MODERN PROGRAMMING

Final Assignment
Sir. Faheem Ullah

HASSAN MEHDI

15453
Csc-201

Q1: WRITE A PROGRAM TO COMPUTE THE FREQUENCY OF THE WORDS FROM THE USER INPUT. THE OUTPUT SHOULD OUTPUT AFTER SORTING THE KEY ALPHANUMERICALLY.

ANS TO Q1:

```
# Defining the main function
def frequency_finder(sentence):

    # Splitting the sentence into individual words
    words = sentence.split(" ")
    # Sorting the words
    words = sorted(words)

    frequency_list = []
    for word in words:
        if word != "":
            # Using list comprehension to check every word and calculating the frequencies
            count = [i for i, w in enumerate(words) if w == word]

            # Appending the raw words and frequencies to the list of frequencies
            frequency_list.append(word + ": " + str(len(count)))

    # Removing the duplicates
    frequency_list = list(dict.fromkeys(frequency_list))

    # Using for loop to print the words and their frequencies
    for frequency in frequency_list:
        print(frequency)
```

```
# Asking user to enter something
sentence = input("Type:> ")

# Call function and giving the entered sentence
frequency_finder(sentence)
```

OUTPUT:

```
Type:> pakistan country code is 92 and pakistan also won world cup in 92
92: 2
also: 1
and: 1
code: 1
country: 1
cup: 1
in: 1
is: 1
pakistan: 2
won: 1
world: 1
```

Q2: Print the following pattern using for loop (nested loop)

```
5 4 3 2 1
 4 3 2 1
  3 2 1
   2 1
    1
```

Ans to Q2:

```
# Setting Rows
rows = 5

# Using nested for loop to construct the triangle logic
for i in range(0, rows + 1):
    for j in range(rows - i, 0, -1):
        print(j, end=' ')
    print()
```

Output:

```
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
```

Q3: Write a Python function that takes a list and returns a new list with unique elements of the first list also print the returned list.

Ans to Q3:

```
# Defining the function
def list_converter(list):
    unique_list = []
    for element in list:

        # Append the unique elements from the given list
        if element not in unique_list:
            unique_list.append(element)

    # Printing the unique list
    print(f"Unique elements are {unique_list}")

    # Printing the Returned list
    print(f"Returned elements are {list}")


# calling the function and giving it the list of elements
list_converter([1, 2, 3, 3, 3, 3, 4, 5])
```

Output:

```
Unique elements are [1, 2, 3, 4, 5]
Returned elements are [1, 2, 3, 3, 3, 3, 4, 5]
```

Q4: Write a Python function that that prints out the first n rows (input no of rows from user) of Pascal's triangle.

Ans to Q4:

```
# Defining the main function
def pascal_triangle(row_no):
   row = [1]
   y = [0]
   for number in range(max(row_no, 0)):
      print(row)

      # Using list comprehension
      row = [length + rows for length, rows in zip(row + y, y + row)]


# Asking user for row number
row_number = input("Enter the row number:> ")

# Call the function and giving the row number
pascal_triangle(int(row_number))
```

Output:

```
Enter the row number:> 5
[1]
[1, 1]
[1, 2, 1]
[1, 3, 3, 1]
[1, 4, 6, 4, 1]
```

Q5: Write a recursive function to calculate the sum of numbers from 0 to 10

Ans to Q5:

```
# Defining the the recursive function
def recurive_Sum(num):
    if num <= 1:
        return num
# Making the function to call itself until the condition is false
    return num + recurive_Sum(num - 1)


# Asking user to enter a number to be added recursively
number = input("Enter number:> ")

# Converting the entered number from string to int
number = int(number)

# Calling the function and giving it the number
print(recurive_Sum(number))
```

Output:

```
Enter number:> 10
55
```