

Laboratory 8

Title of the Laboratory Exercise: File handling

1. Introduction and Purpose of Experiment

A text file is a sequence of characters stored on a permanent medium such as hard drive, flash memory, and CD-ROM. In Python, instead of printing results to screen using print, results can be written to a file. A file object is used to open a connection to a text file for input or output. By solving these problems, students will be able to perform file handling functions.

2. Aim and Objectives

Aim

- To develop programs using file handling functions

Objectives

At the end of this lab, the student will be able to

- Apply file handling functions for solving problems

3. Experimental Procedure

- Analyse the problem statement
- Design an algorithm for the given problem statement and develop a flowchart/pseudo-code
- Implement the algorithm in Python language
- Execute the Python program
- Test the implemented program
- Document the Results
- Analyse and discuss the outcomes of the experiment

4. Questions

- Write a python program to compute the number of characters, words and lines in a text file
- Write a program to print each line of a file in reverse order
- Write a program to enter a list of integers from the user and store it in a file. Sort the elements in the file and display on the screen

5. Calculations/Computations/Algorithms

Python program to compute the number of characters, words and lines in a text file

1. START

2. run a loop to read the contents of file- 'for i in f: ', the iteration of loop will give lines of paragraph or use split function to separate lines using ". ", as a separator.
3. To separate the words use " "- space in split function as a separator to find all the words in a paragraph.
4. Store all the words separated, in a list in form of nested list and print the letters of each word using 2 for loops.
5. Store the data extracted in a file and display it.

6. STOP

Python program to print each line of a file in reverse order

1.START

- 2.Open the file in read mode and using a for loop to read the contents stored in file.
- 3.Store the read contents in a string variable and reverse the string using slicing.
- 4.Print the reversed string.

5.STOP

Python program to enter a list of integers from the user and store it in a file. Sort the elements in the file and display on the screen-

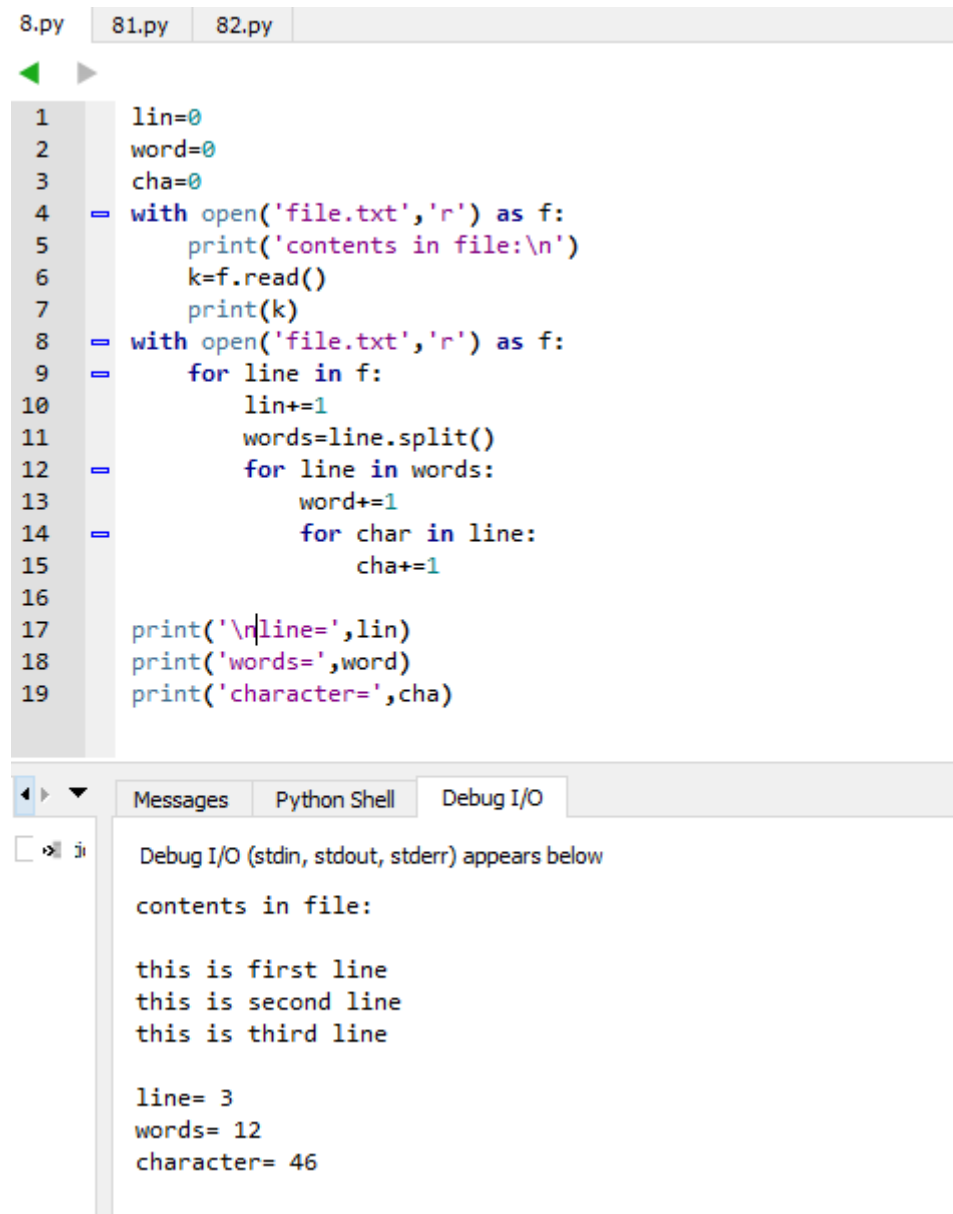
1. START

- 2.Open a file "file.txt", a text file. Input a list of integers and write the list in file.
- 3.Open the file in read mode and sort the list stored in file, using any of the sorting technique, here we have used in-built sort.
- 4.Re-write the sorted list in the file and display the sorted list.

5.STOP

6. Presentation of Results

1. program to compute the number of characters, words and lines in a text file



The screenshot shows a Python IDE with a file named `8.py` open. The code in the editor is as follows:

```
1 lin=0
2 word=0
3 cha=0
4 = with open('file.txt','r') as f:
5     print('contents in file:\n')
6     k=f.read()
7     print(k)
8 = with open('file.txt','r') as f:
9 =     for line in f:
10         lin+=1
11         words=line.split()
12 =         for line in words:
13             word+=1
14 =         for char in line:
15             cha+=1
16
17 print('\nline=',lin)
18 print('words=',word)
19 print('character=',cha)
```

Below the editor, the 'Debug I/O' tab is active, showing the output of the program:

```
Debug I/O (stdin, stdout, stderr) appears below

contents in file:

this is first line
this is second line
this is third line

line= 3
words= 12
character= 46
```

Figure 1 compute no of lines, words, and character in a text file

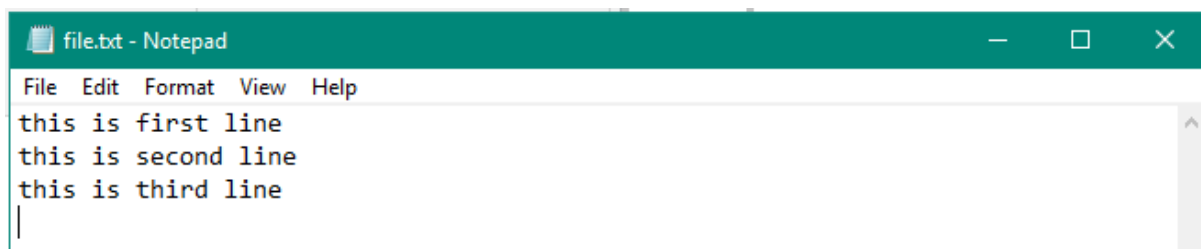
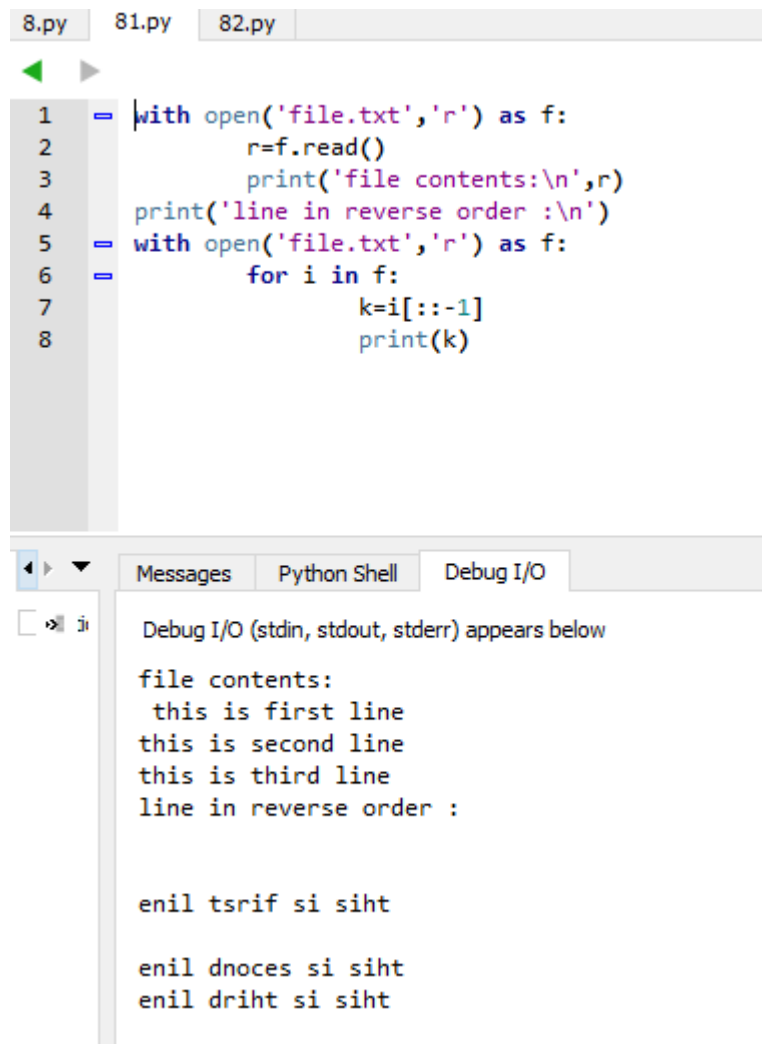


Figure 2 screenshot of file contents

2. program to print each line of a file in reverse order



The screenshot shows a Python IDE with three tabs: 8.py, 81.py, and 82.py. The active tab is 82.py, which contains the following Python code:

```
1 with open('file.txt','r') as f:
2     r=f.read()
3     print('file contents:\n',r)
4     print('line in reverse order :\n')
5 with open('file.txt','r') as f:
6     for i in f:
7         k=i[::-1]
8         print(k)
```

Below the code editor, there is a 'Debug I/O' tab showing the output of the program:

```
Debug I/O (stdin, stdout, stderr) appears below

file contents:
  this is first line
this is second line
this is third line
line in reverse order :

enil tsrif si siht

enil dnoce si siht
enil driht si siht
```

Figure 3 shows program to print each line of a file in reverse order

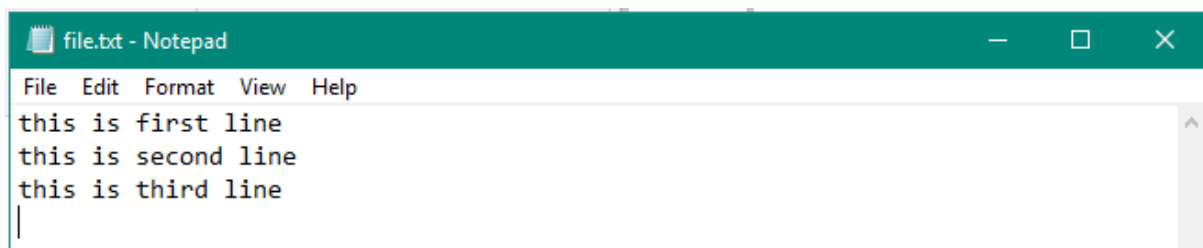
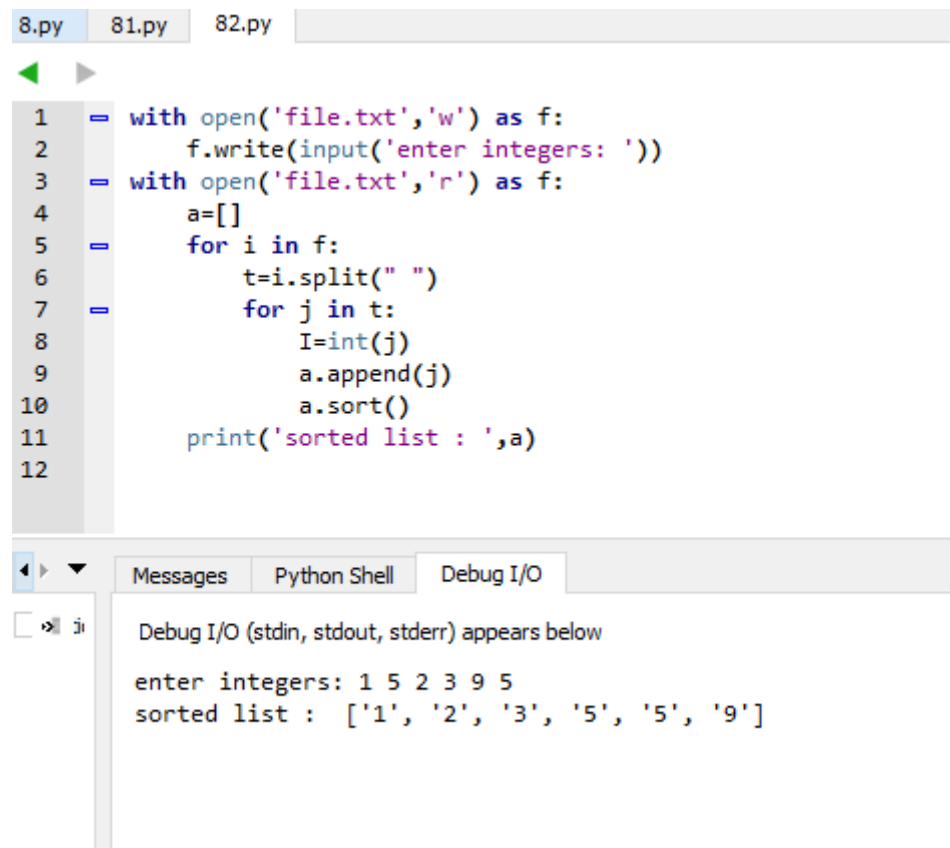


Figure 4 screenshot of the file contents

3. Program to enter a list of integers from the user and store it in a file. Sort the elements in the file and display on the screen



The screenshot displays a Python IDE with three tabs: 8.py, 81.py, and 82.py. The 82.py tab is active, showing a Python script. The script opens a file named 'file.txt' in write mode ('w') to accept user input of integers, then opens it in read mode ('r') to process the input. It reads the input line, splits it into a list of strings, converts each string to an integer, appends it to a list 'a', sorts the list, and prints the sorted list. Below the code editor, the 'Debug I/O' tab is selected, showing the program's execution. It displays the prompt 'enter integers: 1 5 2 3 9 5' and the resulting output 'sorted list : ['1', '2', '3', '5', '5', '9']'.

```
1 = with open('file.txt','w') as f:
2     f.write(input('enter integers: '))
3 = with open('file.txt','r') as f:
4     a=[]
5 =     for i in f:
6         t=i.split(" ")
7 =         for j in t:
8             I=int(j)
9             a.append(j)
10            a.sort()
11        print('sorted list : ',a)
12
```

Debug I/O (stdin, stdout, stderr) appears below

```
enter integers: 1 5 2 3 9 5
sorted list : ['1', '2', '3', '5', '5', '9']
```

Figure 5 shows program to enter a list of integers from the user and store it in a file

7. Analysis and Discussions

In this we are going to develop programs using file handling functions.

8. Conclusions

I have analysed that reading the values for our programs from the user i.e. inputting the values is a better way of programming because it generalises our program which can return output for whatever value entered by the user rather than simply returning outputs for a fixed set of values.

9. Comments

I have learnt to execute python programs in script mode of WING IDE and got familiar with script mode and learnt to execute basic logical programs in python.

1. Limitations of Results

The messages in the ***print()*** statement are fixed and will be the same every time we execute the program. Therefore, the user will not get the desired message other than the messages we have typed in the print statements. The outputs are not stored in the file in all the questions.