Assignment 2

Q no.-1 Define a function calls addNumber(x, y) that takes in two number and returns the sum of the two numbers.

Ans- def addNumber(x, y):
     total = x+y
    return total

Q no.-2 Define a function calls subtractNumber(x, y) that takes in two numbers and returns the difference of the two numbers.

Ans- def subtractNumber(x, y):
    diff=x-y
    return diff

Q no.-3 Write a function getBiggerNumber(x, y) that takes in two numbers as arguments and returns the bigger number.

Ans- def getBiggerNumber(x,y):
    if x>y:
        return x
    else:
        return y

Q no.-4 Python provides many built-in modules with many useful functions. One such module is the math module. The math module provides many useful functions such as sqrt(x), pow(x, y), ceil(x), floor(x) etc. You will need to do a "import math" before you are allowed to use the functions within the math module.

Ans- import math
    # Calculate the square root of 16 and stores it in the variable a
    a =math.sqrt(16)

    # Calculate 3 to the power of 5 and stores it in the variable b
    b =math.pow(3,5)

    # Calculate area of circle with radius = 3.0 by making use of the math.pi constant and store it in the variable c
    c = math.pi*3.0*3.0

Q no.-5 Write a function to convert temperature from Celsius to Fahrenheit scale.
°C to °F Conversion: Multipy by 9, then divide by 5, then add 32

Ans- # Note: Return a string of 2 decimal places.
    def Cel2Fah(temp):
        temp=(temp*9)/5+32

```
            temp="%.2f" % (temp)
            return str(temp)
```

Q no.-6 Write a function to compute the BMI of a person.
   BMI = weight(kg) / (height(m)*height(m))
Ans-   # Note: Return a string of 1 decimal place.

```
        def BMI(weight, height):
                bmi=weight/float(height*height)
                bmi="{:.1f}".format(bmi)
                return str(bmi)
```

Q no.-7 Write a function percent(value, total) that takes in two numbers as arguments, and returns the percentage value as an integer.
Ans-   def percent(value,total):

```
                avg=(value*100)/total
                return int(avg)
```

Q no.-8 The Pythagoras' Theorem for a right-angle triangle can be written as $a^2+b^2 = c^2$, where a and b are sides of the right angle and c is the hypotenuse. Write a function to compute the hypotenuse given sides a and b of the triangle.
Ans-   # Hint: You can use math.sqrt(x) to compute the square root of x.

```
        import math
        def hypotenuse(a, b):
                hyt=math.hypot(a,b)
                return hyt
```

Q no.-9 Write a function getSumOfLastDigits() that takes in a list of positive numbers and returns the sum of all the last digits in the list.
Ans-def getSumOfLastDigits(numList):

```
        return sum(x % 10 for x in numList)
```

Q no.-10 Write a function that uses a default value.
Ans-def introduce(name, age=0):

```
        msg = "My name is %s. " % name
        if age == 0:
        msg += "My age is secret."
        else:
        msg += "I am %d years old." %age
        return msg
```

Q no.-11 Write a function isEquilateral(x, y, z) that accepts the 3 sides of a triangle as arguments. The program should return True if it is an equilateral triangle

Ans-def isEquilateral(x, y, z):
        if x == y == z and x > 0:
                return True
        return False

Q no.-12 For a quadratic equation in the form of ax^2+bx+c, the discriminant, D is b^2-4ac. Write a function to compute the discriminant, D

Ans-def quadratic(a, b, c):
        d = (b**2) - (4*a*c)
        return "The discriminant is %d." %d

Q no.-13 Define a function calls addFirstAndLast(x) that takes in a list of numbers and returns the sum of the first and last numbers

Ans- def addFirstAndLast(x):
        if len(x) == 0:
                return 0
        elif len(x) == 1:
                return x[0]
        else:
                return x[0] + x[-1]

Q no.-14 *lambda* can be considered to be an anonymous and/or inline function. It takes the form of "*lambda args : expression*."

Ans- # Complete the 'lambda' expression so that it returns True if the argument is an even number, and False otherwise.
        even = lambda num: True if num%2==0 else False

Q no.-15 The first string statement after a function definition is the docstring. It can be accessed by the __doc__ keyword.

Ans- # Add in the documentation string which gives the same output shown in the example.
def getScore(data):
        """A function that computes and returns the final score."""
        return score

Q no.-16 In Python, it is possible to pass a function as a argument to another function. Write a function useFunction(func, num) that takes in a function and a number as arguments. The useFunction should produce the output shown in the examples given below.

Ans-   def addOne(x):
                return x + 1

        def useFunction(func, num):
                return addOne(num)**2

Q no.-17 Write a function calDistance(x1, y1, x2, y2) to calculate the distance between two points represented by Point 1 (x1, y1) and Point 2 (x2, y2). The formula for calculating distance is given below:

distance = $\sqrt{(x2\text{-}x1)_2 + (y2\text{-}y1)_2}$

Ans-   import math

```
def calDistance(x1,y1,x2,y2):
        distance=math.sqrt(math.pow((x2-x1),2)+math.pow((y2-y1),2))
        return float(distance)
```