



LAB 1 – Introduction to Python

Marks = 2

Submission =

- **This lab must be completed in the class. You must show the completion to the Instructor/GA to get the grade. Write your answers in front of each question in bold.**
- **Each student should work individually on this lab.**

NOTE: Use Python's **IDLE** interactive tool. Write your answer beside each command in this sheet in **bold**.

Part 1 - Lists in Python: Given the following two lists:

```
list1 = ["apple", 10, 3.14, [1, 2, 3], "class", 20, [4.5, 6.7], 5.5]
```

```
list2 = [8, "list in python", [9.1, 7.2], 15, "MAC", [2, 4, 6], 3.33, 12.5]
```

1.1 - Work with list indexing and slicing:

Indicate the results if you type the following commands in IDLE:

- a) `list1[2][1]`
- b) `list2[3][0]`
- c) `list1[4][2][1]`
- d) `len(list2)`
- e) `list1[12]`
- f) `list2[-4:-1]`
- g) `list1[2:14]`
- h) `list2+list1`
- i) `list1*2`
- j) `list2[5][1] = 0`
- k) `del list1[-3]`

1.2 - Work with list methods and data types:

Type python commands to do the following:

- a) append the string 'university' to list1
- b) remove the last element of list2
- c) insert the item 100 at index 5 in L1
- d) add the integers in the list [44, 50] at the end of list2

Part 2 - Strings in Python: Given the following two strings:

```
str1 = "Django allows a rapid web development and creates scalable systems"
```

```
str2 = "There are two areas in cloud computing: performance and security"
```

2.1 - Work with string indexing, slicing, assignment, and concatenation: Indicate the results if you type the following commands in IDLE. Indicate the reason for each answer. Ex. The answer is 'o' because o is at index [7].

- a) str2[-1:-6:-1]
- b) str1[9]
- c) str2[-2:]
- d) str2[0:20:3]
- e) s1+" "+s2

2.2 - Work with string methods: Use **str** methods to do the following and indicate the corresponding results.

- a) Check if the string str1 ends with the word 'systems'
- b) Return a list of words from str2
- c) Convert str1 and str2 to all uppercase letters
- d) Replace the string 'web' of str1 with an empty string
- e) Count the number of times 'e' occurs in str2

Part 3- Dictionary in Python: Define the following *dicts*:

#dictionary literals

```
d1={"name": "Bob", "age": 35, (4, 10):['x', 'y', 'z'], '+1' : "Canada", 44: 99, 19:555}
```

#dictionary using sequences

```
d2 = dict([("name", "Livy"), ('age', 44), ((1, 3, 5), ['a', 'b', 'c']), (0, 'black'), (33, 67)])
```

#dictionary using keywords

```
d3 = dict(id=2277, name='Michael', siblings=['Janet', 'Martin', 'Richard'])
```

Work with dict methods: Type the following commands at the Python prompt in IDLE interactive mode and indicate the result of each command:

- a) d1.keys()
- b) d2.values()
- c) d3.get('id')
- d) d2.get('age')
- e) d3.get('age')
- f) d3.get('name', 'Tim')

- g) `d2.items()`
- h) `d3['siblings']`
- i) `d2['siblings']`
- j) `d2.update(d3)`
- k) `d2[0]`
- l) `d1.get((1,2))`
- m) `d2['siblings']*`
- n) `d2['name']*`
- o) `d1 == d2`
- p) `len(d2)`
- q) `for key in d1.keys():`
 `print(key)`
- r) `for key in d2.keys():`
 `print(d2[key])`

**means after update.*