

## Exercise 3

1. By import the math module in whatever way you prefer. Call its sqrt function on the user input number and print that value to the console.

```
Please input the number: 144
Square Root for 144 is 12.0
```

2. By import the datetime module, display the current date and time in following format: yyyy-mm-dd HH:MM:SS.

```
2018-09-03 14:05:09
```

3. By import the random module, generate a random number between 1 and 9. Ask the user to guess the number, then tell them whether they guessed too low, too high, or exactly right.
  - Keep the game going until the user guess the correct answer
  - Keep track of how many guesses the user has taken, and when the game ends, print this out.

```
I have a number between 1-9, please guess.
Please input your number:5
You input is too small! Try agian!
Please input your number:7
You input is too large! Try agian!
Please input your number:6
You get the correct answer after 3 try
```

4. The Fibonacci sequence is a series of numbers where a number is found by adding up the two numbers before it. Starting with 0 and 1, the sequence goes 1, 1, 2, 3, 5, 8, 13, 21, 34, and so forth. The formula for the Fibonacci sequence is:

$$F_n = F_{n-1} + F_{n-2}$$

with seed values  $F_1 = 1$  and  $F_2 = 1$ .

Develop a python program to solve the Fibonacci sequence using recursive function.

```
Please input the number: 5
The Fibonacci sequence is:
1
1
2
3
5
```

5. Develop a program that will play the “Cows and Bulls” game with the user. The game works like this:

*Randomly generate a 4-digit number. Ask the user to guess a 4-digit number. For every digit that the user guessed correctly in the correct place, they have a “cow”. For every digit the user guessed correctly in the wrong place is a “bull.” Every time the user makes a guess, tell them how many “cows” and “bulls” they have. Once the user guesses the correct number, the game is over. Keep track of the number of guesses the user makes throughout the game and tell the user at the end.*

```
Welcome to Cows and Bulls.

Please input four numbers: 1234
Cows: 1
Bulls: 1

Please input four numbers: 1357
Cows: 2
Bulls: 2

Please input four numbers: 1375
Cows: 4
Bulls: 0
Congratulations! The Answer was [1, 3, 7, 5]
You took 3 try to find out the answer
```