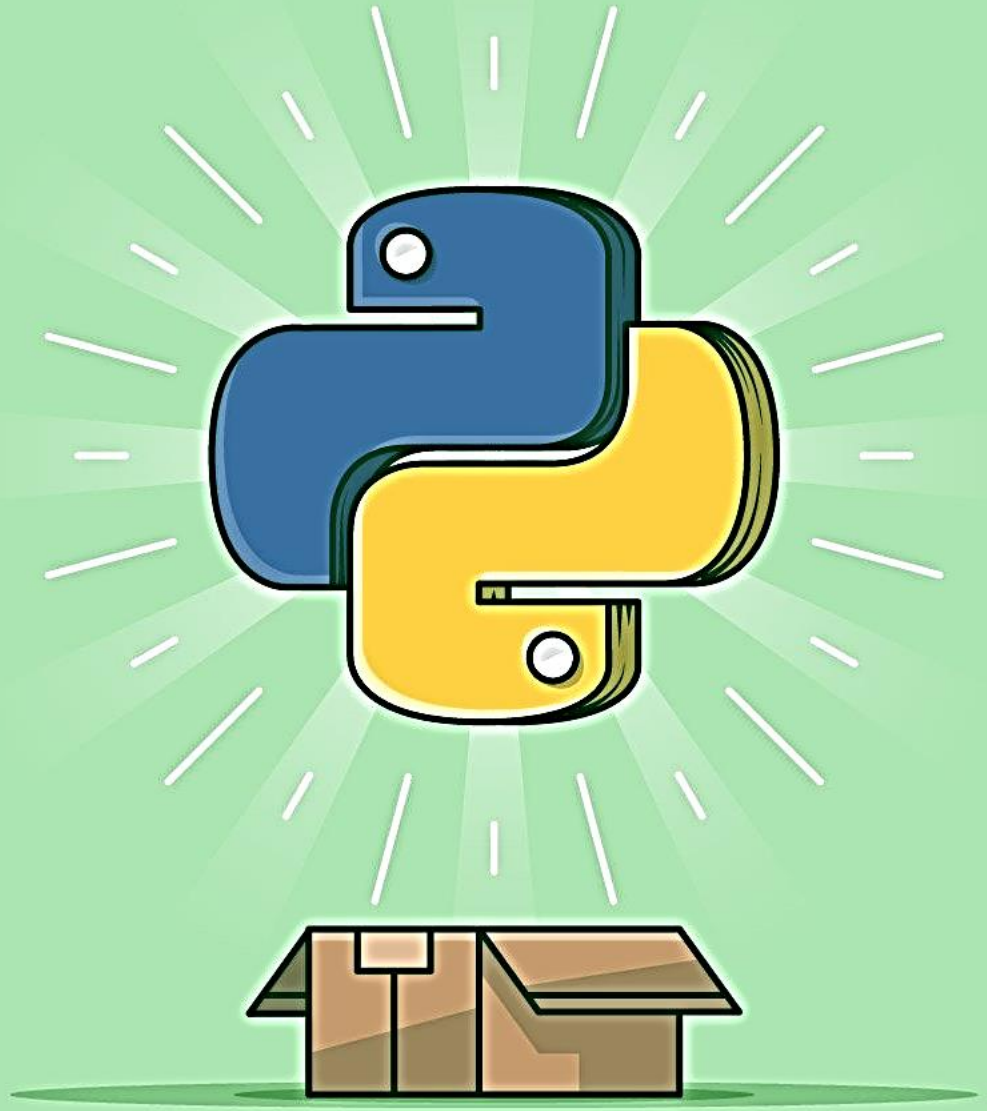
ISLab Python Course

Session 6: Debugging in Python



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Assertion

- Assertion is a Boolean expression that checks if the statement is True or False
  - If the statement is True then it does nothing and continues the execution
  - if the statement is False then it stops the execution of the program and throws an error
- Assertions are not an error-handling tool
- The purpose of assertions is not to handle errors in production
- The purpose of assertions is to notify the developer about errors during development to fix them

Use of Assertion

- Debugging
  - Verifying assumptions in the code to rapidly find mistakes and debug the program
- Documentation
  - Assert statements make it simpler for others to understand the assumptions and work with the code
- Testing
  - Used in unit testing to ensure that certain requirements are met
  - Make sure that the code is working properly and that any further changes will not damage the current functionality of the code
- Security
  - Validate program inputs that if they comply with requirements

Errors and Exceptions

- Errors
  - Occur at compile time and run time, which can terminate the compilation or execution
  - They are the problems in a program due to which the program will stop the execution
- Exceptions
  - Occur only at run time
  - They are raised when some internal events occur which change the normal flow of the program
  - Also we can make our own exception

Exception Handling with try

try:

put unsafe operations here

except:

usually print the cause of the exception

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except:

usually print the cause of the exception

else:

if there is no exceptions occurred above, run this code

finally:

final code that runs anyway

Handling Multiple Exceptions

- Catch different types of exceptions in separate except blocks
- The try block can have multiple except blocks, each handling a different type of exception
- The interpreter will execute the first except block whose exception matches the exception that was raised

Handling Multiple Exceptions

```
try:
    put unsafe operations here
except (exception_type1, exception_type2 , exception_type3):
    usually print the cause of the exceptions
```

```
try:
    put unsafe operations here
except exception_type1:
    usually print the cause of the exception 1
except exception_type2:
    usually print the cause of the exception 2
except exception_type3:
    usually print the cause of the exception 3
```