

9)Write Python program

a. To elaborate file operations such as, opening a file, reading from it, writing into it, closing it, and various file methods.

open,read,readline,readlines,write,writelines

```
In [82]: #write operation in a file using mode 'w'
fp = open("test.txt",'w')
fp.write('Your Friendly Neighbourhood SpiderMan\n') # single line statement
fp.writelines(['Peter parker\n','NO Way Home'])# writelines function write multiple lines using list as input
fp.close()
print('written successfully')
```

written successfully

```
In [83]: fp = open("test.txt",'r') # make sure the file exists in the directory or folder else you get an error
res=fp.read() # reading a file using mode 'r'
print(res)
fp.seek(0) # modifying file pointer position to origin
res1=fp.read(10) # reading a fixed no. of bytes from the file
print(res1)
fp.seek(0)
print(fp.readline()) # readline, reads one line of file
fp.seek(0)
print(fp.readlines())
fp.seek(0) # readlines, reads multiple lines of file
print(fp.readlines()[1]) # readlines, reads multiple lines of file using indexing
fp.close()
```

Your Friendly Neighbourhood SpiderMan

Peter parker

NO Way Home

Your Frien

Your Friendly Neighbourhood SpiderMan

```
['Your Friendly Neighbourhood SpiderMan\n', 'Peter parker\n', 'NO Way Home']
Peter parker
```

```
In [84]: # with statement : it automatically closes the file no need to explicitly close the file
with open('test.txt','w') as fp:
    fp.write('SpiderMan is a my Friend')
print('file has been written and also been closed')
```

file has been written and also been closed

```
In [86]: # appending a file using mode 'a'
# open the file.txt in append mode. Create a new file if no such file exists.
fp = open("tommy.txt", "w")
# writing the content to the file
fp.write('Python is the modern day language. It makes things so simple.
It is the fastest-growing programming language')
print("written successfully")
# closing the opened the file
fp.close()
```

written successfully

```
In [87]: # now appending text to above mentioned file
fp = open("tommy.txt", "a")
# appending the content to the file
fp.write(' \nPython is object oriented language')
print("written successfully")
# closing the opened the file
fp.close()
print("appended successfully")

with open('tommy.txt','r') as f:
    print(f.read())
```

written successfully
appended successfully
Python is the modern day language. It makes things so simple.
It is the fastest-growing programming language
Python is object oriented language

```
In [88]: # read and write the file using mode 'r+' it creates file if not exists
with open('test.txt','r+') as f:
    print(f.tell()) # It returns the current position of the file pointer with
in the file.
    print(f.read())
    print('now pointer position is at ',f.tell())
    f.write(' hi')
    f.seek(0)
    print(f.read())
```

0
SpiderMan is a my Friend
now pointer position is at 24
SpiderMan is a my Friend hi

```
In [89]: with open('test.txt','w+') as f: # w+ overwrites the existing file
        print(f.tell()) # It returns the current position of the file pointer with
        in the file.
        print(f.read())
        f.write('hi')
        f.seek(0)
        print(f.read())
```

0

hi

```
In [90]: with open('test.txt','a+') as f: # a+ appends the text the existing file
        print(f.read())
        f.write(' hello')
        f.seek(0)
        print(f.read())
```

hi hello

```
In [95]: # seek function: It modifies the position of the file pointer to a specified o
ffset with the specified reference.
with open('test.txt','r+') as f: # reading a file in binary format
    print('the pointer is at ',f.tell())
    f.write('hahahah')
with open('test.txt','rb+') as fp:
    print(fp.read())
    print('the pointer is at ',fp.tell())
    fp.seek(-3,1) # from current position to 4 position before
    print('the pointer is at ',fp.tell())
    fp.seek(5,0) # from beginning to 5th position
    print('the pointer is at ',fp.tell())
    fp.seek(5,2) # from end to last 5th position
    print('the pointer is at ',fp.tell())
```

the pointer is at 0

b'hahahaho'

the pointer is at 8

the pointer is at 5

the pointer is at 5

the pointer is at 13

```
In [117]: # creating a file using mode x
with open('tmtmt.txt','x') as f:
    print(f)
if f:
    print('file created successfully')
```

<_io.TextIOWrapper name='tmtmt.txt' mode='x' encoding='cp1252'>
file created successfully

b. To elaborate file and directory management such as creating a directory, renaming it, listing all directories and working with them.

```
In [96]: import os
os.getcwd()
```

```
Out[96]: 'c:\\Users\\DELL\\Documents\\5th sem\\Python'
```

```
In [97]: #We can also use the getcwd() method to get it as bytes object.
os.getcwd()
```

```
Out[97]: b'c:\\Users\\DELL\\Documents\\5th sem\\Python'
```

```
In [98]: os.mkdir('Data') # making a directory
```

```
In [100]: os.chdir('Data') # changing the current working directory to data
print(os.getcwd())
```

```
c:\\Users\\DELL\\Documents\\5th sem\\Python\\Data
```

```
In [113]: os.chdir('C:\\Users\\DELL\\Documents\\5th sem\\Python')
#listing all directories
print(os.listdir())
print(os.getcwd())
```

```
['.vscode', '19BTRCR018_Pythonhistory.pptx', '19BTRCR018_python_lab-1.ipynb',
'19BTRCR018_python_lab-2.html', '19BTRCR018_python_lab-2.ipynb', '19BTRCR018_
python_lab-3.html', '19BTRCR018_python_lab-3.ipynb', '19BTRCR018_python_lab-
4.ipynb', '19BTRCR018_python_lab-5.html', '19BTRCR018_python_lab-5.ipynb', '1
9BTRCR018_python_lab-6.html', '19BTRCR018_python_lab-6.ipynb', '19BTRCR018_py
thon_lab-9.ipynb', 'Data', 'hello.py', 'pywhatkit_dbs.txt', 'rishab.txt', 'te
st3.txt', 'whatsapp.py']
C:\\Users\\DELL\\Documents\\5th sem\\Python
```

```
In [110]: os.rename('test2.txt','test3.txt') # renaming a file
print(os.listdir())
```

```
['.vscode', '19BTRCR018_Pythonhistory.pptx', '19BTRCR018_python_lab-1.ipynb',
'19BTRCR018_python_lab-2.html', '19BTRCR018_python_lab-2.ipynb', '19BTRCR018_
python_lab-3.html', '19BTRCR018_python_lab-3.ipynb', '19BTRCR018_python_lab-
4.ipynb', '19BTRCR018_python_lab-5.html', '19BTRCR018_python_lab-5.ipynb', '1
9BTRCR018_python_lab-6.html', '19BTRCR018_python_lab-6.ipynb', '19BTRCR018_py
thon_lab-9.ipynb', 'Data', 'hello.py', 'pywhatkit_dbs.txt', 'rishab.txt', 'te
st3.txt', 'whatsapp.py']
```

```
In [118]: #removing a file
os.remove('tmtmt.txt')
print('file is removed')
```

```
file is removed
```

c. To elaborate exception handling with python built in commands such as try, except, and finally.

In [119]: *#Syntax error*
 print('abs'

File "<ipython-input-119-86584e74b01d>", line 2
 print('abs'
 ^

SyntaxError: unexpected EOF while parsing

In [120]: *#Logical errors*
 a = 1
 b = 2
 print('sum of two numbers is ',a-b)

sum of two numbers is -1

In [121]: *# run time errors*
 a=int(input('enter a number'))
 print(a)

```
-----
ValueError                                Traceback (most recent call last)
<ipython-input-121-e74fdadc6cc4> in <module>
      1 # run time errors
----> 2 a=int(input('enter a number'))
      3 print(a)
```

ValueError: invalid literal for int() with base 10: 'f'

In [124]: *#handling exceptions using try and except*
 a = [1, 2, 3]
try:
 print ("2nd element = {}".format(a[1]))

 print ("4th element = {}".format(a[3]))

except:
 print ("An error occurred\n")

2nd element = 2
 An error occurred

```
In [127]: try:
          a = int(input("Enter a:"))
          b = int(input("Enter b:"))
          c = a/b
          print("a/b = {}".format(c))
# Using Exception with except statement. If we print(Exception) it will return exception class
          except Exception:
              print("can't divide by zero")
              print(Exception)
          else:
              print("Hi I am else block")
          try:
              a = int(input("Enter a:"))
              b = int(input("Enter b:"))
              c = a/b
              print("a/b = {}".format(c))
              # Using Exception with except statement. If we print(Exception) it will return exception class
              except Exception:
                  print("can't divide by zero")
                  print(Exception)
          else:
              print("Hi I am else block")
```

```
can't divide by zero
<class 'Exception'>
a/b = 1.0
Hi I am else block
```

```
In [128]: # using a keyboard
          try:
              a=int(input('enter a number'))
              print(a)
          except Exception as e:
              print("!!error!!\n",e)
```

```
!!error!!
invalid literal for int() with base 10: 'r'
```

```
In [130]: # multiple exceptions
          try:
              a=10/0;
          except(ArithmeticError, IOError):
              print("Arithmetic Exception")
          else:
              print("Successfully Done")
```

```
Arithmetic Exception
```

```
In [131]: # multiple exceptions
try:
    a=10/0;
except(ArithmeticError):
    print("Arithmetic Exception")
except(Exception):
    print("Arithmetic Exception")
else:
    print("Successfully Done")
```

Arithmetic Exception

```
In [134]: # try finally block
try:
    fileptr = open("rishab.txt","r")
    try:
        fileptr.write("Hi I am good")
    finally:
        fileptr.close()
        print("file closed")
except Exception as e:
    print("Error: ",e)
```

file closed
Error: not writable

```
In [135]: #raising error
try:
    age = int(input("Enter the age:"))
    if(age<18):
        raise ValueError
    else:
        print("the age is valid")
except ValueError:
    print("The age is not valid")
```

The age is not valid