

List 1

Loops, conditional statements, functions

1. Write a program to guess a number between 1 and 9 which is randomly generated. User enters a number in the range. If the user guesses wrong then the prompt appears again until the guess is correct, then user gets a "Well guessed!" message, and the program exits.
2. Write a program that displays a tree made of stars using for and/or while loops. The tree should look similar to this:

```
      *
     ***
    *****
   ********
  **********
```

3. Write a program that takes input from the user and reverses it (prints backwards). It also should detect and reverse any digits given in the input like so: 0 → 9, 1 → 8, etc. (Example: book1 → 9koob, 20lamp → pma197)
4. Write a program that takes a number as an input from the user (you should check if the input is a valid natural number) and in separate functions checks:
 - a. If the number is even or odd
 - b. If the number is prime
 - c. Solves a quadratic equation $2x^2 - 5*(input)*x + 100$ using discriminant (Δ). It also should consider the imaginary solutions case. The solution might be exact or approximate.
5. Write a program which accepts a sequence of comma separated binary numbers as its input and inside a function prints the numbers that are divisible by 5 in a comma separated sequence.
Sample Data : 01001, 00111111, 100010101010, 10011101, 1010101010, 1001, 000000, 11111111
Expected Output : 000000, 11111111
6. Write a Scrabble ([link](#), [link2](#)) game score calculator, a function that calculates score for a given word, taking into account also double and triple word score. Make sure, it accepts both lowercase as well as uppercase letters.
7. *For next classes get familiar with data types, files operations and plots in python.