Lab-02
To Get familiar with concepts in Python

LAB EXERCISES

Exercise 1:

(I) Cabinets and Boxes are objects that are mostly in cubic shape. Make a program that takes inputs like height, width and depth from user and then calculate volume of the cube:
volume = height ∗ width ∗ depth
After calculating volume of cube, compare it with following ranges and print the relevant label:

Volume Range	Label
1 cm^3 – 10 cm^3	Extra Small
11 cm^3 – 25 cm^3	Small
26 cm^3 – 75 cm^3	Medium
76 cm^3 – 100 cm^3	Large
101 cm^3 – 250 cm^3	Extra Large
251 cm^3 and above	Extra-Extra Large

```
def calculateVolume():
    width = int(input("Enter Width : "))
    height = int(input("Enter Height : "))
    depth = int(input("Enter Depth : "))
    volume = width*height*depth
    print(f'Volume is {volume}')
    if volume >=1 and volume <=10:
        print("Extra Small")
    elif volume >=11 and volume <=25:
        print("Small")
    elif volume >=26 and volume <=75:
        print("Medium")
    elif volume >=76 and volume <=100:
        print("Large")
    elif volume >=101 and volume <=250:
        print("Extra Large")
    elif volume >= 251:
        print("Extra-Extra Large")
    else:
        print("Extra-Extra-Extra Large")
calculateVolume()
```

(II) In a company ,worker efficiency is determined on the basis of the time required for a worker to complete a particular job.If the time taken by the worker is between 2-3 hours then the worker is said to be highly efficient. If the time required by the worker is between 3-4hours,then the worker is ordered to improve speed. If the time taken is between 4-5 hours ,the worker is given training to improve his speed ,and if the time taken by the worker is more than 5 hours ,then the worker haas to leave the company, If the time taken by the worker is input through the keyboard,find the efficiency of the worker.

```
time_taken = int(input('Enter time taken by worker: '))
if (time_taken >= 2) and (time_taken <=3):
   print('Highly Efficient!')
elif (time_taken >= 3) and (time_taken <=4):
   print('Improve Speed!')
elif (time_taken >= 4) and (time_taken <=5):
   print('Training is required to improve!')
elif (time_taken > 5):
   print('You are fired!')
else:
   print("Enter hours above 2 or equals!")
```

(iii)The program must prompt the user for a username and password. The program should compare the password given by the user to a known password. If the password matches, the program should display "Welcome!" If it doesn't match, the program should display "I don't know you.

Note: the password should not be case sensitive and it's value is abc$123 or ABC$123

```
username = 'qambarali'
password = 'QAMBAR@123'
inp_name = input("Enter Username: ")
inp_pass = input("Enter Password: ")
if(username.lower() == inp_name.lower() and password.lower() == inp_pass.lower()):
   print("Welcome! ")
else:
   print("Incorrect Credentials! ")
```

Exercise 2:

(i) What Would Python Print?

```
>>> n = 3
>>> while n >= 0:
...     n -= 1
...     print(n)
```

ANS = 2 1 0 -1

The code block will continue to run until n becomes < 0, since 0 is not greater than or equal to 0.

(ii): What Would Python Print?

```
>>> # typing Ctrl-C will stop infinite loops
>>> n = 4
>>> while n > 0:
...     n += 1
...     print(n)
```

```
n = 4
while n > 0:
   n -= 1
   print(n)
```

Make sure your while loop condition eventually becomes false, or it'll never stop!

(ii)Try the scenrio below:

Make a program that lists the countries in the set

```
clist =
['Canada','USA','Mexico','Australia']
```

clist = ['Canada','USA','Mexico','Australia']

1. Create a loop that counts from 0 to 100

```
for nums in range(1,101):
    print(nums)
```

2. Make a multiplication table using a loop

```
def table(num):
    for i in range(1,11):
        print(f'{num} * {i} = {num*i}')
table(6)
```

3. Output the numbers 1 to 10 backwards using a loop

```
limit = 10
while limit > 0:
    print(limit)
    limit -= 1
```

4. Create a loop that counts all even numbers to 10

```
highest = 10
even_count = 0
while highest > 0:
    if highest%2 == 0:
        even_count += 1
    highest -= 1
print(even_count)
```

5. Create a loop that sums the numbers from 100 to 200

```
sum = 0
for x in range(100,201):
    sum += x
print(sum)
```