Higher Computing Science

SDD – Various Functions

Introduction

A number of files are provided in Repl.it, only the file **functions.py** is to be changed.

Do not change **main.py** as it calls functions from **functions.py** and displays the results.

main.py

```
1  # Title: Various functions
2  # Author: Mr Friend
3  # Date: 18 Nov 2020
4
5  # Do not change this program!
6
7  from functions import *
8
9  # Calculate the area of a square
10 length = 5
11
12 answer = areaSquare(length)
13
14 print("The area of the square is " +
   str(answer) + " units squared")
15
```

When **main.py** is initially RUN only the first function in **functions.py** will return the correct value. All other functions will return 0, or False, as they are only skeleton code that needs to be completed.

```
The area of the square is 25 units squared

The area of the rectangle is 0 units squared

The area of the triangle is 0 units squared

The area of the circle is 0 units squared

The volume of the cube is 0 units cubed

The volume of the cuboid is 0 units cubed

The volume of the cylinder is 0 units cubed

The index of the @ symbol is 0

Character found: False
```

The working function in **functions.py** is shown below.

functions.py

```
1   # Title: Various functions
2   # Author: Mr Friend
3   # Date: 18 Nov 2020
4
5   def areaSquare(length):
6       # Declare local variable
7       area = 0
8
9       # Calculate area
10      area = length**2
11
12      # return value
13      return area
14
```

It receives a (formal) parameter and carries out a calculation. The result is returned to the line of code in **main.py** that called the function.

Tasks

Complete each of the skeleton functions in **functions.py**.

Test your code by running **main.py**, if your code is correct then the output will be:

```
The area of the square is 25 units squared

The area of the rectangle is 20 units squared

The area of the triangle is 10.0 units squared

The area of the circle is 78.5 units squared

The volume of the cube is 125 units cubed

The volume of the cuboid is 24 units cubed

The volume of the cylinder is 113.04 units cubed

The index of the @ symbol is 4

Character found: True
```

Finally, run **pytest** to automatically test your code against different values.

In Repl.it, submit your code.