WP LAB 4 – Python Basics

Name: Pranamya G Kulal
Class: CSE A
Reg no: 220905018
Roll no: 8

Q1) Write a python program to select smallest element from a list in an expected linear time.

i)Code l4a1.py

```
arr = [58, 12, 96, 36, 41, 89, 8]
smallest = arr[0]
for i in arr:
    if i < smallest:
        smallest = i
print("Smallest element in the list is %d" % smallest)
```

ii) Terminal

```
Smallest element in the list is 8
```

Q2) Write a python program to implement bubble sort.

i) Code l4a2.py

```
def bubble_sort(arr):
    n = len(arr)

    for i in range(n):
        for j in range(0, n-i-1):
            if arr[j] > arr[j+1]:
                arr[j], arr[j+1] = arr[j+1], arr[j]

if __name__ == "__main__":
    sample_list = [64, 34, 25, 12, 22, 11, 90]
    print("Original List:", sample_list)
    bubble_sort(sample_list)
    print("Sorted List:", sample_list)
```

ii) Terminal

```
Original List: [64, 34, 25, 12, 22, 11, 90]
Sorted List: [11, 12, 22, 25, 34, 64, 90]
```

Q3) Write a python program to multiply two matrices

i) Code l4a3.py

```
X = [[2,4,6],
    [8,10,12],
    [14,16,18]]
Y = [[1,2,3,4],
    [5,6,7,8],
    [9,10,11,12]]
result = [[0,0,0,0],
         [0,0,0,0],
         [0,0,0,0]]
```

```
for i in range(len(X)):
   for j in range(len(Y[0])):
       for k in range(len(Y)):
           result[i][j] += X[i][k] * Y[k][j]

for r in result:
   print(r)
```

ii) Terminal

```
[76, 88, 100, 112]
[166, 196, 226, 256]
[256, 304, 352, 400]
```

Q4) Write a Python class to find validity of a string of parentheses, '(', ')', '{', '}', '['and ']. These brackets must be close in the correct order, for example "()" and "()[]{}" are valid but "[)", "({[)]" and "{{{" are invalid.

i) Code l4q4.py

```
class py_solution:
   def is_valid_parenthese(self, str1):
        stack, pchar = [], {"(": ")", "{": "}", "[": "]"}
        for parenthese in str1:
            if parenthese in pchar:
                stack.append(parenthese)
            elif len(stack) == 0 or pchar[stack.pop()] != parenthese:
                return False
        return len(stack) == 0

print(py_solution().is_valid_parenthese("((})){}[]"))
```

ii)Terminal

```
False
```

Q5) Write a Python class to reverse a string word by word

i) Code l4a5.py

```
s = "hello world from earth"
words = s.split()
reversed_words = ""
for word in reversed(words):
    reversed_words += word + " "
reversed_words = reversed_words.strip()
print(reversed_words)
```

ii) Terminal

```
earth from world hello
```

Q6)Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle.

i)Code l4a6.py

```
class Circle():
    def __init__(self, r):
        self.radius = r
    def area(self):
        return self.radius**2*3.14

    def perimeter(self):
        return 2*self.radius*3.14

NewCircle = Circle(5)
print(NewCircle.area())
print(NewCircle.perimeter())
```

ii) Terminal

```
78.5
31.400000000000002
```