Assignment: File Operations and Error Handling

Instructions:

- Solve the following exercises related to file operations and error handling in Python.
- Write the solution code for each exercise.
- Include comments to explain your code where necessary.
- Test your functions with sample inputs to ensure correctness.
- Write the answers in a Python script file or a Jupyter Notebook.

Exercises:

Appending to a File:

Write a Python program that prompts the user to enter a sentence and then appends that sentence to a file named "append.txt".

Error Handling - File Write Permission:

Write a Python program that attempts to open a file named "protected.txt" for writing. Handle the PermissionError exception by printing a message indicating that write permission is denied.

Error Handling - Invalid Data Format:

Write a Python program that reads the contents of a text file named "data.txt" containing numeric data. Convert each line of data to an integer and calculate the average of all the numbers. Handle any potential exceptions that may occur during file reading, conversion, or calculation.

File Backup:

Write a Python program that copies the contents of a text file named "original.txt" to a new file named "backup.txt". Handle any potential exceptions that may occur during file copying.

Error Handling - Unknown Error:

Write a Python program that attempts to open a file named "unknown.txt" for reading. Handle any unexpected exceptions by printing a generic error message.