OOP Using Python Day 2 Assignment

February 1, 2025

1 Python Lab 2

1.1 Question 1

Write a Python function to check whether a number falls in a given range.

- Range (-5, 5) return `True`

[1]:
```
def isInRange(n: float, r: list):
    if (n >= r[0] and n <= r[1]):
        return True
    return False


print(isInRange(3, [1, 5]))
print(isInRange(6, [1, 5]))
print(isInRange(3, [1, 3]))
```

```
True
False
True
```

1.2 Question 2

Write a Python program to convert two lists into a dictionary in a way that item from `list1` is the key and item from `list2` is the value.

[2]:
```
def listToDict(l1, l2):
    if (len(l1) != len(l2)):
        return "Both lists must have the same length"
    return {v: k for v, k in zip(l1, l2)}


l1 = ['name', 'age', 'job']
l2 = ['Mohamed', 25, 'Engineer']
listToDict(l1, l2)
```

[2]:
```
{'name': 'Mohamed', 'age': 25, 'job': 'Engineer'}
```

1.3 Question 3

Write a Python function to create and print a list where the values are square of numbers between 1 and 30 (both included).

[3]:
```
def get1to30sq():
    return [i**2 for i in range(1, 31)]


print(get1to30sq())
```

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324,
361, 400, 441, 484, 529, 576, 625, 676, 729, 784, 841, 900]
```

1.4 Question 4

Write a Program that takes a list of 5 numbers `[3, 6, 4, 0, 8]` then:

- a. Remove the last element in the list.
- b. Add `'R'` in the second place.
- c. Ask the user to input a specific number in the list then delete it (by taking the list element, not index).

[4]:
```
def manipulateList(l: list):
    if (len(l) != 5 or not all([(type(num) in [int, float]) for num in l])):
        return "Invalid input"
    l.pop()
    l.insert(2, 'R')
    l.remove(float(input('Which number do you want to remove')))
    return l


l = [1, 2, 3, 4, 5]
print(manipulateList(l))

l = [1, 2, 3, 4, '5']
print(manipulateList(l))
```

```
[1, 2, 'R', 4]
Invalid input
```

1.5 Question 5

Create 2 dictionaries and append the two into one (taking into consideration unique keys).

[5]:
```
def mergeDict(d1, d2):
    for k, v in d2.items():
        if (k not in d1.keys()):
            d1[k] = v
```

```
        else:
            d1[f'{k}2'] = v
    return d1


d1 = {'a': 1, 'b': 2}
d2 = {'c': 3, 'd': 4, 'a': 5}
print(mergeDict(d1, d2))
```

```
{'a': 1, 'b': 2, 'c': 3, 'd': 4, 'a2': 5}
```