ITEC-425 / SENG-425: Python Programming Lab

Lab 4: Functions

Task 1

Write a function that takes an integer argument and prints whether the number is even or odd.

In [1]:
```
def even_or_odd(num):
    if type(num) is int:
        if num % 2 == 0:
            print("Number is EVEN")
        else:
            print("Number is ODD")
    else:
        print("Error: argument is not an integer.")
```

Output

In [2]:
```
even_or_odd(10)
```

```
Number is EVEN
```

In [3]:
```
even_or_odd(33)
```

```
Number is ODD
```

In [4]:
```
even_or_odd(3.5)
```

```
Error: argument is not an integer.
```

Task 2

Write a function that takes as argument the radius of a circle, and computes and prints its area. If the radius is not given, it should compute the area of a unit circle (i.e., the default radius is 1).

- The area `A` of a circle of radius `r` is given as: `A = pi * r * r`
- To get the value of `pi` in your program, you must first import the math module `import math` and then use `math.pi` to get the value of `pi`.

In [5]:
```
import math

def area_of_circle(radius=1):
    area = math.pi*radius**2
    print("Area of circle having radius", radius, "is:", area)
```

Output

In [6]:
```
area_of_circle()
```

```
Area of circle having radius 1 is: 3.141592653589793
```

In [7]:
```
area_of_circle(1)
```

```
Area of circle having radius 1 is: 3.141592653589793
```

In [8]:
```
area_of_circle(2)
```

```
Area of circle having radius 2 is: 12.566370614359172
```

Task 3

Write a function that checks if a given number is prime or not. A prime number is an integer greater than 1 that is divisible by only 1 and itself.

In [9]:
```
import math

def is_prime(num):

    # 1 is not a prime
    if num == 1:
        return False

    # any even number greater than 2 is not a prime
    if num > 2 and num % 2 == 0:
        return False

    # for any other number, it is not a prime if divisible by any odd
    # integer between 3 and the square root of that number
    for i in range(3, int(math.sqrt(num)) + 1, 2):
        if num % i == 0:
            return False

    # if none of the above conditions are true then the number must be a prime
    return True
```

Output

In [10]:
```
is_prime(1)
```

Out[10]:
```
False
```

In [11]:
```
is_prime(2)
```

Out[11]:
```
True
```

In [12]:
```
is_prime(11)
```

Out[12]:
```
True
```

In [13]:
```
is_prime(12)
```

Out[13]:
```
False
```

Task 4

Write a function called `print_name(name, number)` that takes two arguments: a string and a number. It prints the given string the given number of times as shown below.

For example:

```
> print_name("Blackadder", 5)
Blackadder 1
```

```
Blackadder 2
Blackadder 3
Blackadder 4
Blackadder 5
```

In [14]:
```
def print_name(name, number):
    count = 1
    while count <= number:
        print(name, count)
        count = count + 1
```

Output

In [15]:
```
print_name("Item", 5)
```

```
Item 1
Item 2
Item 3
Item 4
Item 5
```

In [16]:
```
print_name("Step", 4)
```

```
Step 1
Step 2
Step 3
Step 4
```

Task 5

Write a function that returns the lesser of two given numbers if both numbers are even, but returns the greater if one or both numbers are odd

```
lesser_of_two_evens(2,4) --> 2
lesser_of_two_evens(2,5) --> 5
```

In [17]:
```
def lesser_of_two_evens(a, b):
    if a%2 == 0 and b%2 == 0:
        return min(a, b)
    else:
        return max(a, b)
```

Output

In [18]:
```
lesser_of_two_evens(2, 10)
```

Out[18]: 2

In [19]:
```
lesser_of_two_evens(7, 8)
```

Out[19]: 8