CODING EXERCISES

FUNCTIONS

Remember: Functions help you create reusable blocks of code. You define a function like this:

```
def myFunction():
    print("Hello")
```

You call a function like this: myFunction()

Remember: You can pass an argument (a value) to a function if you define it in the function like this:

```
def myFunction(userName):
    print(“Hello, “ + userName + “, I hope you are having a great day!”)
```

You pass the argument like this: myFunction(“Tom”)

Exercise 1: Find the value of π (rounded to 8 decimal places) and write a function that displays the value.

Exercise 2: A factorial in mathematics is the product of all positive integers less than or equal to a given integer. Example: Factorial of 4 is 4x3x2x1 = 24
Create a function that calculates any factorial. Let the user enter a number and pass it to the function. The function should then calculate the factorial and return the result.

Exercise 3: Create a function that takes a word as an argument and reverses the word.

RANDOM NUMBERS

Remember: When you need random numbers you first need to import the random module like this:

```
import random
```

Then you can use random.randint(1, 2) to generate a random number between the two values you indicate.

Exercise 4: Create a game in which the user has to guess a number. After each guess indicate if the guess was too low or too high. The number that the user needs to guess should be generated randomly. When the user guesses correctly, show the number of guesses it took.

Exercise 5: Let’s record the temperature for every day of the year (as a simulation).
Write a function that saves the temperature for every day of the year (365 days) in a list.
We’ll start in January with a basic temperature of 2°. In order to have some variation, generate a random number between -2 and +3 and add it to the previous day’s temperature. After half a year of rising temperatures (use modulus 182 to check when to change) you should add a random number between-3 and 2, so that the temperature goes down again.
Check your result and think about how to make the result more realistic.

Exercise 6: Based on exercise 5, create a function that loops through all elements of the temperature list and calculates the average temperature (add all values and divide by 365). Also create a function that finds the highest temperature and a function that finds the lowest temperature. Write a program that lets the user choose whether to display the highest temperature, the lowest temperature or the average temperature.