Information Technology

Year 2020/2021

Introduction to Programming

Programming in Python

Functions

- What is a function?
  - named piece of code, separate from all others
  - can take any number and type of input parameters
  - return any number and type of output results

- How to use a function?
  - Define it
  - Call it

- Syntax

  " def(list of arguments): "

Example Function

```
In [1]: def IfLikeExcel(testArg, whenT, whenF ):
            if testArg:
                return whenT
            else:
                return whenF
```

```
In [2]: a = int(input("valor a testar:"))
        print(IfLikeExcel(a%2 == 0, "É par", "é ímpar"))

        valor a testar:15
        é ímpar
```

A function may call itself (Recursive function):

```
In [1]: def fact(n):
            if n == 1:
                return n
            else:
                return n * fact(n-1)


        fact(10)
```

```
Out[1]: 3628800
```

Modules

- *module* is a file of Python code
- Import a module

  import «module-name» as »myName»

  optional

- Example:

```
In [1]: import random as r

In [2]: myList = [1, 5, 7, 23, 65, 32, 65, 49]

In [3]: print(r.choice(myList))
        23

In [4]: print(r.randint(100, 1000))
        723
```

Exception Handler

- Protect your program with "**try**" / "**except**":

```
In [1]: short_list = ["Monday", "Tuesday", "Thursday", "Friday", "Saturday", "Sunday"]
        while True:
            value = input('Position [q to quit]? ')
            if value == 'q':
                break
            try:
                position = int(value)
                print(short_list[position])
            except IndexError as err:
                print('Bad index:', position)
            except Exception as other:
                print('Something else broke:', other)
```

```
Position [q to quit]? 3
Friday
Position [q to quit]? 0
Monday
Position [q to quit]? -1
Sunday
Position [q to quit]? 30
Bad index: 30
Position [q to quit]? dsfhg
Something else broke: invalid literal for int() with base 10: 'dsfhg'
Position [q to quit]? q
```