Q1. Write the program for :
Given an integer, n , perform the following conditional actions:
• If n is odd, print Weird
• If n is even and in the inclusive range of to , print Not Weird
• If n is even and in the inclusive range of to , print Weird
• If is even and greater than , print Not Weird
Constraints
1<=n<=100
Output Format
Print Weird if the number is weird; otherwise, print Not Weird.

Ans:
Python code for Q1 could be extracted from here:
https://github.com/deepak-mandal/petrabytes/blob/main/Q1.py

```
n=int(input("Enter any number: "))


if n%2==1:
   print("Weird")
elif n%2==0 and 10<=n<=30:    #It is not given so, lets consider
any range
   print("Not Weird")
elif n%2==0 and 31<=n<=75:
   print("Weird")
elif n%2==0 and n>75:
   print("Not Weird")
else:                         #for rest of the cases(let)
   print("Not Weird")
```

Q2. What is the output of print list[1:3] if list = ['abcd', 786 , 2.23, 'john', 70.2]?
Ans: [786, 2.23]

Q3. How will you convert an integer to a character in python?
Ans: chr()
{Returns a character value for the given integer}

Q4. Which module/library of python is used to apply the methods related to operating system.?
Ans: os
{The module OS, is used for performing operating system related task such as creating a directory: mkdir(), fetching its content: os.listdir(), identify the current directory: os.getcwd(), etc.}

Q5. Define lists and tuples with example and difference between them?
Ans:

Lists and Tuples are single storage unit which hold multiple data items together. These data items may and may not be of same type, Like it may contains mix of numeric & string data type. List is enclosed by “[]” symbol, and In tuple items are enclosed in “()” symbol.

Example of List:
language = [“Python”, “Java”, “C++”, “PHP”]

Example of Tuple:
data = (2021, “March”, 24)

The difference between list and tuple is:-
1. list is Mutable or Editable, However tuple is Immutable (i.e.; we can’t change its (tuple) content after it is created)
2. Creating a tuple is faster than creating a list data

Q6. What is output for −

```
a = ['he', 'she', 'we']
' '.join(a)
```

Ans: B - ‘heshewe’

Q7. What is dictionary in Python? Can u give example?
Ans:

Dictionary is an ordered collection of items. Each item is a key-value pair, and the value is bounded by the colon ‘:’ symbol and more key-value pair is separated by comma ‘,’ are put inside the curly bracket ‘{}’ to form a dictionary object.
Example:-

iccpoints = {‘India’: 125, ‘South Africa’: 110, ‘England’: 105, ‘New Zealand’: 97}

Q8. Write a sorting algorithm for a numerical dataset in Python.? Suppose u have a list write a function in python to sort it? List = ["1", "4", "0", "6", "9"]

Ans:

We can either use the Python Built-in function, sort() or we can use algorithms such as bubble sort, selection sort, insertion sort etc.
Code for bubble sort:-

```
def bubble_sort(a):
    for x in range(len(a)-1, -1, -1):
        for j in range(x):
            if a[j]>a[j+1]:
                a[j], a[j+1] = a[j+1], a[j]

list1=["1", "4", "0", "6", "9"]
print(list1)
bubble_sort(list1)
print(list1)
```

Or, by using built-in function:-

```
>>> list1=["1", "4", "0", "6", "9"]
>>> list1.sort()
>>> print(list1)
['0', '1', '4', '6', '9']
>>>
```

Q9. Looking at the below code, write down the final values of A0, A1, ...An.

```
A0 = dict(zip(('a','b','c','d','e'),(1,2,3,4,5)))
A1 = range(10)A2 = sorted([i for i in A1 if i in A0])
A3 = sorted([A0[s] for s in A0])
A4 = [i for i in A1 if i in A3]
A5 = {i:i*i for i in A1}
A6 = [[i,i*i] for i in A1]
print(A0,A1,A2,A3,A4,A5,A6)
```

Ans:

A0 = {'a': 1, 'b': 2, 'c': 3, 'd': 4, 'e': 5}

A1 = range(0, 10)

A2 = []

A3 = [1, 2, 3, 4, 5]

A4 = [1, 2, 3, 4, 5]

A5 = {0: 0, 1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64, 9: 81}

A6 = [[0, 0], [1, 1], [2, 4], [3, 9], [4, 16], [5, 25], [6, 36], [7, 49], [8, 64], [9, 81]]

Q10. How can you generate random numbers in Python?
Ans:

```
import random

#generate a random float number between 0.0 to 1.0
print(random.random())

#returns a randomly selected element from the range
print(random.randrange(1, 10, 2))

#returns a random integer between two specified integer
print(random.randint(1, 100))
```

Q 11. You are given the year, and you have to write a function to check if the year is leap or not.

In the Gregorian calendar three criteria must be taken into account to identify leap years:
• The year can be evenly divided by 4, is a leap year, unless:
• The year can be evenly divided by 100, it is NOT a leap year, unless:
• The year is also evenly divisible by 400. Then it is a leap year.

Ans:
Python3 code: https://github.com/deepak-mandal/petrabytes/blob/main/Q11.py

```
def check_leap(year):
    if year%4==0 and year%100!=0:
        print("{} is a Leap Year".format(year))
    elif year%100==0:
        print("{} is not a Leap Year".format(year))
    elif year%400==0:
        print("{} is a Leap Year".format(year))
    else:
        print("{} is not a Leap Year".format(year))


year=int(input("Enter year: "))
check_leap(year)
```

Q12. Write a Python program to create an array of 5 integers and display the array items. Access individual element through indexes.

Ans:

```
#!/usr/bin/env python3
# -*- coding: utf-8 -*-

#creating an array of 5 integers
arr=[1, 7, 96, 2, 67]

#displaying the array items
for i in arr:
        print(i)

#Accessing individual element through indexes
print(arr[0])
print(arr[1])
print(arr[4])
```

Q13. Write a Python program to reverse all the words except first and last word from a set of words in a string you can use in-built function join with reversed

Ans:

```
words = "All the best for your exam"
arr_words=words.split(" ")
Str=[]

for i in range(len(arr_words)):
        if (i==0 or i==len(arr_words)-1):
                Str.insert(i, arr_words[i])
        else:
                Str.insert(i, "".join(reversed(arr_words[i])))

print(" ".join(Str))
```

Q 14. What does the following code output?

```
1. >>> def extendList(val, list=[]):
2.                 list.append(val)
3.                 return list
4.>>> list1 = extendList(10)
5.>>> list2 = extendList(123,[])
6. >>> list3 = extendList('a')
7. >>> list1,list2,list3
```

Ans: [10, 'a'] [123] [10, 'a']

Q15. Write a Python program to find Largest,smallest,second smallest,second largest number in list?

Input : list = [12, 45, 2, 41, 31, 10, 8, 6, 4]
Output :
Largest element is: 45
Smallest element is: 2
Second Largest element is: 41
Second Smallest element is: 4

Ans:

```
list1= [12, 45, 2, 41, 31, 10, 8, 6, 4]

#Let the list to be sorted in assending order
list1.sort()

print("Largest element is ", list1[len(list1)-1])
print("Smallest element is: ", list1[0])
print("Second Largest element is: ", list1[len(list1)-2])
print("Second smallest element is ", list1[1])
```