

# Handling Files & Exceptions

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# Agenda

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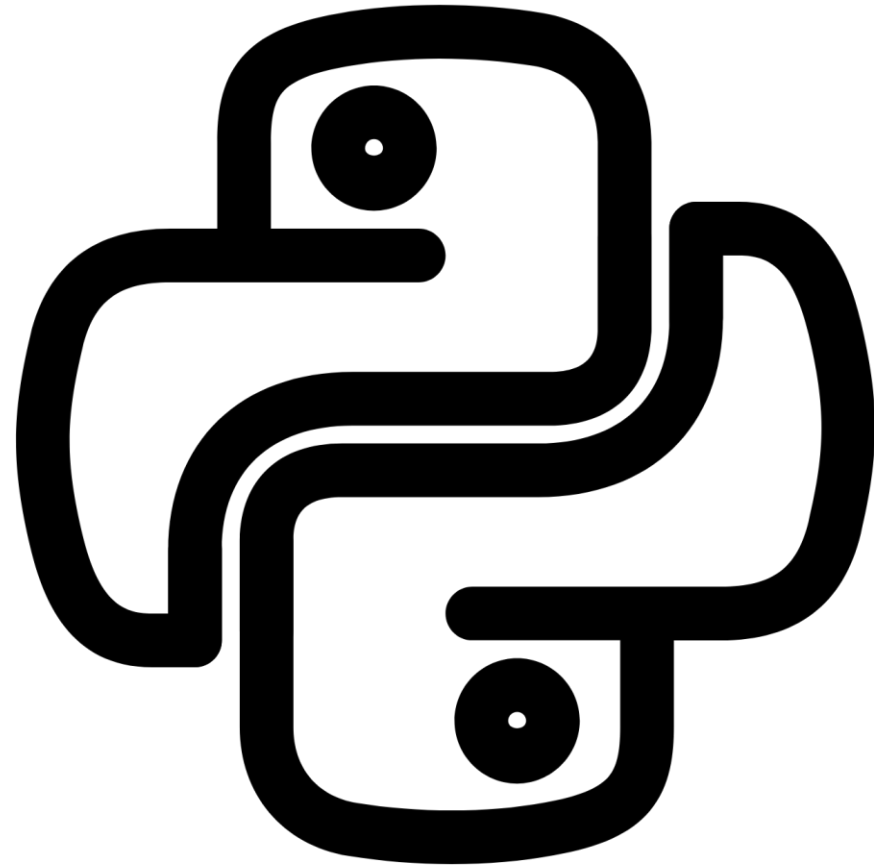
Exception

Try... Catch... Finally...

File Handling

Mystery of Path

Files & Exceptions





# Exception

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EXCEPTION? HUH.... 🙄

# Exception

Can't do something? That's an exception.



The screenshot shows a Python IDE with a file named `app.py` open. The code in the file is:

```
1 print(69 / 0)
2
```

The IDE's interface includes tabs for `PROBLEMS`, `OUTPUT`, `DEBUG CONSOLE`, `TERMINAL` (which is active), and `PORTS`. The `TERMINAL` tab shows the command `E:\code\hobby\ostad\b05m03p02>python app.py` and the resulting traceback:

```
Traceback (most recent call last):
  File "E:\code\hobby\ostad\b05m03p02\app.py", line 1, in <module>
    print(69 / 0)
           ~~~~^~
ZeroDivisionError: division by zero
```

The error message `ZeroDivisionError: division by zero` is displayed in pink text. The division operation `69 / 0` in the code is highlighted with a red squiggly line underneath it.



# Exception

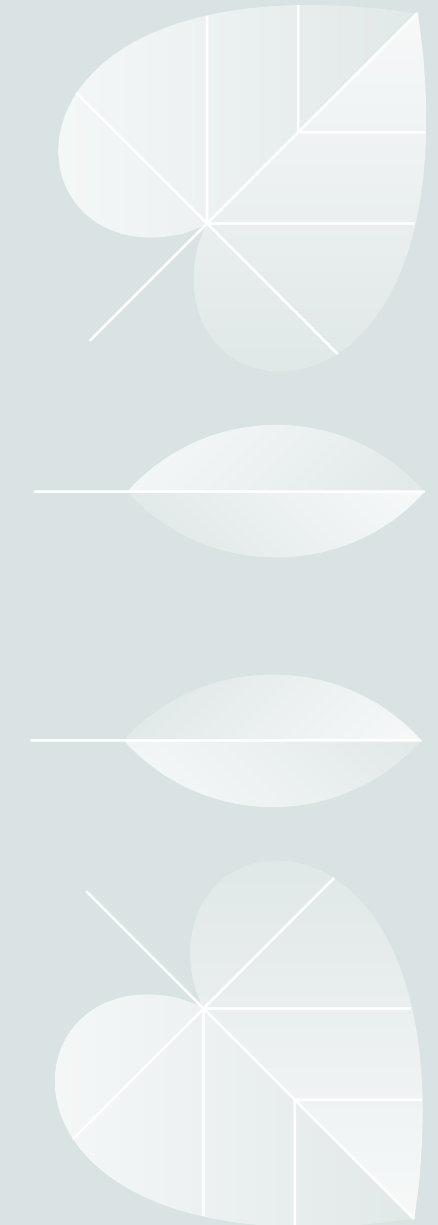
— Some common Built-in Exceptions

Exception	Why	Example
<i>SyntaxError</i>	Your code is not written correctly	<code>if True print("hi")</code>
<i>NameError</i>	You use a variable that doesn't exist	<code>print(age)</code>
<i>TypeError</i>	You use the wrong type with an operation	<code>print("Age: " + 25)</code>
<i>ValueError</i>	The type is correct, but the value is wrong	<code>int("hello")</code>

# Exception

— Some common Built-in Exceptions

Exception	Why	Example
<i>IndexError</i>	You try to access an index that doesn't exist	<pre>my_list = [1, 2, 3] print(my_list[5])</pre>
<i>KeyError</i>	You use a dictionary key that's not present	<pre>data = {"name": "Luna"} print(data["age"])</pre>
<i>ZeroDivisionError</i>	You divide a number by zero	<pre>print(10 / 0)</pre>



The image features a light gray background with decorative white line art of leaves and branches in the corners. The top-left and top-right corners have clusters of elongated leaves. The bottom-left and bottom-right corners have larger, more complex leaf structures with multiple lobes and veins.

# Try... Catch... Finally...

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TRY TO CATCH ERROR AND FINALLY DO  
SOMETHING GOOD

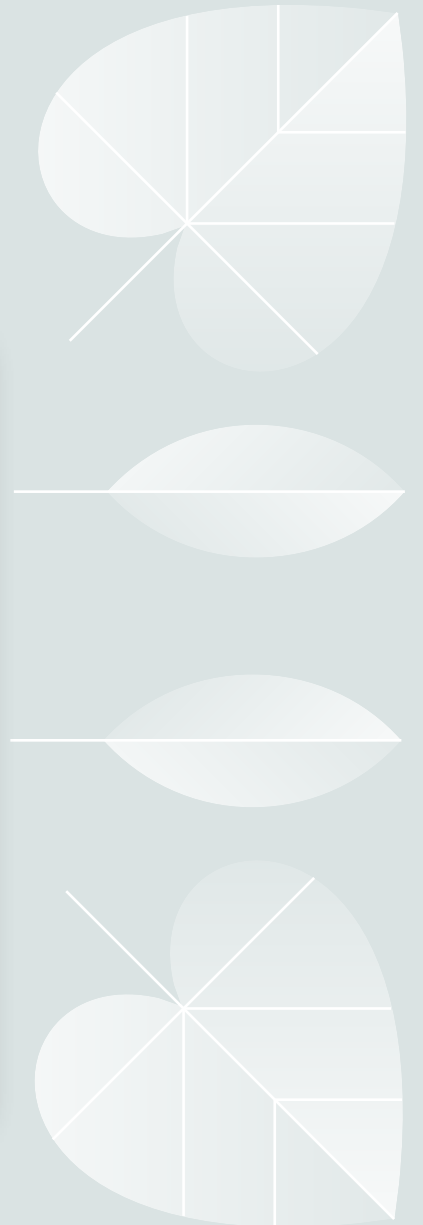
# Try... Catch... Finally...

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app.py

```
1 try:
2     # Code that can produce exception
3
4 except SomeException:
5     # Code that will execute when `SomeException` occurs
6
7 finally:
8     # Code that will execute no matter what
```







# File Handling

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MANAGING FILES LIKE A PRO

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# File Handling

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Open a file with `open()` Function



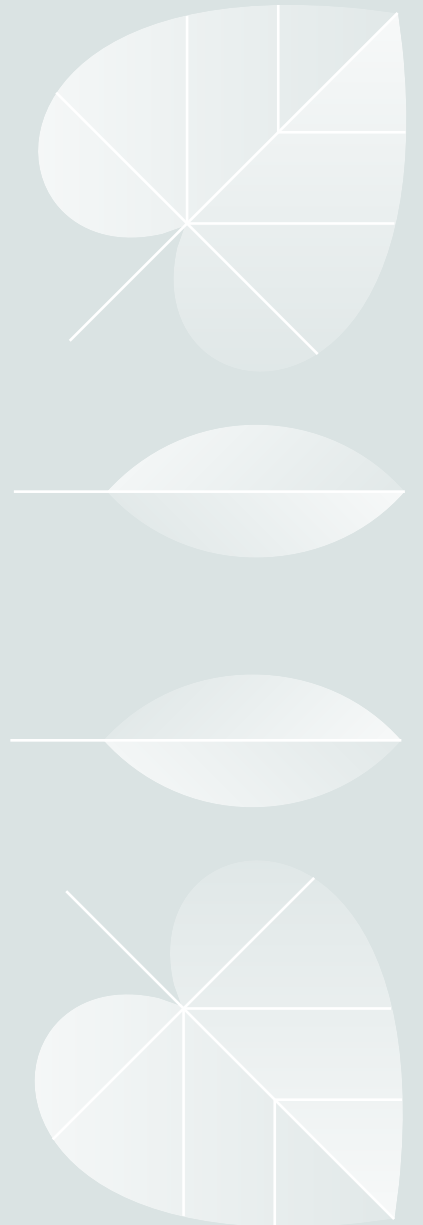
app.py

```
1 secret_file = open("secret.txt", "r")
```

# File Handling

## Common File Opening Modes

Mode	Description
<i><b>r</b></i>	Open text file for Reading. Raises error when not found.
<i><b>w</b></i>	Open text file for Writing. Replaces old if exists.
<i><b>a</b></i>	Open text file for writing. Writes at the end. Creates new if not exists.
<i><b>rb</b></i>	Same as read, but for Binary File.
<i><b>wb</b></i>	Same as write, but for Binary File.





# File Handling

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Steps for a successful file opening and closing:

1. Open a file with **appropriate mode**.
2. Perform Operation.
3. Close the File.



# File Handling

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app.py

```
1 secret_file = open("secret.txt", "r")
2 data = secret_file.read()
3 secret_file.close()
4
5 print("Secret daa:", data)
6
```





# File Handling

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There's a shortcut by using `with` syntax



app.py

```
1 with open("secret.txt", "r") as secret_file:  
2     data = secret_file.read()  
3     print("Secret data:", data)  
4
```

The slide features a light gray background with decorative elements on the left and right sides. On the left, there is a cluster of stylized leaves at the top and a heart shape with internal geometric lines below it. On the right, there is a similar cluster of leaves at the top and a heart shape with internal geometric lines below it. The main text is centered in the middle of the slide.

# Mystery of Path

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MAKE PATH ERRORS PREDICTABLE

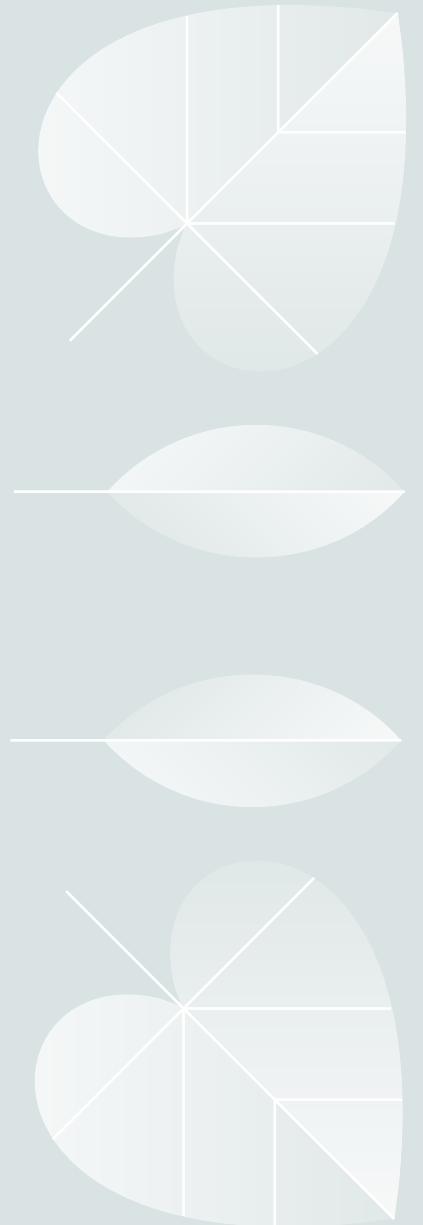
# Mystery of Path

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Path is **where** a file / folder resides.

Two types of Path:

1. Absolute Path (Starts from OS / Drive Root)
2. Relative Path (Starts from Current Directory)







# Mystery of Path

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```
funny_farm/
```

```
|-- animals/
```

```
|   |-- mammals/
```

```
|   |   |-- cow.txt
```

```
|   |   |-- goat.json
```

```
|   |-- birds/
```

```
|       |-- chicken.py
```

```
|       |-- duck.csv
```

```
|-- crops/
```

```
|   |-- vegetables.txt
```

```
|   |-- fruits/
```

```
|       |-- apple.png
```

```
|       |-- banana.jpg
```

```
|-- barn.py
```

The slide features a light gray background with decorative white line art of leaves and branches in the four corners. The top-left and top-right corners have clusters of elongated leaves. The bottom-left and bottom-right corners have larger, more complex leaf structures with multiple lobes and veins.

# File & Exceptions

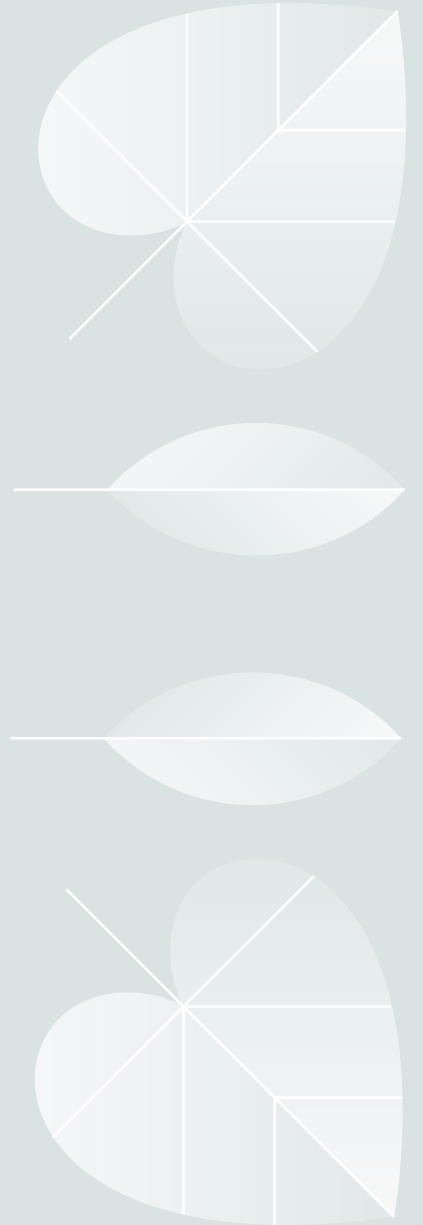
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WHAT IF SOMETHING BAD HAPPENS TO FILES?

# File & Exceptions

—— Most Common File Related Exceptions

Exception	Why
<i>FileNotFoundError</i>	A file doesn't exist when trying to open it



The background of the slide is a light gray color. On the left side, there is a decorative arrangement of stylized leaves. These leaves are in various shades of light gray and white, with some having white outlines and internal vein patterns. They are scattered across the left half of the slide, creating a natural, organic feel.

# Thank you

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