Untitled7

February 6, 2023

1 Assignment 4 - Functions

1.0.1 Q1. Which keyword is used to create a function? Create a function to return a list of odd numbers in the range of 1 to 25.

1.0.2 Ans - def is the keyword used to create a fucntion

[2]:
```
def oddList():
    lst = []
    for i in range(1,25):
        if i % 2 != 0:
            lst.append(i)
    return lst

odd_list_1to25 = oddList()
odd_list_1to25
```

[2]:
```
[1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23]
```

1.0.3 Q2. Why *args and **kwargs is used in some functions? Create a function each for *args and **kwargs to demonstrate their use.

1.0.4 Ans -

1.0.5 *args —-> If you do not know how many arguments that will be passed into your function, add a* before the parameter name in the function definition.This way the function will receive a tuple of arguments, and can access the items accordingly:

1.0.6 Example

[3]:
```
def function(*args):
  print("The last name in the list is " + args[2])

function("Emil", "Tobias", "Linus")
```

```
The last name in the list is Linus
```

1.0.7 kargs ——> If you do not know how many keyword arguments that will be passed into your function, add two asterisk: before the parameter name in the function definition.This way the function will receive a dictionary of arguments, and can access the items accordingly:

1.0.8 Example

[4]:
```
def function1(**kargs):
  print("His last name is " + kargs["lname"])

function1(fname = "Tobias", lname = "Refsnes")
```

```
His last name is Refsnes
```

1.0.9 Q3. What is an iterator in python? Name the method used to initialise the iterator object and the method used for iteration. Use these methods to print the first five elements of the given list [2, 4, 6, 8, 10, 12, 14, 16, 18, 20].

1.0.10 Ans - An iterator is an object that contains a countable number of values.An iterator is an object that can be iterated upon, meaning that you can traverse through all the values.Technically, in Python, an iterator is an object which implements the iterator protocol, which consist of the methods iter() used for initialise and next() for iteration.

[5]:
```
list1 = [2, 4, 6, 8, 10, 12, 14, 16, 18, 20]
```

[6]:
```
list2 = iter(list1)
print(next(list2))
print(next(list2))
print(next(list2))
print(next(list2))
```

```
2
4
6
8
```

1.0.11 Q4. What is a generator function in python? Why yield keyword is used? Give an example of a generator function.

1.0.12 Ans - Generator-Function: A generator-function is defined like a normal function, but whenever it needs to generate a value, it does so with the yield keyword rather than return. If the body of a def contains yield, the function automatically becomes a generator function.

[10]:
```
def simpleGeneratorFun():
    yield 1
    yield 2
    yield 3
```

```
for value in simpleGeneratorFun():
    print(value)
```

```
1
2
3
```

1.0.13 Q5. Create a generator function for prime numbers less than 1000. Use the next() method to print the first 20 prime numbers.

[21]:
```
def primeNumbers(n):
    for i in range(n):
        if i % 2 == 0:
            yield i

a = primeNumbers(1000)
```

[22]:
```
j = 0
for i in a:
    j = j+1
    if j <= 20:
        print(i)
```

```
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
```

[ ]:
```

```