YILDIZ TECHNICAL UNIVERSITY
FACULTY OF MECHANICAL ENGINEERING
DEP OF INDUSTRIAL ENGINEERING
2021/2022 FALL SEMESTER
END2971 – Advanced Computer Programming
EXAM: Midterm 1

MUDEK Criteria								Total
Question(s)	1	2	3	4	5	6	7	
Grade								

Name-Surname :
Student ID :
Signature :
Res. Assist :

Duration: 60 minutes
Date: 23.11.2021
Exam Place: B202 B302 B501 B502

Q1. (10p) Write a code that takes a string, say **str1** and counts the number of lower case vowels contained in the string `str1` and assigns it to a variable called **num**. Valid vowels are: 'a', 'e', 'i', 'o', and 'u'. For example, for a given string `'mehmet guler'`,the code will return 4.

Q4. (20p) What are the outputs of the following codes?

```
str = "mehmet"
str[1:4]
```

_____

_____

```
str = "abc"
for i in range(len(str)):
    print(str[0:i])
```

_____

_____

Q2. (10p) You can generate a list using list conditionals. The code below is an example for a list conditional:

```
L1 = [i for i in range(10)]
```

Using a list conditional, write the python code that generates the list of vovels in a given string. For example if the given string is `str1 = 'mehmet guler'` then the list should be `['e', 'e', 'u', 'e']`.

```
values = [3, 5, 2, 1]
total = 0
for x in values:
    total += x
print(x,z)
```

_____

_____

```
divisor = 2
num=0
while num in range(0,10,2):
        print(num/divisor)
        num += 2
```

_____

_____

_____

Q3. (10p) Write a lambda function which takes an input x and generates a list from 0 upto x-1. For example if the input is x=5, then it returns the following list: `[0,1,2,3,4]`

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Good Luck…

Q5. (20p) Assume there are two dictionaries called **Mid1** and **Mid2**. The dictionary **Mid2** only includes a subset of **Mid1**. You want to calculate a weighted average of these two dictionaries and write it to a new dictionary called **Avg** like the following:
- If an entry exists in both of the dictionaries (Mid1 and Mid2), then take the average of them and set it as the value at the new dictionary Avg..
- Otherwise (i.e., if an entry is only at the first list), then directly write the value in the first dictionary as the new value. Note that there are no any other options, i.e. there are no entries that exist Mid2 but do not exist in Mid1.
For example, if two dictionaries are given as follows,
```
Mid1 = {'S1': 55, 'S2': 50, 'S3': 70}
Mid2 = {'S1': 95, 'S3': 90, }
```

then the resulting dictionary Avg will be
```
Avg = {'S1': 75, 'S2': 50, 'S3': 80}
```
Write the required python code.

Q6. (10p) Write a map function which reduces the value of every item in a given list by 1. For example if the list is `[2,5,3,8]` then the output will be `[1,4,2,7]`.

Q7. (20p)

a) (10 p) Fill in the blanks such that the following code to create a class calls **Person**. This class takes the name and the ages during the initialization of each object. The code then generates an object of type Person with name Poyraz and age 17.

```
_____ Person:
    def _____(_____,name,age):
        _____= name
        _____= age
P1 = Person(Poyraz, 17)
```

b) (10p) Fill in the blanks such that the following code generates a new class called Student that inherits from the Person class above. The Student class has a getname() function which returns the name. Finally it creates an object called P2 of type Student with name *Mehmet* and age *25.*

```
class _____:
    def _____(_____):
        return _____

P2 = _____
```