

what is module in python?

```
1 In Python, a module is a file that contains Python code.This
2 code can define functions, classes and variables that can be used
3 in other Python Programs.Modules are a way to organize and
4 reuse code by encapsulating related functionality into seperate
5 files.
6
7 Modules are a fundamental concept in python that promotes
8 code organization,reusability and maintainability.They play a crucial role in structuring python
9 programs and making them more manageable.
10
```

Built-in Modules

```
1 These are modules that come pre-installed with python and provides
2 core functionality.
3 Examples include math,random,os,sys and datetime.
4 You can use these modules without needing to install any additional
5 packages.
6
```

```
In [1]: 1 import random as rd
        2
        3 import math
        4
        5 #help(m)
        6
        7 math.sqrt(225)
```

Out[1]: 15.0

```
In [35]: 1 import AreaShapes
2
3 print("Area of Rec Having L and W as 12 and 20: ",AreaShapes.rectArea(12,40))
4 print("Area of Oct Having side 7: ",AreaShapes.octArea(9))
5 print("Area of Square: ",AreaShapes.squareArea(5))
6 print("Area of Rohmbus :",AreaShapes.rohmbusArea(2,4))
7 print("Area of Cube: ",AreaShapes.cubeArea(9))
```

Area of Rec Having L and W as 12 and 20: 480

Area of Oct Having side 7: 59.76

Area of Square: 25

Area of Rohmbus : 4.0

Area of Cube: 486

Why we required file Handling in Python?

```
1 File handling in Python is a crucial feature because it
2 allows you to interact with external files and data,
3 enabling you to perform various tasks such as reading data from
4 files, writing data to files, and manipulating file content.
5
```

Reasons why file handling is required in Python:

```
1 Data storage
2 Data Retrieval
3 Data Persistance
4 Data Transfer
5 Configuration Management
6 Logging and Debugging
7 Data Analysis
8 File Manipulation
9 Text Processing
10 Resource Management
11 Data Seralization
```

Types of file?

```
1 Text Files:
2 These files contain plain text data that is typically human-
3 readable.Examples include:
4 .txt .csv .xml .json .html .log
5
6 Binary Files:
7
8 Binary files contain data in a non-human-readable format.
9 They are often used for storing program data,images,voices,audio,
10 and other non-textual information.
11 Example:
12 .jpg .png .gif. Image files:.mp3 .wav:Audio files, .avi, .mp4:Video
13 files .pdf:portable
14 Document Format files . .exe .dll .zip .tar
```

File Handling Processes

```
1 1.Open
2 2.write
3 3.close
4 4.read
5
```

Read Mode('r'):

```
1 This mode is used for reading the contents of a file.
2 It is the default mode if no mode is specified when opening
3 a file.If the does not exist,it will raise a FileNotFoundError
```

```
In [7]: 1 f1 = open("C:/Users/admin/Desktop/Trupti.txt", "r")
        2 f1.read()
```

Out[7]: 'File Handing Read Operation\nFile handling contains various functions-\nRead\nwrite\nopen'

```
In [8]: 1 f1 = open("C:/Users/admin/Desktop/Trupti.txt", "r")
        2 f1.read(5)
```

Out[8]: 'File '

```
In [9]: 1 f1 = open("C:/Users/admin/Desktop/Trupti.txt", "r")
        2 f1.readline()
```

Out[9]: 'File Handing Read Operation\n'

```
In [10]: 1 f1 = open("C:/Users/admin/Desktop/Trupti.txt", "r")
        2 f1.readline()
        3 f1.close()
```

```
In [12]: 1 #FileNotFoundError
        2
        3 f2 = open("C:/Users/admin/Desktop/ABC.txt", "r")
```

FileNotFoundError

Traceback (most recent call last)

Cell In[12], line 3

1 #FileNotFoundError

----> 3 f2 = open("C:/Users/admin/Desktop/ABC.txt", "r")

File ~\anaconda3\Lib\site-packages\IPython\core\interactiveshell.py:286, in _modified_open(file, *args, **kwargs)

279 if file in {0, 1, 2}:

280 raise ValueError(

281 f"IPython won't let you open fd={file} by default "

282 "as it is likely to crash IPython. If you know what you are doing, "

283 "you can use builtins' open."

284)

--> 286 return io_open(file, *args, **kwargs)

FileNotFoundError: [Errno 2] No such file or directory: 'C:/Users/admin/Desktop/ABC.txt'

Write Mode('w')

```
1 This mode is used for writing data to a file, and it will
2 create a new file or overwrite an existing one.
3 If the file does not exist,python will create it.
4 If it does exist,its previous content will be erased.
```

```
In [13]: 1 f3 = open("C:/Users/admin/Desktop/ABC.txt","w")
```

```
In [14]: 1 txt = input("Enter text here: ")
2
3 f3.write(txt)
4
5 f3.close()
```

Enter text here: This is the write operation

```
In [16]: 1 f3.read()
```

```
-----
ValueError                                Traceback (most recent call last)
Cell In[16], line 1
----> 1 f3.read()

ValueError: I/O operation on closed file.
```

Append Mode('a'):

```
1 This mode is used for writing data to a file and is specifically
2 designed for appending new content to an existing file.
3 If the file already exists,the new data will be added at the end of the file without
4 erasing the existing content.
5 if the file does not exist,python will create a new file.
```

6

```
In [19]: 1 f4 = open("C:/Users/admin/Desktop/ABC.txt", "a")
          2 txt = input("Enter text here: ")
          3
          4 txt = txt + ".\n"
          5
          6 f4.write(txt)
          7 f4.close()
          8
```

Enter text here: hello

In []:

1

In []:

1