UNIVERSITY OF WATERLOO

Lab#5

Using 2D-arrays and C-style string

Grid-Quest GAME

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Objectives

- Work on two dimensional arrays
- Understand the Grid Quest Code
- Modify your code to to give player more flexibility in motion and grid manipulation

Two Dimensional Arrays

- **Two-Dimensional Array Format:**
  <type> <identifier>[<size1>][<size2>]
- **Example:**
  - int my_array[2][5]
  - char grid[5][5]
  -
- **Initialize the array using list of values:**
  - **Example:** int my_array[2][5] = { {1,2,3,4,5} ,{ 6,7,8,9,10} };

Grid Quest Game

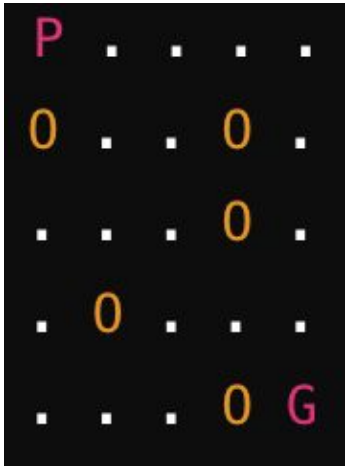
A code is provided for the students (grid_quest.cpp) that implements a 5x5 grid, that is shown in the below:

Objective: Navigate through a 5x5 grid to reach the goal ('G') while avoiding obstacles ('O').

Grid Setup: You start at the top-left corner of the grid, represented by 'P'.

Movement: Use the following keys to move:

- **W**: Up
- **A**: Left
- **S**: Down
- **D**: Right



Grid Quest Game

Game Rules:

- **Avoid Obstacles**: Obstacles ('O') block your path. You cannot move through them.
- **Win Condition**: Reach the goal ('G') by navigating the grid. Once you reach it, the game will

Grid Quest Game Modification

Students should apply the following modifications to the game:

- **Input Goal Position**: Before the game begins, you'll choose the coordinates for the goal ('G'). Make sure it's not on an obstacle or where the player starts.
- **Increase Movement Flexibility**: Add two input keys for diagonal movement:
    - Diagonal Down-Right (Southeast)
    - Diagonal Up-Left (Northwest)