

Coursework 1

Due: March 8, 2011

This coursework is intended to test basic familiarity with C syntax. It is worth 10% of the total marks for the module. To pass this assignment, you are expected to demonstrate knowledge of:

- Basic C program structure
- The ability to read C function documentation
- The difference between heap and stack memory
- C flow control

1 Part 1

Write a simple game that generates a random number in the range 1 to 128 and gives the user 4 attempts to guess it, each time reporting whether it was too low or too high and ending if the player guesses correctly.

You will find these standard library functions useful: `printf()`, `scanf()` and `random()`.

2 Part 2

Extend the program from part 1 to allow the user to play the game as many times as they wish. This should place the game-playing part in a separate function and should prompt the user at the end of each game, asking if they wish to play again.

For each game, the program should record the number of attempts taken to win (or that the player lost). At the end, it should print the ratio of wins to losses and the average number of tries required to win.

You will need to use `malloc()` or `calloc()` and `realloc()` when recording the history. If your solution does not include the use of these functions, it is probably wrong.