lists, etc.) to represent the maze.
  - Implement error handling for invalid player movements.
  - Ensure the game is user-friendly with clear instructions.
  - Test your game thoroughly to ensure it provides a challenging yet enjoyable experience.
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## Example Interaction:

Welcome to the Maze Escape Challenge!

Generated Maze:

```
#####  
#S    #  
#  ## #  
#    # #  
#####E#
```

Use W, A, S, D to move. Your goal is to reach the Exit (E)!

Current Position: (1, 1)

Enter your move (U/L/D/R): R

Current Position: (1, 2)

```
#####  
# S    #  
#  ## #  
#    # #  
#####E#
```

Enter your move (U/L/D/R): R

Current Position: (1, 3)

```
#####  
#  S   #  
#  ## #  
#    # #  
#####E#
```

Enter your move (U/L/D/R): R

Current Position: (1, 4)

```
#####  
#    S #  
#  ## #  
#    # #  
#####E#
```

Enter your move (U/L/D/R): R

Current Position: (1, 5)

```
#####  
#      S#  
#  ## #  
#    # #  
#####E#
```

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Enter your move (U/L/D/R): D

Current Position: (2, 5)

```
#####  
#      #  
#   S#  
#   # #  
#####E#
```

Enter your move (U/L/D/R): D

Current Position: (3, 5)

```
#####  
#      #  
#   # #  
#   S#  
#####E#
```

Enter your move (U/L/D/R): D

Current Position: (4, 5)

```
#####  
#      #  
#   # #  
#   # #  
#####S#
```

Congratulations! You've reached the Exit (E) in 7 moves!

Do you want to play again? (Y/N): N

Thank you for playing the Maze Escape Challenge!

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