



**Department of Computer Science and
Engineering PES University, Bangalore, India**
Python for Computational Problem Solving (UE24CS151A) Problem
Statement: Level-1 (Banana)

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Date: 4th November, 2024
Timing: 1:45 PM to 4:00 PM

Problem: Movie Database Analysis

Given the details of movies in a file containing three words in each column—Genre, Director, and Movie title, find the solution for the following questions:

1. Find the total number of movies.
2. Find the number of unique genres.
3. Display the list of movies in each genre.
4. Find the number of directors in each genre.
5. Find the list of directors who have directed movies in each genre.
6. Find the number of movies directed by each director.
7. Find the list of movies directed by each director.
8. Find the number of movies directed by each director in each genre.

Optional:

09. Find the list of movies directed by each director in each genre.
10. Add two new movies to the existing data with all required details.
11. Sort the names of movies in the ascending order.

Dataset: Movie Database Analysis(movies.txt)

Action, Christopher Nolan, Inception
Action, Christopher Nolan, The Dark Knight
Drama, Steven Spielberg, Schindler's List
Drama, Quentin Tarantino, Pulp Fiction
Comedy, Edgar Wright, Hot Fuzz
Action, James Cameron, Terminator 2
Comedy, Wes Anderson, The Grand Budapest Hotel
Drama, Christopher Nolan, Dunkirk
Action, Quentin Tarantino, Kill Bill: Volume 1
Action, James Cameron, Avatar

Methodology:

Load the Dataset-Load the dataset from a file into to a variable for easier manipulation. Data Exploration- Explore the dataset.

Detailed Analysis-Make sure you know the significance of each column and arrow in a given dataset

Implementation:

Language: Python 3.10 or above.

- Used at a structures such as lists, sets and dict store and organize the data.
- Use/write appropriate functions – Specific to Data structures and also user defined functions for each functionality.
- Make use of operators, loops and conditionals

Expected output for all sub-problems:

Menu for movie database analysis

```
Movie Database Menu
1. Total Number of Movies
2. Number of Unique Genres
3. List of Movies in Each Genre
4. Number of Directors in Each Genre
5. List of Directors in Each Genre
6. Number of Movies Directed by Each Director
7. List of Movies Directed by Each Director
8. Number of Movies Directed by Each Director in Each Genre
9. List of Movies Directed by Each Director in Each Genre
10. Add Two New Movies
11. Sort movies based on title
12. Exit
Enter your choice: 1 to 11 and 12 to exit
```

Subproblem1:

```
Enter your choice: 1
Total Number of Movies: 12
```

Subproblem2:

```
Enter your choice: 2
Number of Unique Genres: 4
```

Subproblem3:

```
Enter your choice: 3
Action: Inception, The Dark Knight, Terminator 2, Kill Bill: Volume 1, Avatar, The Departed
Drama: Schindler's List, Pulp Fiction, Dunkirk
Comedy: Hot Fuzz, The Grand Budapest Hotel
Sci-Fi: Blade Runner
```

Subproblem4:

```
Enter your choice: 4
Action: 4 directors
Drama: 3 directors
Comedy: 2 directors
Sci-Fi: 1 directors
```

Subproblem5:

```
Enter your choice: 5
Action: Quentin Tarantino, Christopher Nolan, James Cameron, Martin Scorsese
Drama: Quentin Tarantino, Christopher Nolan, Steven Spielberg
Comedy: Edgar Wright, Wes Anderson
Sci-Fi: Ridley Scott
```

Subproblem6:

```
Enter your choice: 6
Christopher Nolan: 3 movies
Steven Spielberg: 1 movies
Quentin Tarantino: 2 movies
Edgar Wright: 1 movies
James Cameron: 2 movies
Wes Anderson: 1 movies
Ridley Scott: 1 movies
Martin Scorsese: 1 movies
```

Subproblem7:

```
Enter your choice: 7
Christopher Nolan: Inception, The Dark Knight, Dunkirk
Steven Spielberg: Schindler's List
Quentin Tarantino: Pulp Fiction, Kill Bill: Volume 1
Edgar Wright: Hot Fuzz
James Cameron: Terminator 2, Avatar
Wes Anderson: The Grand Budapest Hotel
Ridley Scott: Blade Runner
Martin Scorsese: The Departed
```

Subproblem8:

```
Enter your choice: 8
Christopher Nolan - Action: 2 movies
Christopher Nolan - Drama: 1 movies
Steven Spielberg - Drama: 1 movies
Quentin Tarantino - Drama: 1 movies
Quentin Tarantino - Action: 1 movies
Edgar Wright - Comedy: 1 movies
James Cameron - Action: 2 movies
Wes Anderson - Comedy: 1 movies
Ridley Scott - Sci-Fi: 1 movies
Martin Scorsese - Action: 1 movies
```

Subproblem9:

```
Enter your choice: 9
Christopher Nolan - Action: Inception, The Dark Knight
Christopher Nolan - Drama: Dunkirk
Steven Spielberg - Drama: Schindler's List
Quentin Tarantino - Drama: Pulp Fiction
Quentin Tarantino - Action: Kill Bill: Volume 1
Edgar Wright - Comedy: Hot Fuzz
James Cameron - Action: Terminator 2, Avatar
Wes Anderson - Comedy: The Grand Budapest Hotel
Ridley Scott - Sci-Fi: Blade Runner
Martin Scorsese - Action: The Departed
```

Subproblem10:

```
Enter your choice: 10
New movies added.
```

Action, Christopher Nolan, Inception
Action, Christopher Nolan, The Dark Knight
Drama, Steven Spielberg, Schindler's List
Drama, Quentin Tarantino, Pulp Fiction
Comedy, Edgar Wright, Hot Fuzz
Action, James Cameron, Terminator 2
Comedy, Wes Anderson, The Grand Budapest Hotel
Drama, Christopher Nolan, Dunkirk
Action, Quentin Tarantino, Kill Bill: Volume 1
Action, James Cameron, Avatar
Sci-Fi, Ridley Scott, Blade Runner
Action, Martin Scorsese, The Departed

Subproblem11:

```
Enter your choice: 11
Sorted Movies by Title (Ascending Order):
Action, James Cameron, Avatar
Drama, Christopher Nolan, Dunkirk
Comedy, Edgar Wright, Hot Fuzz
Action, Christopher Nolan, Inception
Action, Quentin Tarantino, Kill Bill: Volume 1
Drama, Quentin Tarantino, Pulp Fiction
Drama, Steven Spielberg, Schindler's List
Action, James Cameron, Terminator 2
Action, Christopher Nolan, The Dark Knight
Comedy, Wes Anderson, The Grand Budapest Hotel
```

SubmissionMode:

Link is shared by Faculty member in that session. Choose the correct section you belong to in the current semester.

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