

In []: Q1. Which function **is** used to **open** a file? What are the different modes of opening a file? Explain each mode of file opening

The open() function is used to open a file in Python.

Modes of opening a file:

'r': Open for reading (default).
 'w': Open for writing, truncating the file first.
 'x': Open for exclusive creation, if the file already exists, the operation will fail.
 'a': Open for writing, appending to the end of the file if it exists.
 'b': Binary mode.
 't': Text mode (default).
 '+': Open for updating (reading and writing).

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In [ ]: # Opening a file in read mode
file = open('example.txt', 'r')
```

In []: Q2. Why close() function **is** used? Why **is** it important to close a file?

The close() function is used to close a file after it has been opened. It is important to close a file to release the resources (memory) associated with the open file. Not closing a file may lead to resource leaks.

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In [ ]: file.close()
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Q3. Write a python program to create a text file. Write 'I want to become a Data Scientist' in that file. Then close the file. Open this file and read the content of the file.

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In [4]: # Writing to a file
with open('example.txt', 'w') as file:
    file.write('I want to become a Data Scientist')

# Reading from the file
with open('example.txt', 'r') as file:
    content = file.read()
    print(content)
```

I want to become a Data Scientist

In []: Q4. Explain the following **with** python code: read(), readline() **and** readlines().

```
In [5]: # Using read() to read the entire content
with open('example.txt', 'r') as file:
    content = file.read()
    print(content)

# Using readline() to read one line at a time
with open('example.txt', 'r') as file:
    line = file.readline()
    while line:
        print(line, end='')
        line = file.readline()

# Using readlines() to read all lines into a list
with open('example.txt', 'r') as file:
    lines = file.readlines()
    for line in lines:
        print(line, end='')
```

I want to become a Data Scientist
 I want to become a Data ScientistI want to become a Data Scientist

In []: Q5. Explain why **with** statement **is** used **with** open(). What **is** the advantage of using **with** statement **and** open() together?

The with statement is used with open() to ensure that the file is properly closed after it is used. It provides better readability and automatically takes care of resource management (closing the file) even if an exception occurs.

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In [6]: with open('example.txt', 'r') as file:
        content = file.read()
        print(content)
# The file is automatically closed after exiting the with block
```

I want to become a Data Scientist

```
In [ ]: Q6. Explain the write() and writelines() functions. Give a suitable example.
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```
In [7]: # Using write() to write a string to a file
        with open('example.txt', 'w') as file:
            file.write('I want to become a Data Scientist')

        # Using writelines() to write a list of strings to a file
        lines = ['Line 1\n', 'Line 2\n', 'Line 3\n']
        with open('example.txt', 'w') as file:
            file.writelines(lines)
```

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In [ ]:
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