CosmiCode

Educating the Next Wave of Tech Pioneers.

Week 6 Tasks

- **Task 1:** Write a program to demonstrate the use of decorators to measure the execution time of functions.

- **Task 2:** Implement exception handling in a program that performs complex mathematical calculations, ensuring it handles various potential errors.

- **Task 3:** Create a program to read from and write to a JSON file, demonstrating JSON handling in Python.

- **Task 4:** Implement a program to use the collections module to perform advanced data manipulation tasks.

- **Task 5:** Write a program to demonstrate multithreading by creating and running multiple threads to perform different tasks simultaneously.

- **Task 6:** Create a program to use Python's asyncio library to perform asynchronous I/O operations.

- **Task 7:** Final Project: Develop a comprehensive data analysis application that includes data input, processing, visualization, and export functionalities. This project should integrate concepts from all previous tasks and demonstrate a thorough understanding of Python programming.

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Week 6 Guide

Objective: Understand and apply object-oriented programming concepts in Python.

- Task 1: Define and use classes and objects for a bank account. Refer to W3Schools Python Classes.
- Task 2: Implement a class hierarchy for geometric shapes and calculate area and perimeter. Refer to W3Schools Python Inheritance.
- Task 3: Create a base class for a vehicle and derived classes for car and bike. Refer to W3Schools Python Inheritance.
- Task 4: Implement operator overloading for complex numbers. Refer to W3Schools Python Operator Overloading.
- Task 5: Demonstrate polymorphism using base and derived classes with overridden methods. Refer to W3Schools Python Polymorphism.
- Task 6: Manage a library system using classes. Learn about file handling for adding, removing, and displaying books.
- Task 7: Implement file operations using classes for text files. Refer to W3Schools Python File Handling.

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