Skeleton Program Exercises

Complete these exercises for the Summer 2024 Skeleton Program

1. **Procedure flow chart**. Complete a flowchart that shows the sequence of sub-programs that are called when the Main() procedure is run. Include the names and example of the arguments that are passed when each new procedure is called. You should include sub-flowcharts for each of the following user actions:
   1. A standard puzzle is started.
   2. A puzzle is loaded with a given filename.
   3. row, column and symbol inputs are given.

For the final part, make sure that you follow through how the symbol is entered into the grid, the checking of the pattern, the calculation of the score and checking whether the puzzle is finished.

1. Explain, with the use of a grid diagram, exactly how the program checks if a pattern has been completed.

It checks the 3x3 grid around the user input coordinates. For each square in that 3x3 grid, it checks the 3x3 grid around it to see if those grids create the pattern. By default, the grid square has a value of \*, if any of the 3x3 around each square is filled, it counts it as score.

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
| 8 | 9 | 4 |
| 7 | 6 | 5 |

1. Can you find any bugs with the skeleton program? Discuss with classmates.

* Error handling on \_\_loadpuzzle could be improved since if anything goes wrong it only says puzzle not loaded

1. **Programming**. The program currently allows you to write over an existing symbol (except for the blocked ‘@’. Add code to block a cell once it has been entered. Done
2. **Programming**. Introduce a new symbol pattern for ‘L’. The program should except an ‘L’ symbol and score 10 if the ‘L’ pattern below is created. Done

|  |  |  |
| --- | --- | --- |
| L |  |  |
| L |  |  |
| L | L | L |

1. **Programming**. Allow the user to include a symbol in any rotation. Done
2. What do you think are likely extensions that the exam board might ask you to make to the skeleton program?

* Delete a symbol
* Update a cell
* Add a new pattern
* Fix Scoring method
* Change the grid size that the program checks in
* (Unlikely QOL) Enhance clarity of inputs for the user and results.