

## Boggle - General Game Description:

The game of Boggle is played on a square board with random letters. The object is to find words formed on the board by contiguous sequences of letters. Letters are considered to be touching if they are horizontally, vertically, or diagonally adjacent. For example, the board:



contains the words TWO, ON, FAST, TASTE and others, but not the word SEATS. Words can contain duplicate letters, but a single letter on the board may not appear twice in a single word, for example EGG is not contained on this board.

## Dice Distribution:

Boggle Deluxe is played with a 5x5 grid whose 25 dice and letters are distributed according to this layout:

AAAFRS	AEEGMU	CEILT	DHHNOT	FIPRSY
AAEEEE	AEGMNN	CEILPT	DHLNOR	GORRVW
AAFIRS	AFIRSY	CEIPST	EIIITT	HIPRRY
ADENNN	BJKQXZ	DDLNOR	EMOTTT	NOOTUW
AEEEEM	CCNSTW	DHHLOR	ENSSSU	OOOTTU

### Your Task:

In groups of 4, create a Boggle application that displays a board of random letters, and allows the user to enter words with 3 or more letters that are found on the board. The application should report if the word entered by the user is indeed on the board (**valid words only**). If not your program should report that it was not found.

Hint: Search the board for the first letter of the word entered, and then recursively search around the found letter for the remaining letters of the word.

## Program Features:

- Provide a Graphical User Interface for the game of Boggle
- In single player mode, the user will play against a computer player – showing scores of both users and alternating turns between the two players.
- Provide the option to make it a two player game, showing the scores of both users and alternating turns between the two players.
- Scoring Rules:

Word Length	3	4	5	6	7	8 or more
Score	1	1	2	3	5	11

- Keep score of the game and display to the user. Game ends when a player reaches the “Tournament Score” – which is agreed upon before the game start.
- Winner is the person who reaches the “Tournament Score” first.
- Allow the user to restart the game.

- Include a 15 second timer for each turn.
- When both players pass twice, give the option to “Shake-up the board”
- Add other features to enhance the program (Instructions, Play, Options: Points to play, toss for who goes first, ....)
- Your program should check whether the word the user enters is: a) a valid word on the board and b) whether it is a valid English word based on a dictionary check.
- Program to check valid words are entered
- Appropriately use read from and write to files to enhance the program
- Other graphical features: colour, layouts, sound, ....
- Please refer to rules posted on D2L.

### Optional Features:

- Provide the user the option to exit or pause the game
- The user should be given an option to enter the score level they intend to play up to
- When a player achieves more than the specified number of points the game will end and report the winner of the game
- Give the user the option to set the minimum length for each valid word

## The Project Management Process

You must follow the project management process throughout the implementation of this assignment.

1. **Initiation Phase:** During this phase you must create a Project Charter Document. In your Project Charter you must include a description of the project, scope of the project, requirements, a high level timeline and task list and a list of deliverable

**Due: Jun 8, 2022**

2. **Planning Phase:** During the planning phase of the project you must include a detailed plan and work breakdown structure and schedule in the form of a Gantt chart. Your plan should include details on risk management, detailed scope, algorithm or UML diagram, and finalized list of deliverables. Include steps that will be followed for Change Management.

**Due: Jun 8, 2022**

3. **Execution Phase:** Development of an application and execution of the plan to produce deliverables.

**Due: Jun 20, 2022**

4. **Monitoring and Controlling Phase:** Provide evidence of regular status meetings/checkpoints to ensure that the tasks are on track and any changes made are tracked through a Change Management process.

**Timeline: Jun 3 - 20**

5. **Closing:** Each student is to meet and discuss their experiences on the project and create a one page reflection paper on their lessons learnt. This is an individual component, so there should be one submission per student.

**Due: Jun 21, 2022**