DSMP Fellowship Assignment 3

OOP and File Handling in Python

Instructions:

- Complete all the questions by writing Python code.
- Ensure that your code is properly documented with comments.
- Use object-oriented programming concepts where required.
- Handle files appropriately and ensure files are closed after use.

Question 1: Basic Class Creation

Create a Python class called Book that has the following attributes and methods:

- Attributes: `title`, `author`, `pages`.
- Method: `get_info()` that returns a string with the title, author, and number of pages.

Write code to create two objects of the Book class and print their information using the `get_info()` method.

Question 2: Class Inheritance

Create a class `Person` with the following attributes:

- `name`, `age`.

Then create a class `Student` that inherits from `Person` and has an additional attribute `student_id`.

Write a method in `Student` to display the student's details, including the inherited attributes. Create an object of `Student` and print the details.

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Question 3: Writing and Reading Files

Write a Python program to:

- Create a text file `student_data.txt`.
- Use a `for` loop to write the names and scores of 5 students to the file in the format: `Name: <name>, Score: <score>`.
- After writing, read the file and print its contents line by line.

Question 4: Managing Student Data with OOP and File Handling

Create a class `StudentRecord` that handles student records. The class should:

- Have methods to add a student's name and score.
- Save the record to a text file `records.txt`.
- Have a method to read and print all student records from the file.

Create an instance of `StudentRecord` and use it to add at least three students. Then, display all the records from the file.

Question 5: Exception Handling in File Operations

Write a Python program to:

- Attempt to open a file `non_existent_file.txt` (a file that doesn't exist).
- Use exception handling to catch the `FileNotFoundError` and print an error message.
- After handling the exception, create the file and write a custom message to it.