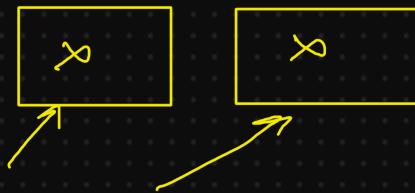


Exception / Error

Handling

→ Errors



1. avoid shutting down the full code
2. We should handle error gracefully.

Exception / Error Handling

python ≈ Hindi, English

What is an error?

If we write code then we will face have errors:

1. Syntax error → During Compilation
2. Exceptions / Runtime → During execution

Syntax error

A syntax error occurs when Python interpreter finds something wrong with the structure of the code.

- not following rules of language.
- program fails to run and will show message explaining the errors.
- parenthesis
- undefined variable
- indentation
- : (colon)

```
-----  
IndexError  
Cell In[21], line 5  
  1 # Index Error  
  2 l1 = [1,2,3,4]  
----> 5 l1[100]
```

```
Traceback (most recent call last)
```

```
IndexError: list index out of range
```



python explaining w/ the error

We have to make sure that we correct and follow the rules of the language.

Exceptions / Runtime Error

Exception is the error that occurs during the execution of the program.

It doesn't prevent program from running but cause it to crash if not handled. Normally faced when something unforeseen happens.

→ raised by python runtime.

Examples : division by zero

Database Connection

Memory Overflow

ValueError

Cell In[49], line 4

```
1 username = "testUser"  
2 password = "abcd" # 1234  
→ 4 if(int(password)==1234):  
5     print("welcome to the System")
```

Traceback (most recent call last)

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

Stack Trace

1. very bad with respect to security.

- application down
- user experience
- Security

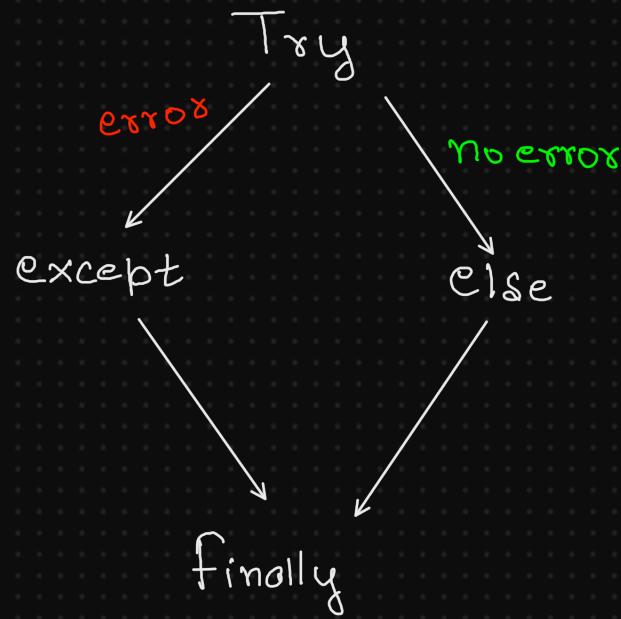
Handling Exception in python

Try

Except

Else

Finally



Try

- the 'try' block contains the code which might throw an exception/error
- if an exception occurs in this block, it is passed to the except block for handling.

Why not put everything inside try?



} → zero

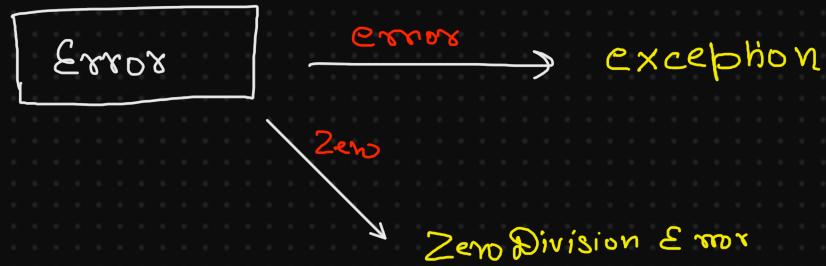
} → value

} →imb

We have to make sure
that diff. errors are
handled differently.

Except

- the 'except' block is used to catch and handle the exception that occurs in the try block.
- if an exception occurs \Rightarrow exception block gets executed
- we can have multiple except blocks for different types of exception.
 - Order still matters



Polygon → triangle
rectangle ↓
rectangle square

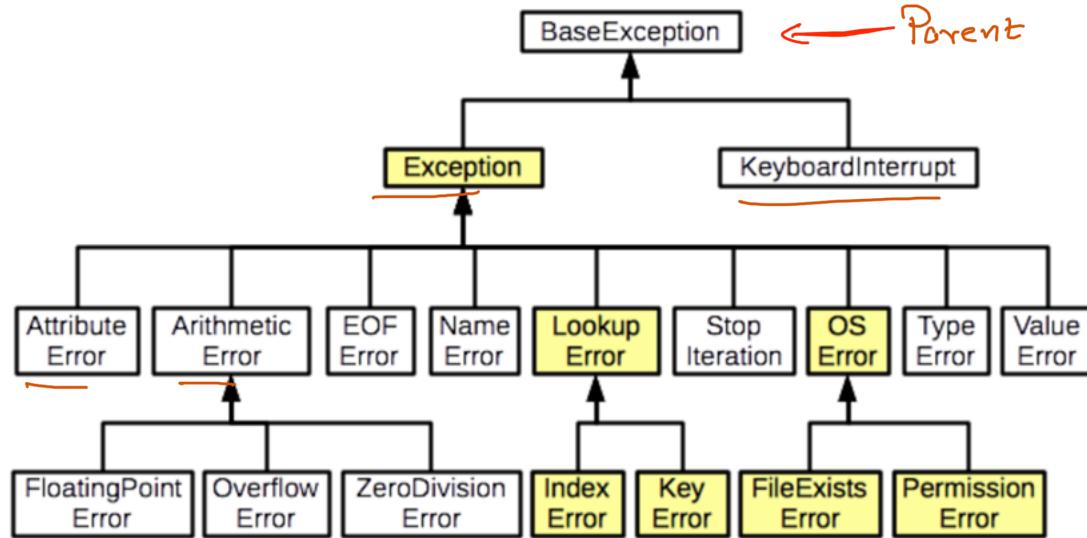


rectangle



Polygon

Exception Tree in python



Else

- the 'else' block gets executed when the 'try' block does not raise an exception
- It is a good place to put code that should run if no exceptions are raised.

Finally

- the 'Finally' block is always executed, whether an exception is raised or not.
- It is often used for cleanup action like 'closing files' or 'releasing resources'.

Raise

- Python allows us to manually raise exception using the raise keyword.
- Useful when we want to enforce certain condition in our program.

Custom Errors

- Python allows us to create our own 'Custom Exception' by creating a new class.
- allows us to create meaningful error messages specific to application / user's need.

You can create your own exceptions

1. Class

2. Inherit exception class