COMPUTER SCIENCE

PRACTICAL FILE

ACADEMIC YEAR: 2021-22

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Practical – 1

Aim : Write a python program to search an element in a list and display the frequency of elements present in the list by using a user defined function. [List and search element should be entered by user]

Software Used : Pycharm (Python 3.9 64-bit)

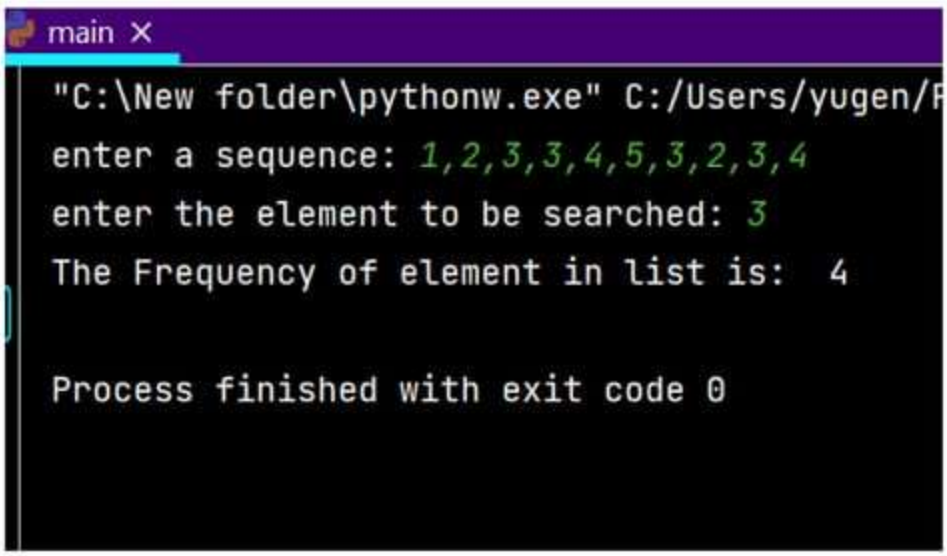
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py ×

```
def function():
    list1=input("enter a sequence: ")
    element=input("enter the element to be searched: ")
    a=list(list1)
    b=a.count(element)
    print("The Frequency of element in list is: ",b)
function()
```

Output:


main
"C:\New folder\pythonw.exe" C:/Users/yugen/
enter a sequence: 1,2,3,3,4,5,3,2,3,4
enter the element to be searched: 3
The Frequency of element in list is: 4
Process finished with exit code 0

Practical – 2

Aim : Write a python program to search an element in a list and print the location by using a user defined function. [List and search element should be entered by user]

Software Used : Pycharm (Python 3.9 64-bit)

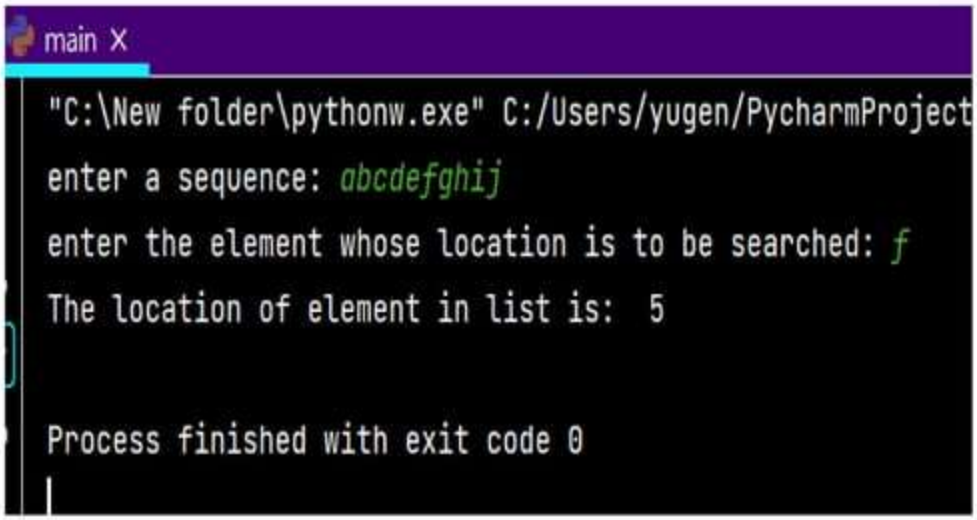
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

```
def function():
    list1=input("enter a sequence: ")
    element=input("enter the element whose location is to be searched: ")
    a=list(list1)
    b=a.index(element)
    print("The location of element in list is: ",b)
function()
```

Output:


main X
"C:\New folder\pythonw.exe" C:/Users/yugen/PycharmProject
enter a sequence: abcdefghij
enter the element whose location is to be searched: f
The location of element in list is: 5
Process finished with exit code 0

Practical – 3

Aim : Write a python program to pass a list to a function and double the odd values and half even values of a list and display list elements after changing.

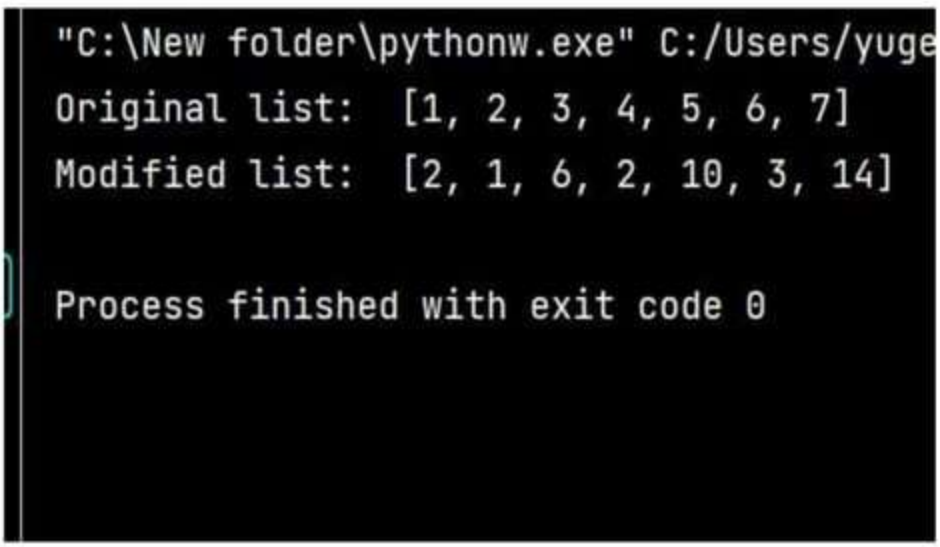
Software Used : Pycharm (Python 3.9 64-bit)

Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

```
1   def f(x):
2       list1=[]
3       for i in x:
4           if i%2==0:
5               list1.append(i//2)
6           else:
7               list1.append(i*2)
8       return list1
9   list1=list(range(1,8))
10  print("Original list: ",list1)
11  list1=f(list1)
12  print("Modified list: ",list1)
```

Output:


"C:\New folder\pythonw.exe" C:/Users/yuge
Original list: [1, 2, 3, 4, 5, 6, 7]
Modified list: [2, 1, 6, 2, 10, 3, 14]
Process finished with exit code 0

Practical – 4

Aim : Write a Python program input n numbers in tuple and pass it to function to count how many even and odd numbers are entered.

Software Used : Pycharm (Python 3.9 64-bit)

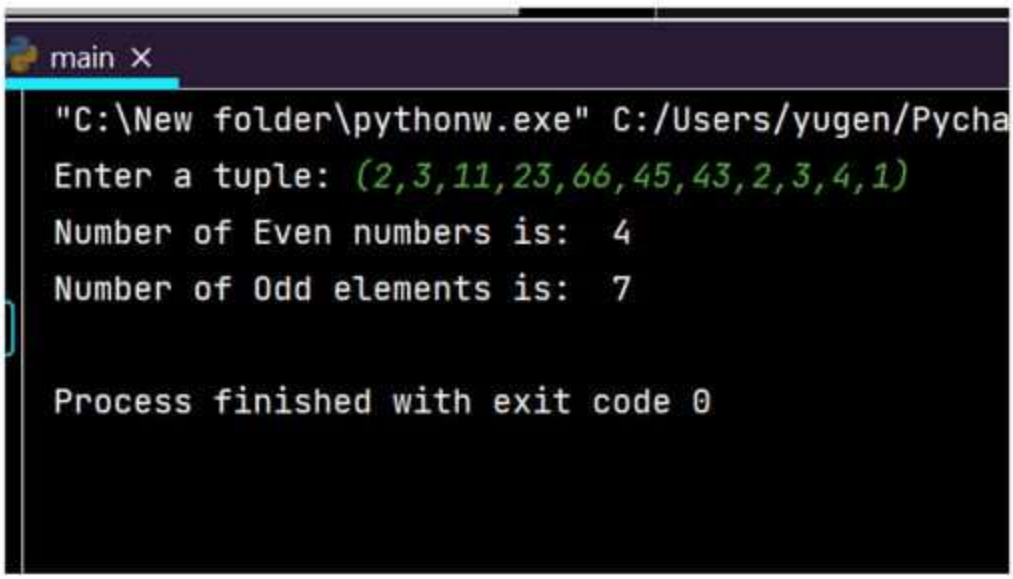
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

```
n=eval(input("Enter a tuple: "))
def odd_even(n):
    odd=0
    even=0
    for num in n:
        if num%2==0:
            even+=1
        else:
            odd+=1
    print("Number of Even numbers is: ",even)
    print("Number of Odd elements is: ",odd)
odd_even(n)
```

Output:


main
"C:\New folder\pythonw.exe" C:/Users/yugen/Pycha
Enter a tuple: (2,3,11,23,66,45,43,2,3,4,1)
Number of Even numbers is: 4
Number of Odd elements is: 7
Process finished with exit code 0

Practical – 5

Aim : Write a Python program to pass a string to a function and count how many vowels present in the string.

Software Used : Pycharm (Python 3.9 64-bit)

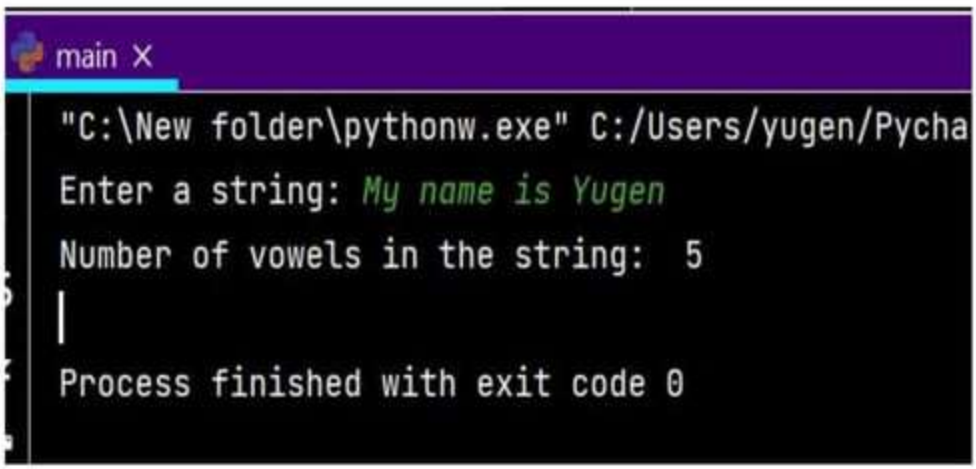
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

```
string=input("Enter a string: ")
def Vowels():
    vowel=0
    for i in string:
        if i=="a" or i=="e" or i=="i" or i=="o" or i=="u":
            vowel+=1
    z=print("Number of vowels in the string: ",vowel)
Vowels()
```

Output:


main
"C:\New folder\pythonw.exe" C:/Users/yugen/Pycha
Enter a string: My name is Yugen
Number of vowels in the string: 5
Process finished with exit code 0

Practical – 6

Aim : Write a Python program to generate random numbers between 1 and 6 (simulates a dice) using a user defined function

Software Used : Pycharm (Python 3.9 64-bit)

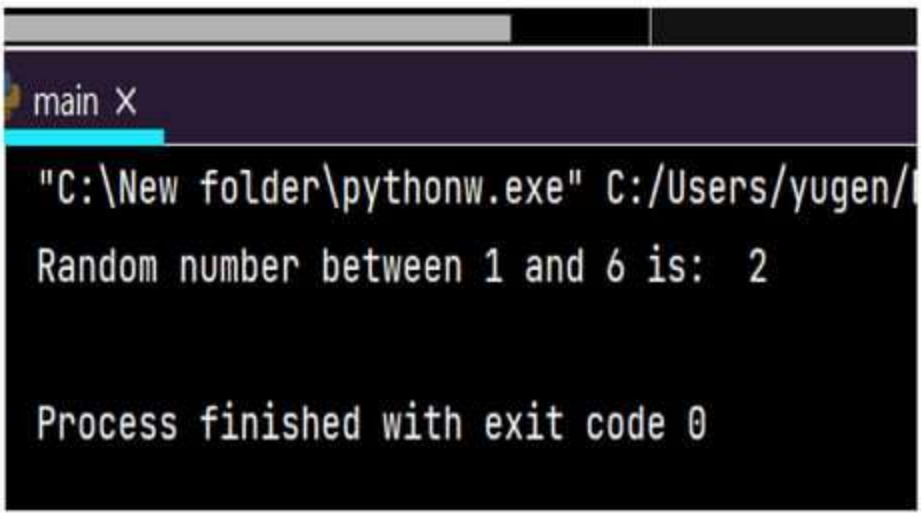
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

```
import random
def Random_Number():
    print("Random number between 1 and 6 is: " ,random.randint(1,6))
Random_Number()
```

Output:


main X
"C:\New folder\pythonw.exe" C:/Users/yugen/
Random number between 1 and 6 is: 2
Process finished with exit code 0

Practical – 7

Aim : Write a menu driven python program to implement 10 python mathematical functions.

Software Used : Pycharm (Python 3.9 64-bit)

Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

P.T.O

main.py

```
import math as m
print("#To use ceil function          --> press - 1")
print("#To use sqrt funtion           --> press - 2")
print("#To use exp funtion            --> press - 3")
print("#To use fabs function          --> press - 4")
print("#To use floor function         --> press - 5")
print("#To use log function           --> press - 6")
print("#To use pow function           --> press - 7")
print("#To use fmod function          --> press - 8")
print("#To use factorial funtion      --> press - 9")
print("#To use radians function       --> press - 10")
choice=input("Which function do you want to perform? -  ")
if choice=="1":
    a=eval(input("Enter a number: "))
    print("Ceil of number you entered is: ", m.ceil(a))
elif choice=="2":
    b=int(input("Enter a number: "))
    print("Square root of number you entered is: ", m.sqrt(b))
elif choice=="3":
    c=int(input("Enter a number: "))
    print("e^(argument) is: ", m.exp(c))
```

```
22  elif choice=="4":
23          d=int(input("Enter a number: "))
24          print("Absolute value of number is: ", m.fabs(d))
25  elif choice=="5":
26          e=int(input("Enter a number: "))
27          print("Floor of number is: ", m.floor(e))
28  elif choice=="6":
29          f=int(input("Enter a number: "))
30          g=int(input("Enter a base: "))
31          print("Log of given value is: ", m.log(f,g))
32  elif choice=="7":
33          h=int(input("Enter base: "))
34          i=int(input("Enter power: "))
35          print(h,"raised to",i,"is: ", m.pow(h,i))
36  elif choice=="8":
37          j=int(input("Enter a number: "))
38          k=int(input("Enter a number: "))
39          print("Fmod is: ", m.fmod(j,k))
40  elif choice=="9":
```

main.py X

```
35          print(h,"raised to",i,"is: ", m.pow(h,i))
36      elif choice=="8":
37          j=int(input("Enter a number: "))
38          k=int(input("Enter a number: "))
39          print("Fmod is: ", m.fmod(j,k))
40      elif choice=="9":
41          l=int(input("Enter a number: "))
42          print("Factorial of",l, "is: ", m.factorial(l))
43      else:
44          m=eval(input("Enter the angle is degrees: "))
45          print("The given angle in radians is: ", m.radians(m))
46
```

Output:

```
"C:\New folder\pythonw.exe" C:/Users/yugen/PycharmPr
#To use ceil function          --> press - 1
#To use sqrt funtion           --> press - 2
#To use exp funtion            --> press - 3
#To use fabs function          --> press - 4
#To use floor function         --> press - 5
#To use log function           --> press - 6
#To use pow function           --> press - 7
#To use fmod function          --> press - 8
#To use factorial funtion      --> press - 9
#To use radians function       --> press - 10
Which function do you want to perform? -  8
Enter a number: 3
Enter a number: 2
Fmod is:  1.0

Process finished with exit code 0
```

Practical – 8

Aim : Write a python program to implement any 05 python string functions

Software Used : Pycharm (Python 3.9 64-bit)

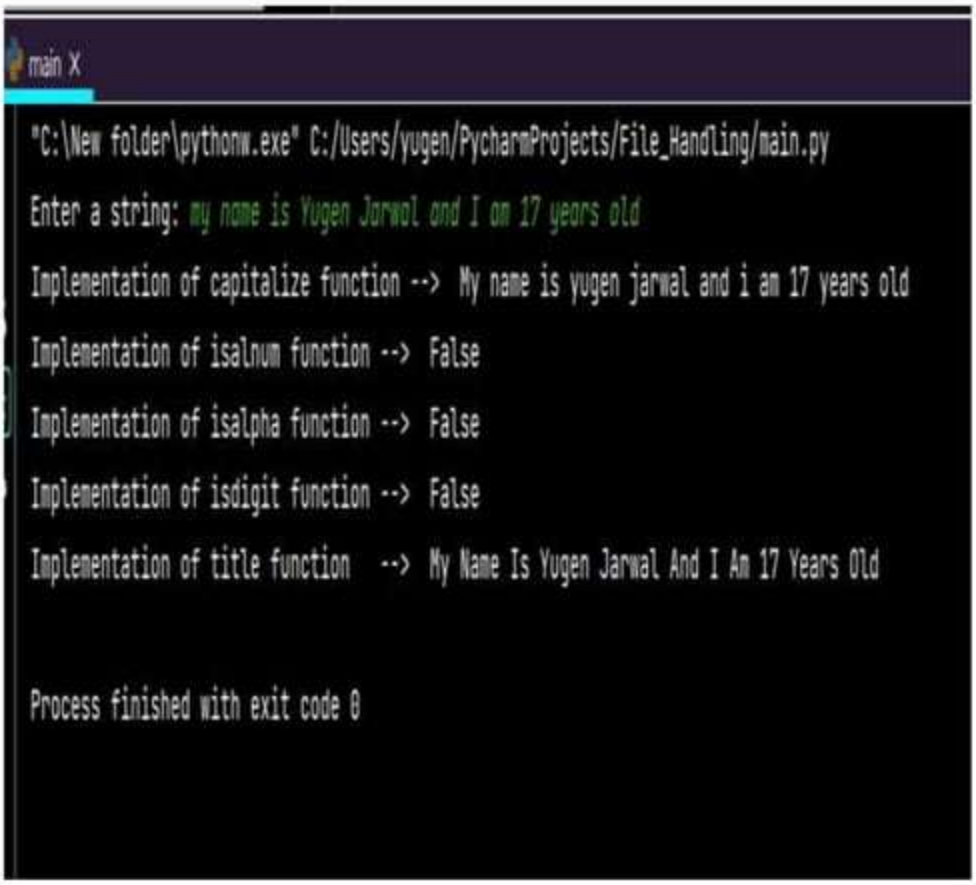
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

```
string=input("Enter a string: ")
print("Implementation of capitalize function --> ", string.capitalize())
print("Implementation of isalnum function --> ", string.isalnum())
print("Implementation of isalpha function --> ", string.isalpha())
print("Implementation of isdigit function --> ", string.isdigit())
print("Implementation of title function   --> ", string.title())

```

Output :


main X
"C:\New folder\pythonw.exe" C:/Users/yugen/PycharmProjects/File_Handling/main.py
Enter a string: my name is Yugen Jarwal and I am 17 years old
Implementation of capitalize function --> My name is yugen jarwal and i am 17 years old
Implementation of isalnum function --> False
Implementation of isalpha function --> False
Implementation of isdigit function --> False
Implementation of title function --> My Name Is Yugen Jarwal And I Am 17 Years Old
Process finished with exit code 0

Practical – 9

Aim : Write a menu driven program in python to delete the name of a student from the dictionary and to search phone no of a student by student name.

Software Used : Pycharm (Python 3.9 64-bit)

Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

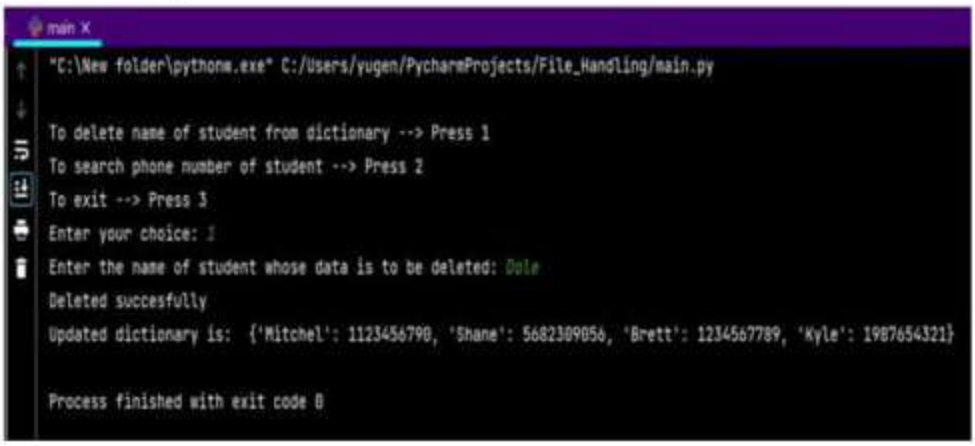
Code :

P.T.O

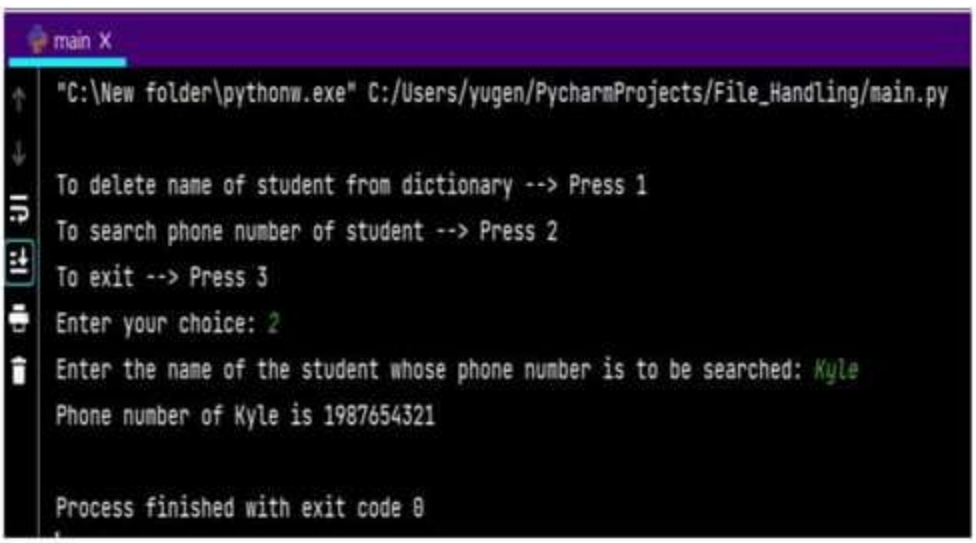
main.py X

```python
#Menu driven program to delete the name of student from the dictionary and
#to search phone number of a student by name
print('''
 To delete name of student from dictionary --> Press 1
 To search phone number of student --> Press 2
To exit --> Press 3''')

 Dict= {"Mitchel" : 1123456790, "Dale" : 345612589, "Shane" : 5682309056, "Brett" : 1234567789, "Kyle" : 1987654321}
 choice = int(input("Enter your choice: "))

if choice==1:
    name = input("Enter the name of student whose data is to be deleted: ")
    del Dict[name]
    print("Deleted succesfully")
    print("Updated dictionary is: ",Dict)
elif choice==2:
    name = input("Enter the name of the student whose phone number is to be searched: ")
    print("Phone number of", name, "is", Dict[name])
 elif choice==3:
    print("Exit")
 else:
    print("Invalid choice")
```

Output 1 :



Output 2:



Practical – 10

Aim : Write a python program to read and display file content line by line with each word separated by #.

Software Used : Pycharm (Python 3.9 64-bit)

Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

```
file=open("C:\\Users\\yugen\\OneDrive\\Desktop\\Class 12th\\poem.txt", "r")
lines=file.readlines()
for i in lines:
    print(i.replace(" ", "#"))
```

Text File :

poem - Notepad

File Edit Format View Help

```
Far far from gusty waves these children's faces.
Like rootless weeds, the hair torn round their pallor:
The tall girl with her weighed-down head. The paper-
seeming boy, with rat's eyes. The stunted, unlucky heir
Of twisted bones, reciting a father's gnarled disease,
His lesson, from his desk. At back of the dim class
One unnoted, sweet and young. His eyes live in a dream
Of squirrel's game, in tree room, other than this.
```

Output :

main ×

```
"C:\New folder\pythonw.exe" C:/Users/yugen/PycharmProjects/File_Handling/main.py
Far#far#from#gusty#waves#these#children's#faces.

Like#rootless#weeds,#the#hair#torn#round#their#pallor:

The#tall#girl#with#her#weighed-down#head.#The#paper-

seeming#boy,#with#rat's#eyes.#The#stunted,#unlucky#heir

Of#twisted#bones,#reciting#a#father's#gnarled#disease,

His#lesson,#from#his#desk.#At#back#of#the#dim#class

One#unnoted,#sweet#and#young.#His#eyes#live#in#a#dream

Of#squirrel's#game,#in#tree#room,#other#than#this.


Process finished with exit code 0
```

Practical – 11

Aim : Write a python program Read a text file and display the number of vowels, consonants, uppercase, lowercase characters in the file.

Software Used : Pycharm (Python 3.9 64-bit)

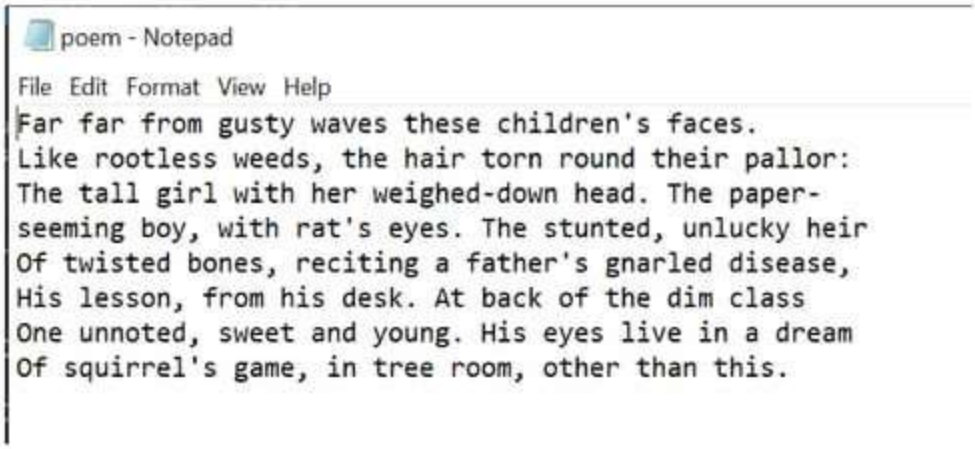
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

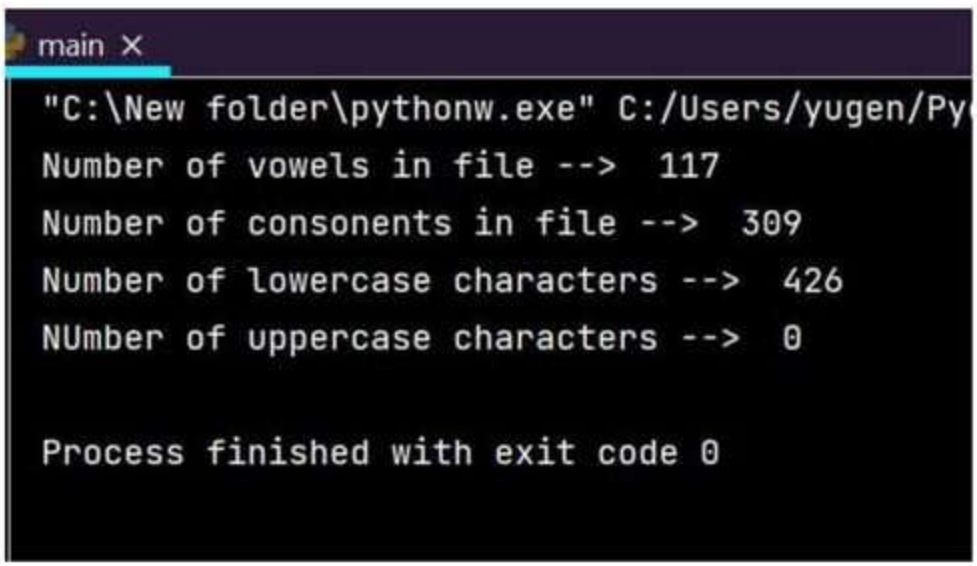
main.py

```
def File():
    vowel = 0
    consonent = 0
    uppercase = 0
    lowercase = 0
    File_text = open("C:\\Users\\yugen\\OneDrive\\Desktop\\Class 12th\\poem.txt", "r")
    text=File_text.read()
    for x in text:
        if x=="a" or x=="e" or x=="i" or x=="o" or x=="u":
            vowel+=1
        else:
            consonent+=1
        if text.isupper():
            uppercase+=1
        else:
            lowercase+=1
    print("Number of vowels in file --> ", vowel)
    print("Number of consonents in file --> ", consonent)
    print("Number of lowercase characters --> ", lowercase)
    print("Number of uppercase characters --> ", uppercase)
File()
```

Text File :



Output :



Practical – 12

Aim : Write a python program to create a binary file with name and roll number. Search for a given roll number and display name, if not found display appropriate message.

Software Used : Pycharm (Python 3.9 64-bit)

Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

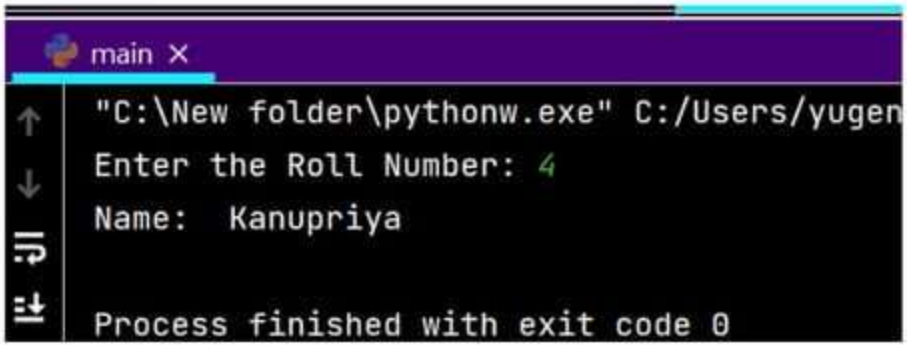
Code :

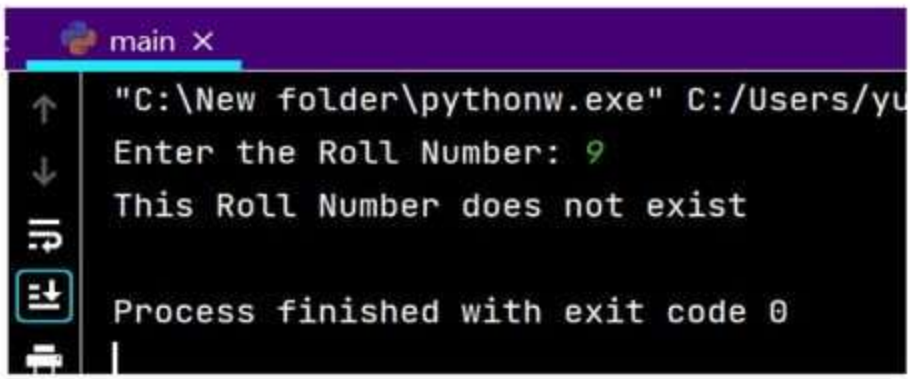
P.T.O

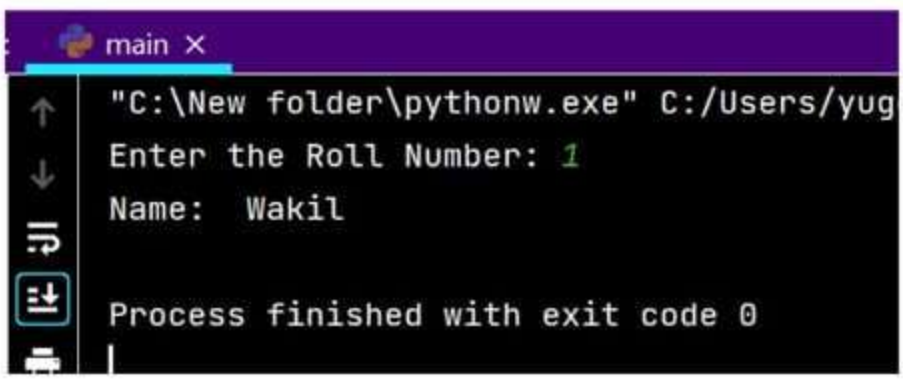
main.py

```python
import pickle
#creating the file and writing the data
f=open("records.dat", "wb")
pickle.dump(["Wakil", 1], f)
pickle.dump(["Tanish", 2], f)
pickle.dump(["Priyashi", 3], f)
pickle.dump(["Kanupriya", 4], f)
pickle.dump(["Aaheli", 5], f)
f.close()
#opeining the file to read contents
f=open("records.dat", "rb")
n=int(input("Enter the Roll Number: "))
flag = False
while True:
    try:
        x=pickle.load(f)
        if x[1]==n:
            print("Name: ", x[0])
            flag = True
    except EOFError:
        break
if flag==False:
    print("This Roll Number does not exist")
```

Output:


main
"C:\New folder\pythonw.exe" C:/Users/yugen
Enter the Roll Number: 4
Name: Kanupriya
Process finished with exit code 0


main
"C:\New folder\pythonw.exe" C:/Users/yu
Enter the Roll Number: 9
This Roll Number does not exist
Process finished with exit code 0


main
"C:\New folder\pythonw.exe" C:/Users/yug
Enter the Roll Number: 1
Name: Wakil
Process finished with exit code 0

Practical – 13

Aim : Write a python program to create a CSV file by entering user-id and password, read and search the password for given user-id.

Software Used : Pycharm (Python 3.9 64-bit)

Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

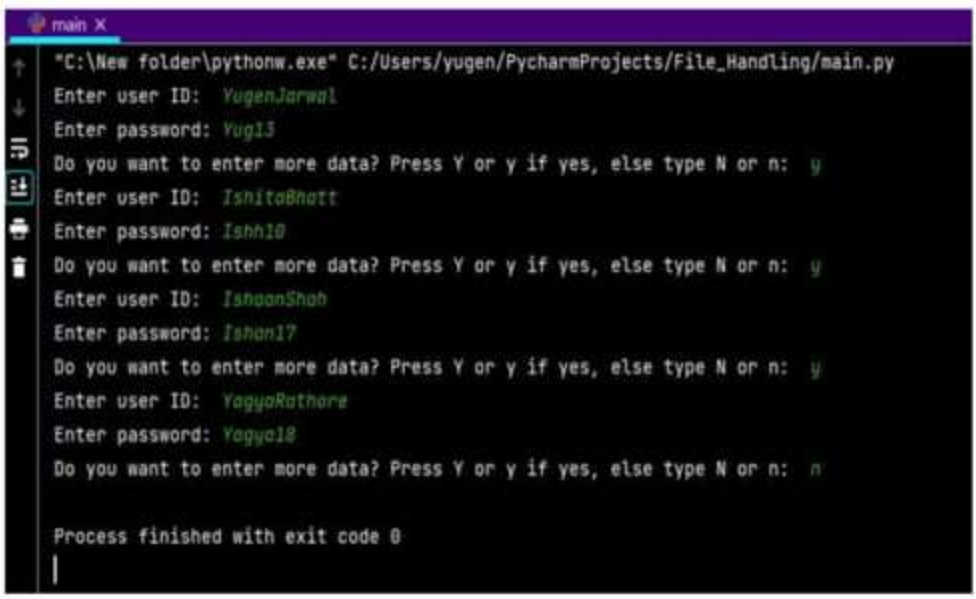
```
import csv
f=open("Details.csv", "a")
write=csv.writer(f)
write.writerow(["User Id", "Password"])
while True:
    user_id=input("Enter user ID:  ")
    password=input("Enter password: ")
    data=[user_id,password]
    write.writerow(data)
    choice=input("Do you want to enter more data? Press Y or y if yes, else type N or n:  ")
    if choice in "Nn":
        break
f=open("Details.csv", "r")
read=csv.reader(f)
for i in read:
    print(i)

```

CSV file created :

F17

	A	B	C	D
1	User Id	Password		
2				
3	YugenJarwal	Yug13		
4				
5	IshitaBhatt	Ishh10		
6				
7	IshaanShah	Ishan17		
8				
9	YagyaRathore	Yagya18		
10				
11				
12				
13				

Output :



Practical – 14

Aim : Write a menu driven python program to create a CSV file by entering dept-id, name and city, read and search the record for given dept-id.

Software Used : Pycharm (Python 3.9 64-bit)

Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

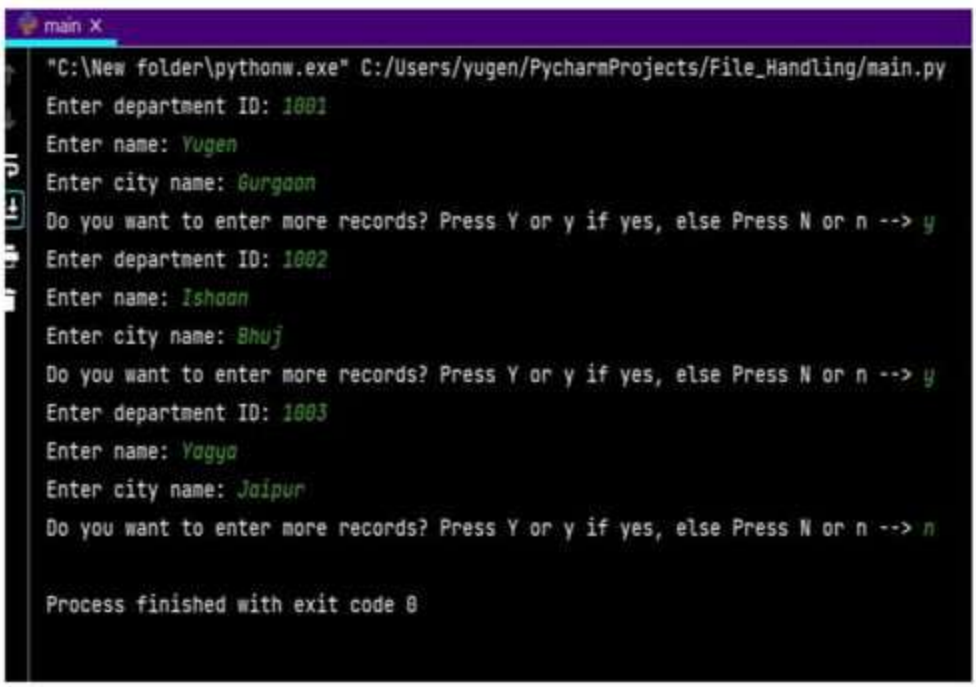
```
import csv
f=open("Record.csv", "w")
write=csv.writer(f)
write.writerow(["Department ID", "Name", "City"])
while True:
    dept_id = input("Enter department ID: ")
    name = input("Enter name: ")
    city = input("Enter city name: ")
    data = [dept_id, name, city]
    write.writerow(data)
    choice = input("Do you want to enter more records? Press Y or y if yes, else Press N or n --> ")
    if choice in "Nn":
        break

f=open("Record.csv", "r")
read=csv.reader(f)
for i in read:
    print(i)
```

CSV file created :

L16

	A	B	C	D
1	Department ID	Name	City	
2				
3	1001	Yugen	Gurgaon	
4				
5	1002	Ishaan	Bhuj	
6				
7	1003	Yagya	Jaipur	
8				
9				
10				

Output :



Practical – 15

Aim : Write a python program to create a dictionary with roll number, name and marks. Accept 5 records from the user and write them into a binary file.

Software Used : Pycharm (Python 3.9 64-bit)

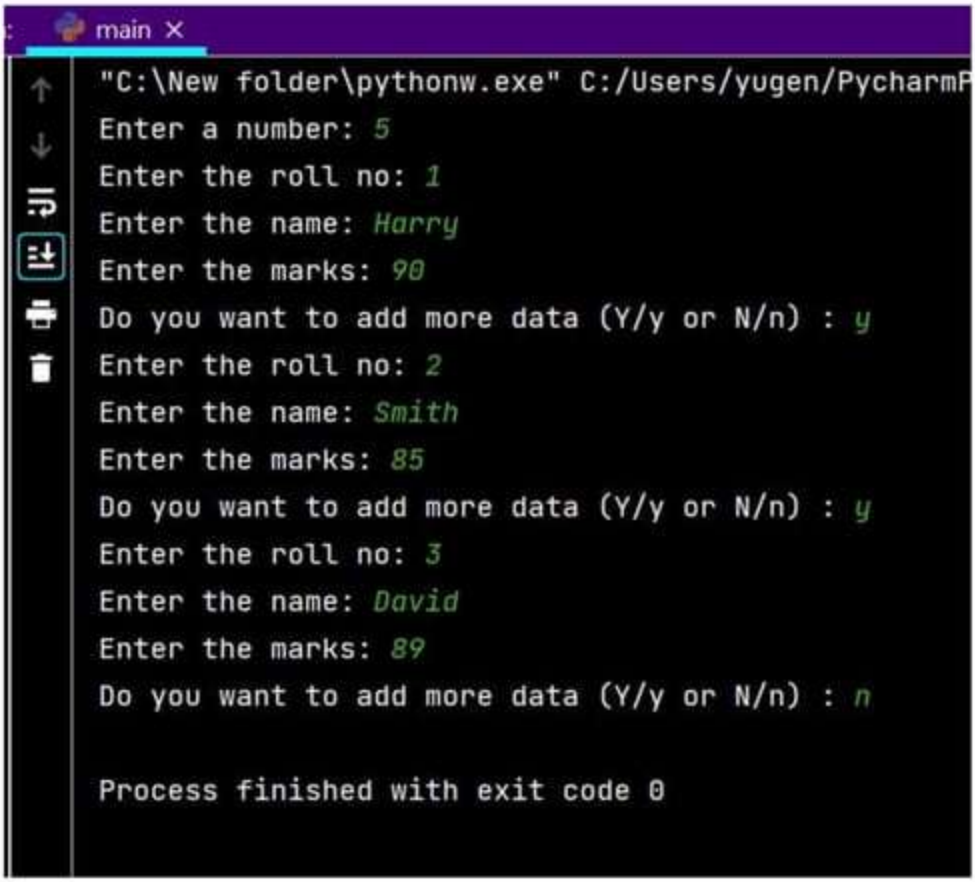
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py × helo.bin ×

```
import pickle
dict={}
n=int(input("Enter a number: "))
for i in range(n):
    roll_no=input("Enter the roll no: ")
    name=input("Enter the name: ")
    marks=input("Enter the marks: ")
    dict[roll_no]=[name,marks]
    ch=input("Do you want to add more data (Y/y or N/n) : ")
    if ch in "Nn":
        break

#Writing in binary file:

f=open("helo.bin", "wb")
pickle.dump(dict,f)
f.close()

```

Output :



Binary File Created :

Practical – 16

Aim : Write a Menu driven program in python to count spaces, digits, words and lines from text file TOY.txt

Software Used : Pycharm (Python 3.9 64-bit)

Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

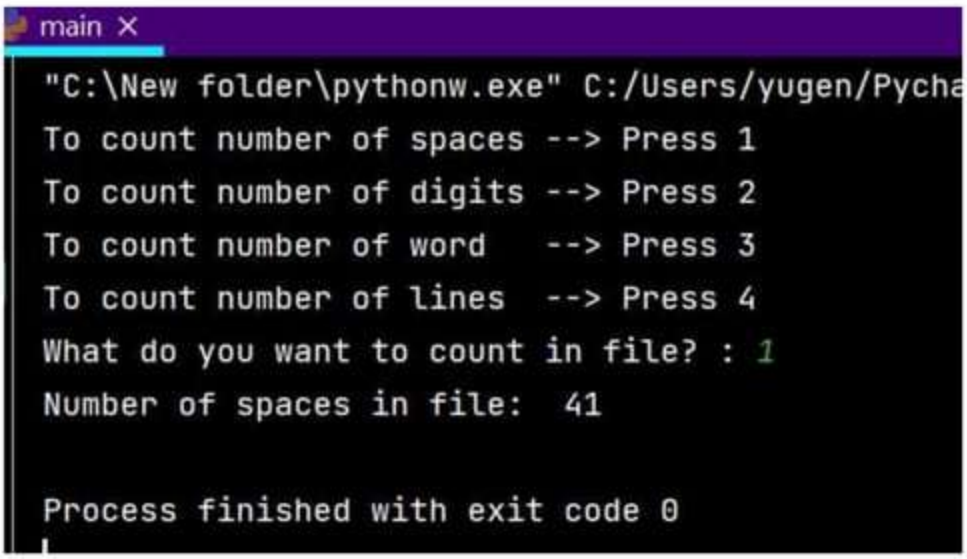
main.py

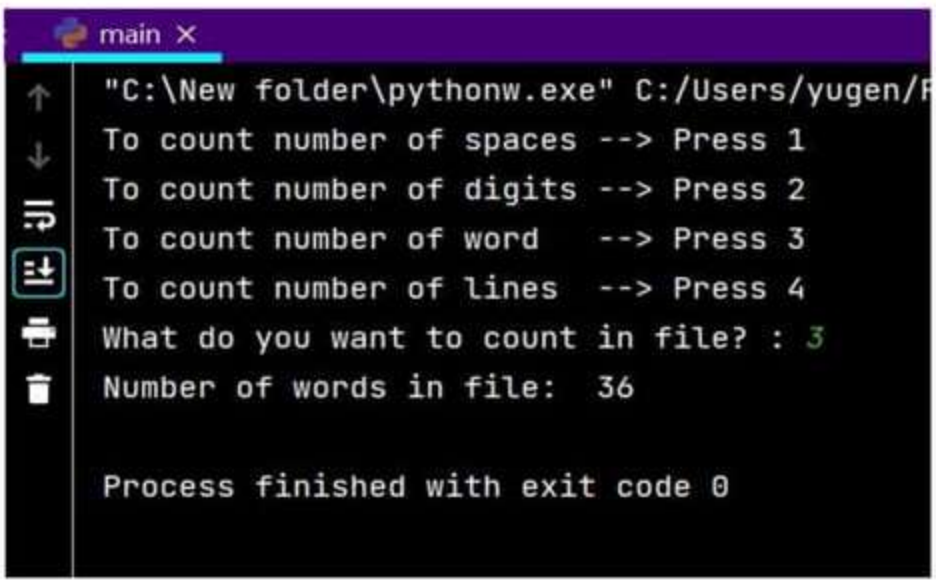
```
file1=open("TOY.txt","w")
file1.write("Today is the anniversary of the publication of Robert Frost's '\n' ")
file1.write("a fact that spurred the Literary Hub office into \n ")
file1.write("which poems we should all have already read\n ")
file1.write("is dead and 4 irrelvant and boring \n ")
file1.close()

def TOY():
    file=open("TOY.txt", "r")
    text=file.read()
    text1=file.readlines()
    space=0
    digit=0
    word=0
    line=0
    print("To count number of spaces --> Press 1")
    print("To count number of digits --> Press 2")
    print("To count number of word   --> Press 3")
    print("To count number of lines  --> Press 4")
    choice=eval(input("What do you want to count in file? : "))
```

main.py

```
if choice==1:
    for i in text:
        if i.isspace():
            space += 1
    print("Number of spaces in file: ", space)
elif choice==2:
    for j in text:
        if j.isdigit():
            digit += 1
    print("Number of digits in file: ", digit)
elif choice==3:
    text.split()
    for i in text.split():
        word += 1
    print("Number of words in file: ", word)
elif choice==4:
    for lines in file:
            line += 1
    print("Number of lines in file: ", line)

```

Output:


main
"C:\New folder\pythonw.exe" C:/Users/yugen/Pycha
To count number of spaces --> Press 1
To count number of digits --> Press 2
To count number of word --> Press 3
To count number of lines --> Press 4
What do you want to count in file? : 1
Number of spaces in file: 41
Process finished with exit code 0


main
"C:\New folder\pythonw.exe" C:/Users/yugen/
To count number of spaces --> Press 1
To count number of digits --> Press 2
To count number of word --> Press 3
To count number of lines --> Press 4
What do you want to count in file? : 3
Number of words in file: 36
Process finished with exit code 0

Practical – 17

Aim : Write a python program to remove all the lines that contain the character 'a' in a file and write it to another file.

Software Used : Pycharm (Python 3.9 64-bit)

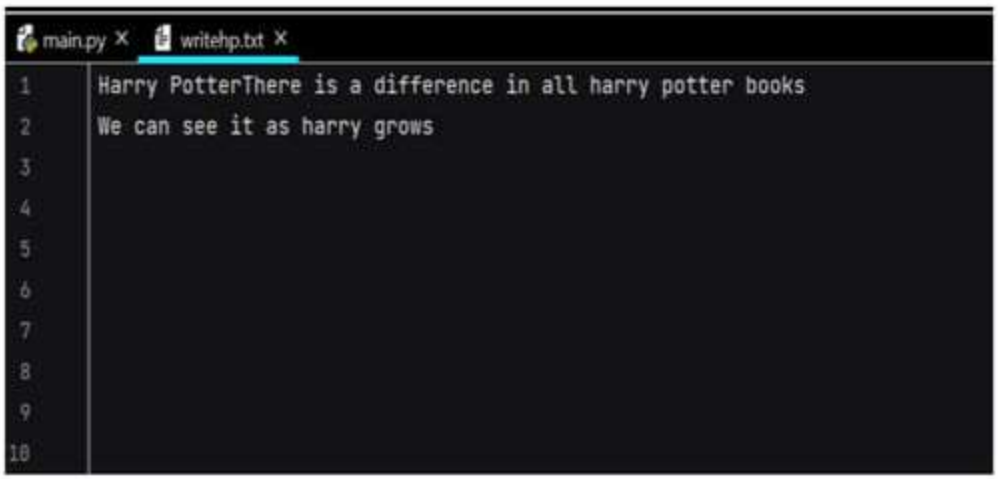
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py X writehp.txt X

```
fo=open("hp.txt","w")
fo.write("Harry Potter")
fo.write("There is a difference in all harry potter books\nWe can see it as harry grows\nthe books were written by J.K rowling .")
fo.close()

fo=open("hp.txt","r")
fi=open("writehp.txt","w")
l=fo.readlines()
for i in l:
    if 'a' in i:
        fi.write(i)
fi.close()
fo.close()
```

Output :


main.py
writehp.txt
Harry PotterThere is a difference in all harry potter books
We can see it as harry grows

Practical – 18

Aim : Write a Python program to function with key and value, and update value at that key in the dictionary entered by the user.

Software Used : Pycharm (Python 3.9 64-bit)

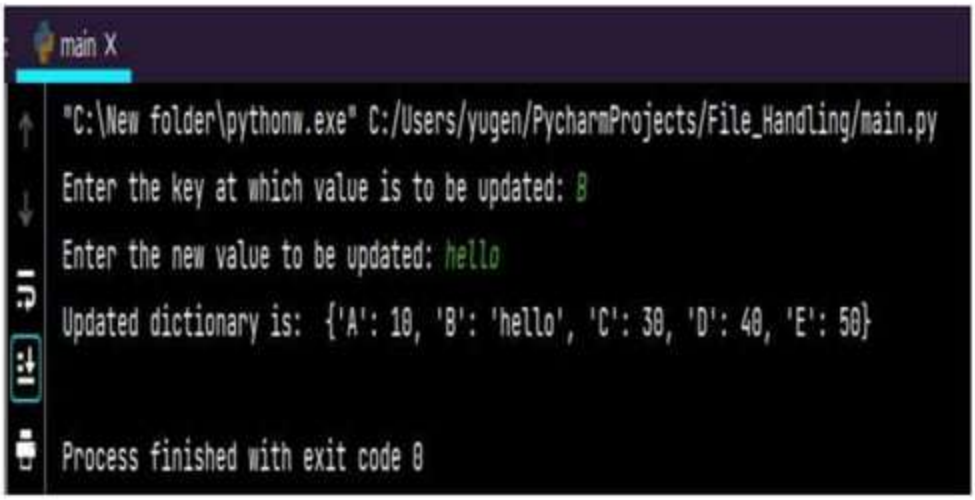
Hardware Used : Keyboard, Monitor, Mouse, Hard disc, RAM

Code :

main.py

```
#Program to update value of a dictionary
dict={"A" : 10 , "B" : 20 , "C" : 30 , "D" : 40 , "E" : 50 }
choice=input("Enter the key at which value is to be updated: ")
value=input("Enter the new value to be updated: ")
dict[choice]=value
print("Updated dictionary is: " ,dict)
```

Output :


main X
"C:\New folder\pythonw.exe" C:/Users/yugen/PycharmProjects/File_Handling/main.py
Enter the key at which value is to be updated: B
Enter the new value to be updated: hello
Updated dictionary is: {'A': 10, 'B': 'hello', 'C': 30, 'D': 40, 'E': 50}
Process finished with exit code 0