**Team Software Project – Preliminary Research**

**Popular Educational Games:**

Our team decided to create our own educational game inspired by pre-existing games. This section of research aims to allow the team to make an educated choice on specifically what games we are going to pull ideas and inspiration from and the over-arching concept of our game.

List of Educational Games:

* Crosswords
* Sudoku
* Picture Sliders
* Wordle
* Word Searches

Crosswords:

A crossword puzzle with black and white squares

Description automatically generatedA crossword is a word game where the player enters words into grid based on clues provided (Phillips No Date). They often appear in newspapers and magazines, however more recently apps have been created to provide a digital version of this popular game. Each puzzle has various clues falling into different categories, however there are themed crossword puzzles, where every clue is based off a theme, such as Computer Science or Engineering.

Features I think make Crossword suitable for our project:

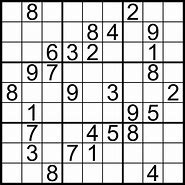
* Themed clues that allow the player to test knowledge on specific areas.
* A simple and ergonomic UI means that coding and implementation will be intuitive to both the programmer and to the user.
* A variety of possible themes gives a wide range of possibilities when coding, while allowing the possibility of expansion in the future.

Features I think make Crossword less suitable for our project:

* The need for a wide range of unique clues may limit the number of puzzles able to be played.
* The UI and overall gameplay may be too simple for there to be enough work to split between the group.

[CROSSWORD Game Rules - How To Play CROSSWORD](https://gamerules.com/rules/crossword/)

Sudoku:

Sudoku is a numbers game where the objective is to “Fill the 9x9 grid so that each row, column and 3x3 sub-grid contains numbers 1-9 with no repetition.” (Phillips No Date). They are often found in newspaper, magazines and puzzle books. Similar to Crosswords there are also digital versions available for download. Each Sudoku is unique as the locations of the numbers that are pre-filled are random each time.

Features I think make Sudoku Suitable for our project:

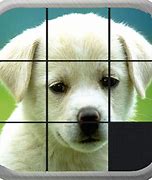
* Only the numbers 1 – 9 are included which means randomisation of pre-filled numbers will be simple and the number of possible puzzles will be larger.
* A simple Ergonomic UI means that coding and implementation will be intuitive to both the programmer and the user.

Features I think make Sudoku less suitable for our project:

* The simplicity of the game rules and the UI may mean that there is not enough work to be split amongst the group.
* There is not much variety in the game, like themed puzzles or the like which may limit the scope of the game for our project.

[SUDOKU Game Rules - How To Play SUDOKU](https://gamerules.com/rules/sudoku/)

Picture Sliders:

Picture sliders are pictures divided up into various sized grids. At the beginning of the game the square pieces of the original picture are jumbled, and one is removed. The aim is to shuffle the tiles around until the original picture has been reformed. The commonly come in the form of plastic toys and digital apps. There are typically many pictures included on the apps which allow the user to complete many puzzles at many different difficulties.

Features that I think make a Picture Slider suitable for our project:

* The availability of many difficulties and a variety of pictures means that there is scope for expansion of the program.
* A complex UI means that there will be enough work to be split amongst the group.

Features that I think make a Picture Slider less suitable for our project:

* The complex UI may be too ambitious for the time frame and the skill level of our group.
* The moving tiles within the game and their relative positions may be too ambitious.
* The game is not very educational and is more played for fun.

Wordle:

Wordle is a word game where the objective is to guess a random 5 letter word in 6 attempts (Phillips No Date). After each attempt, you are told what letters are correct, in the wrong place or not in the word at all. These are commonly found on apps where a wordle of the day is released every day. The UI is colour coded for the letters, grey if the letter is not in the word, yellow if it is in the word but not in the correct position and green if the letter is in the word and the correct position.

Features that I think make Wordle suitable for our project:

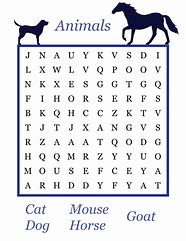
* A UI that is both simple and complex enough to allow for enough workload allocation and ease of implementation.
* The library of words can be varying sizes but easily expanded to allow for more variation in the puzzle.
* In the last 3-4 years, wordle has become very popular and recognisable to many different demographics and age ranges.

Features that I think make Wordle less Suitable for our project:

* There is no customisation for the themes of the words being guessed so some words may be completely unknown to some players.
* The limit to one puzzle a day may be frustrating to some players wanting to play more often.

[WORDLE Game Rules - How To Play WORDLE](https://gamerules.com/rules/wordle/)

Word Searches:

The objective of a Word Search is to find all of the listed words in a grid of random letters (Franco 07.01.2024). When each word is found, a circle is placed around it. Again, these are commonly found in newspaper game pages and magazines, though more recently apps and digital versions of the game have arisen. There are both themed and random Word Searches.

Features that I think make a Wordsearch suitable for our project:

* A simple UI means that it will be simple to implement and intuitive for the user as it is only a grid of random letters surrounding words.
* There can be a range of educational themes as well as random puzzles allowing for greater scope for expansion.

Features I think make a Word Search less suitable for out project:

* The program may be too simple, meaning not enough work to be split amongst the group.
* The generation of random and themed words will be difficult as many sets of words will be needed.

[Word Search: What Is It?, Objective, Purpose, And More! - Gamesver](https://www.gamesver.com/word-search-what-is-it-objective-purpose-and-more/)