EXCEPTION HANDLING

Exception handling in Python is a mechanism that allows you to gracefully handle errors or exceptional situations that may occur during the execution of your program.

By using exception handling, you can catch and respond to these errors, preventing your program from crashing and providing a way to recover or handle the error condition appropriately.

In Python, the try-except statement is used for exception handling. The general syntax is as follows:

```
try:
    # Code that may raise an exception
    ...
except ExceptionType1:
    # Code to handle ExceptionType1
    ...
except ExceptionType2:
    # Code to handle ExceptionType2
    ...
else:
    # Optional code that will be executed if no exceptions occur
    ...
finally:
    # Optional code that will be executed regardless of exceptions
    ...
```

Example

```
try:
    x = int(input("Enter a number: "))
    result = 100 / x
    print("Result:", result)
except ValueError:
    print("Invalid input. Please enter a valid integer.")
except ZeroDivisionError:
    print("Cannot divide by zero.")
else:
    print("No exceptions occurred.")
finally:
    print("Exception handling completed.")
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  COMMENTS

PS C:\Users\Ram prasath>  c:; cd 'c:\Users\Ram prasath'; & 'C:\Users\Ram prasath\AppData\Local\Program
.exe' 'c:\Users\Ram prasath\.vscode\extensions\ms-python.python-2023.10.1\pythonFiles\lib\python\debug
launcher' '59493' '--' 'c:\Users\Ram prasath\main.py'
Enter a number: 10
Result: 10.0
No exceptions occurred.
Exception handling completed.
PS C:\Users\Ram prasath>
```

```python

    try:
        x = int(input("Enter a number: "))
        result = 100 / x
        print("Result:", result)
    except ValueError:
        print("Invalid input. Please enter a valid integer.")
    except ZeroDivisionError:
        print("Cannot divide by zero.")
    else:
        print("No exceptions occurred.")
    finally:
        print("Exception handling completed.")

```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  COMMENTS

PS C:\Users\Ram prasath>  c:; cd 'c:\Users\Ram prasath'; & 'C:\Users\Ram prasath\AppData\Local
.exe' 'c:\Users\Ram prasath\.vscode\extensions\ms-python.python-2023.10.1\pythonFiles\lib\pyt
launcher' '59533' '--' 'c:\Users\Ram prasath\main.py'
Enter a number: 0
Cannot divide by zero.
Exception handling completed.
PS C:\Users\Ram prasath>
```

COMMONLY FACING ERRORS LIST:

- **Exception:** Base class for all exceptions.
- **SyntaxError:** Raised when there is a syntax error in the code.
- **IndentationError:** Raised when there are incorrect indentation levels.
- **NameError:** Raised when a local or global name is not found.
- **TypeError:** Raised when an operation or function is applied to an object of an inappropriate type.
- **ValueError:** Raised when a function receives an argument of the correct type but an inappropriate value.
- **KeyError:** Raised when a dictionary key is not found.
- **IndexError:** Raised when a sequence subscript is out of range.
- **FileNotFoundError:** Raised when a file or directory is not found.
- **IOError:** Raised when an input/output operation fails.
- **ZeroDivisionError:** Raised when division or modulo operation is performed with zero as the divisor.
- **AssertionError:** Raised when an assert statement fails.
- **ImportError:** Raised when an import statement fails to find the module or cannot import a name from it.