Python Programming Case Study: Movie Database System

You are tasked with creating a Python-based data management system for a movie enthusiast club.

The system will allow members to manage their movie collections and access related functionalities.

Use the following guidelines to structure your program and demonstrate your understanding of Python concepts

such as lists, tuples, dictionaries, sets, functions, scopes, *args, **kwargs, and file handling.

Requirements:

1. Menu-Based Interaction:

   Create a menu-driven program that allows users to perform the following tasks:

   - Add a new movie to their collection.
   - View all movies in their collection.
   - Search for a movie by title or director.
   - Delete a movie from the collection.
   - View unique genres in the collection.
   - Export the movie collection to a file.

2. Data Structure Design:

   - Store each movie as a dictionary with keys: title, director, genre, and year.
   - Maintain the collection of movies as a list of dictionaries.

3. Functions:

- Implement each menu option as a separate function.

- Use *args and **kwargs where applicable, e.g., for searching or adding a movie.

4. Scope:

- Demonstrate the use of global and local scopes effectively.

5. File Handling:

- Save the movie collection to a file named movie_collection.txt when exporting.

- Read back the file and display its contents.

6. Set Operations:

- Extract unique genres using sets and display them to the user.

7. Error Handling:

- Ensure your program handles errors gracefully, such as when attempting to delete a movie that does not exist.

Sample Input and Output:

Menu Example:

1. Add a Movie

2. View All Movies

3. Search for a Movie

4. Delete a Movie

5. View Unique Genres

6. Export Collection to File

7. Exit

Example Usage:

1. Adding a Movie:

   Input:

   Enter title: "Inception"

   Enter director: "Christopher Nolan"

   Enter genre: "Science Fiction"

   Enter year: 2010

   Output:

   Movie added successfully!

2. Viewing All Movies:

   Output:

   1. Title: Inception, Director: Christopher Nolan, Genre: Science Fiction, Year: 2010

3. Exporting Collection:

   Output:

   Movie collection exported to movie_collection.txt.

Evaluation Criteria:

- Correct usage of Python data structures (lists, tuples, dictionaries, sets).
- Effective implementation of functions with *args and **kwargs.
- Proper handling of scopes and global/local variables.
- Accurate and efficient use of file handling to read/write data.
- Robustness and error handling in the program.

Good luck!