**Exception Handling**

**Error handling is the process of identifying, catching, and managing errors that occur during the execution of a program, to prevent it from crashing and to ensure smooth user experience.**

**These exceptions can be handled using the try statement:**

x = 10

try:

  print(x)

except:

  print("An exception occurred")

**# Error Type    Meaning**

**ZeroDivisionError -     Jab 0 se divide karte ho**

try:

    x = 10

    y = 0

    result = x / y

    print("Result:", result)

except ZeroDivisionError:

    print("Error: Zero se divide nahi kar sakte.")

**ValueError -    Jab data type galat ho (string to int etc.)**

try:

    num = int("abc")

    print("Number:", num)

except ValueError:

    print("Error: Galat input diya, number expected int.")

**TypeError -     Jab incompatible types ko add/multiply karo**

try:

    a = "10"

    b = 5

    result = a + b

    print("Result:", result)

except TypeError:

    print("Error: String aur integer ko add nahi kar sakte.")

**IndexError -    Jab list ke bahar index access karo**

try:

    my\_list = [1, 2, 3]

    print(my\_list[5])

except IndexError:

    print("Error: List ke bahar ka index access karne ki koshish ki.")

**KeyError -  Jab dictionary mein key nahi ho**

try:

    my\_dict = {"name": "Atharva"}

    print(my\_dict["age"])

except KeyError:

    print("Error: Dictionary mein yeh key nahi hai.")

**FileNotFoundError -     Jab file exist nahi karti**

try:

    with open("missing\_file.txt", "r") as f:

        content = f.rread()

        print(content)

except FileNotFoundError:

    print("Error: File exist nahi karti.")

**Python allows you to catch more than one exception type in a single try-except block**

try:

    x = int(input("Enter a number: "))

    result = 10 / x

except ValueError:

    print("Invalid input! Please enter a valid integer.")

except ZeroDivisionError:

    print("Error! Division by zero is not allowed.")

except Exception as e:

    print("Some other error occurred:", e)

**#  Catch Multiple Errors**

try:

    num = int("abc")

except ValueError:

    print("Galat input diya hai (int expected)")

except TypeError:

    print("Data types ka problem hai")

**# Raise an exception**

**# As a Python developer you can choose to throw an exception if a condition occurs.**

eg.1

x = -1

if x < 0:

  raise Exception("Sorry, no numbers below zero")

x = "hello"

if not type(x) is int:

  raise TypeError("Only integers are allowed")