TECHWINGSYS™

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Exception Handling

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What is Exception Handling?

Exception handling is a process of responding to the occurrence of exceptions, special conditions that change the normal flow of program execution. In Python, exceptions can be handled using try/except blocks.

Exceptions occur when a program encounters an error or unexpected behavior. When an exception is raised, the program stops executing and the exception is handled. This helps prevent the program from crashing or producing undesired results.

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Types of Exceptions

There are various types of exceptions in Python, including SyntaxError, NameError, IndexError, and ValueError. Each type of exception is raised for a different reason. For example, SyntaxError is raised when a syntax error is encountered in the code.

When an exception is raised, the program stops executing and the exception is handled. This helps prevent the program from crashing or producing undesired results.

Exception Handling with Try/Except Blocks

In Python, exceptions can be handled using try/except blocks. The code that may raise an exception is placed inside a try block, and the code to handle the exception is placed inside an except block. If an exception is raised, the code in the except block is executed.

The try/except statement can also be used to catch multiple exceptions. This is done by specifying multiple exceptions in the except block. The code in the except block is then executed when any of the specified exceptions is raised.

Raising Exceptions

In Python, exceptions can also be raised explicitly using the raise statement. The raise statement is used to raise an exception with a custom error message. This can be useful for debugging or providing more informative error messages.

The raise statement can also be used to re-raise an exception. This is done by specifying the exception type in the raise statement. This can be used to catch an exception and then re-raise it with a more appropriate error message.

Regular Expressions

Regular expressions, also known as regex, are a powerful tool for manipulating and searching text in Python. They allow you to search for patterns within a string of characters, making it easier to find specific information.

In Python, regular expressions are implemented using the re module. This module provides several functions that can be used to create and manipulate regular expressions.

```python
import re

text = "The quick brown fox jumps over the lazy dog."
pattern = r"\b\w{5}\b"  # match any five-letter word

matches = re.findall(pattern, text)
print(matches)  # output: ['quick', 'brown', 'jumps']
```