

Each Function and What Their Functionality

1. *Insert Data Function*:

- Adds new records to a specified table in the database.
- Every form or Id that is asked to be entered must be an integer value.
- The hidden gem score and the imdb score must be entered in as floats.
- Every other value can be entered in as a string.

Ex:

```
13. Show Data
14. Quit
Enter your choice (1-14): 1
Inserting Netflix data...
Enter Movie/Series ID: 52
Enter title: Lion King
Enter genre: Family/Musical
Enter tags: Musical
Enter languages for Movie/Series: English
Enter Movie or Series: Movie
Enter Movie/Series Runtime: 1h 28m
Enter Box Office Numbers: 13000
Enter Director Full Name: Rob Minkoff
Enter Actor Full Name: Jeremy Irons
Enter Production House: Walt Disney Pictures
Enter Writer Full Name: Roger Allers
Enter Date of Release: June 24 1994
Enter Netflix Date of Release: June 25 1995
Enter Movie or Series Country: America
Enter Movie/Series Summary: This Disney animated feature follows the adventures of the young lion Simba (Jonathan Taylor Thomas), the heir of his father, Mufasa (James Earl Jones).
Enter Movie/Series Awards Received: 100
Enter Movie/Series Hidden Gem Rating: 5.6
Enter Movie/Series IMDB Rating: 8.5
Enter Movie/Series Viewer Rating: E
Enter Movie/Series Director ID: 52
Enter Movie/Series Studio ID: 52
Enter Movie/Series Writer ID: 52
Enter Movie/Series Casts ID: 52
Enter Movie/Series Award ID: 52
Enter Movie/Series Actor ID: 52
Enter Movie/Series Rating ID: 52
Netflix data inserted successfully.
```

```
13. Show Data
14. Quit
Enter your choice (1-14): 1
Inserting Netflix data...
Enter Movie/Series ID: 52
Enter title: Lion King
Enter genre: Family/Musical
Enter tags: Musical
Enter languages for Movie/Series: English
Enter Movie or Series: Movie
Enter Movie/Series Runtime: 1h 28m
Enter Box Office Numbers: 13000
Enter Director Full Name: Rob Minkoff
Enter Actor Full Name: Jeremy Irons
Enter Production House: Walt Disney Pictures
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Enter Date of Release: June 24 1994
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Enter Movie or Series Country: America
Enter Movie/Series Summary: This Disney animated feature follows the adventures of the young lion Simba (Jonathan Taylor Thomas), the heir of his father, Mufasa (James Earl Jones).
Enter Movie/Series Awards Received: 100
Enter Movie/Series Hidden Gem Rating: 5.6
Enter Movie/Series IMDB Rating: 8.5
Enter Movie/Series Viewer Rating: E
Enter Movie/Series Director ID: 52
Enter Movie/Series Studio ID: 52
Enter Movie/Series Writer ID: 52
Enter Movie/Series Casts ID: 52
Enter Movie/Series Award ID: 52
Enter Movie/Series Actor ID: 52
Enter Movie/Series Rating ID: 52
Netflix data inserted successfully.
```

Output:

```

Enter your choice (1-14): 4
Select the search criteria:
1. title
2. Movie ID
3. Country
Enter your choice 1-3: 2
Enter Movie/Series ID to find: 52
(52, 'Lion King', 'Family/Musical', 'Musical', 'English', 'Movie', 'America', '1h 28m', 13000, 'June 24 1994', 'June 25 1995', 'This Disney animated
feature follows the adventures of the young lion Simba (Jonathan Taylor Thomas), the heir of his father, Mufasa (James Earl Jones).', 52, 52)

```

2. *Delete Data Function*:

- a. Removes records from a table based on a given condition.
- b. You can choose which data to delete based on the given options.

Ex:

```

Welcome to the Database CLI Interface!
Please select an option:
1. Insert Data
2. Delete Data
3. Update Data
4. Search Data
5. Aggregate Functions
6. Sorting
7. Joins
8. Grouping
9. Subqueries
10. Transactions
11. Error Handling
12. Show Tables
13. Show Data
14. Quit
Enter your choice (1-14): 2
Select what to delete:
1. Delete by Movie ID
2. Delete by Movie Name
3. Delete by Director
4. Delete by Language
Enter your choice 1-4: 1
Enter Movie/Series ID to delete: 52
Are you sure you want to delete these records? (y/n): y
Operation successful.
Data deleted successfully.

```

If you try to search again nothing is found:

```

Enter your choice (1-14): 4
Select the search criteria:
1. title
2. Movie ID
3. Country
Enter your choice 1-3: 2
Enter Movie/Series ID to find: 52

```

3. *Update Data Function*:

- a. Modifies existing records in a table based on a specified condition.
- b. You can choose which data to update based on the given options.

Ex:

Box Office = 1000000 before

```

Select the search criteria:
1. title
2. Movie ID
3. Country
Enter your choice 1-3: 2
Enter Movie/Series ID to find: 4
(4, 'ANNE+', 'Drama', 'TV Dramas,Romantic TV Dramas,Dutch TV Shows', 'Turkish', 'Series', 'Belgium,Netherlands', '< 30 minutes', 1000000, '1-Oct-16'
, '3/4/2021', 'Upon moving into a new place, a 20-something runs into a former flame that triggers memories of past relationships since their split
four years ago.', 4, 4)

```

After = 54

```

Enter your choice (1-14): 3
Enter Movie/Series ID to update: 4
Enter Movie/Series Rating ID to update: 4
Select the attribute to update:
1. Hidden Gem Score
2. Box Office Numbers
3. IMDB
4. netflix_release
Enter your choice 1-4: 2
Enter new Box Office Revenue: 54
Operation successful.
Data updated successfully.

```

```

Enter your choice (1-14): 4
Select the search criteria:
1. title
2. Movie ID
3. Country
Enter your choice 1-3: 2
Enter Movie/Series ID to find: 4
(4, 'ANNE+', 'Drama', 'TV Dramas,Romantic TV Dramas,Dutch TV Shows', 'Turkish', 'Series', 'Belgium,Netherlands', '< 30 minutes', 54, '1-Oct-16', '3/
4/2021', 'Upon moving into a new place, a 20-something runs into a former flame that triggers memories of past relationships since their split four
years ago.', 4, 4)

```

4. *Search Data Function*:
 - a. Retrieves records from a table that match specific criteria.
 - b. You can choose which data to search based on the given options.

Ex:

```

Enter your choice (1-14): 4
Select the search criteria:
1. title
2. Movie ID
3. Country
Enter your choice 1-3: 2
Enter Movie/Series ID to find: 52
(52, 'Lion King', 'Family/Musical', 'Musical', 'English', 'Movie', 'America', '1h 28m', 13000, 'June 24 1994', 'June 25 1995', 'This Disney animated
feature follows the adventures of the young lion Simba (Jonathan Taylor Thomas), the heir of his father, Mufasa (James Earl Jones).', 52, 52)

```

5. *Aggregate Functions Function*:
 - a. Performs calculations like sum, average, count, min, and max on data in a table.
 - b. You can choose which data to aggregate based on the given options.

Ex:

```

Enter your choice (1-14): 5
Select aggregate function to perform:
1. Average BoxOffice Revenue
2. Minimum BoxOffice Revenue
3. Maximum BoxOffice Revenue
4. Total Number of Movies
Enter your choice 1-4: 1
Average Box Office Revenue: 122015293.10000000

```

6. *Sorting Function*:

- Arranges query results from a table based on specified columns in ascending or descending order.
- You can choose which data to sort based on the given options.

Ex:

```

Enter your choice (1-14): 6
Select a column to sort by:
1. Box Office Revenue (Descending)
2. IMBD Rating (Descending)
3. Movie (Alphabetical)
4. Hidden Gem Score (Descending)
Enter your choice 1-4: 4
Movies/Series sorted by Hidden Gem Score (Descending):
(50, None, 9.5, None)
(43, 8.6, 9.3, None)
(19, 7.7, 8.8, None)
(15, 7.7, 8.8, None)
(7, 7.5, 8.7, None)
(41, 7.2, 8.6, None)
(6, 7.4, 8.6, None)
(24, 7.3, 8.5, None)
(35, 8.1, 8.5, None)
(33, 7.2, 8.5, None)
(32, 7.7, 8.4, None)
(9, 6.7, 8.3, None)
(39, 6.4, 8.2, 'TV-14')
(48, 7.4, 8.2, 'PG')
(5, 6.3, 8.1, None)
(49, 7.1, 8.1, 'Not Rated')
(20, 6.3, 7.9, None)
(38, 7.7, 7.8, None)
(2, 5.8, 7.8, 'R')
(13, 7.6, 7.8, None)
(26, 7.0, 7.8, 'TV-14')
(51, 9.5, 7.8, 'E')

```

7. *Joins Function*:

- Combines data from multiple tables using relationships established between them like inner, left, right, and outer join.
- You can choose which data to join based on the given options.

Ex:

```

Enter your choice (1-14): 7
Enter first table to join: Movie
Enter second table to join: Ratings
Select a type of join:
1. Left Join
2. Inner Join
Enter your choice 1 or 2: 1
Left Join:
(4, 'ANNE+', 'Drama', 'TV Dramas,Romantic TV Dramas,Dutch TV Shows', 'Turkish', 'Series', 'Belgium,Netherlands', '< 30 minutes', 54, '1-Oct-16', '3/4/2021', 'Upon moving into a new place, a 20-something runs into a former flame that triggers memories of past relationships since their split four years ago.', 4, 4, 4, None)
(5, 'Moxie', 'Animation, Short, Drama', 'Social Issue Dramas,Teen Movies,Dramas,Comedies,Movies Based on Books', 'English', 'Movie', 'Lithuania,Poland,France,Iceland,Italy,Spain,Greece,Czech Republic,Belgium,Portugal,Canada,Hungary,Mexico,Slovakia,Sweden,South Africa,Netherlands,Germany,Thailand,Turkey,Singapore,Romania,Argentina,Israel,Switzerland,Australia,United Kingdom,Brazil,Malaysia,India,Colombia,Hong Kong,Japan,South Korea,United States,Russia', '1-2 hour', None, '22-Sep-11', '3/4/2021', 'Inspired by her moms rebellious past and a confident new friend, a shy 16-year-old publishes an anonymous zine calling out sexism at her school.', 5, 5, 5, None)
(6, 'The Con-Heartist', 'Comedy, Romance', 'Romantic Comedies,Comedies,Romantic Films,Thai Comedies,Thai Films', 'Thai', 'Movie', 'Thailand', '> 2 hours', None, '3-Dec-20', '3/3/2021', 'After her ex-boyfriend cons her out of a large sum of money, a former bank employee tricks a scam artist into helping her swindle him in retaliation.', 6, 6, 6, None)
(7, 'Gleboka woda', 'Drama', 'TV Dramas,Polish TV Shows,Social Issue TV Dramas', 'Polish', 'Series', 'Poland', '< 30 minutes', None, '14-Jun-11', '3/3/2021', 'A group of social welfare workers led by their new director tries to provide necessary aid to people struggling with various problems.', 7, 7, 7, None)
(8, 'Instynkt', 'Crime', 'TV Dramas,Crime TV Dramas,Polish TV Shows', 'Polish', 'Series', 'Poland', '< 30 minutes', None, '3-Mar-11', '3/3/2021', 'An enigmatic commissioner joins the Warsaw Police, where her unconventional investigation methods unsettle the officers in the homicide department.', 8, 8, 8, None)

```

8. *Grouping Function*:

- Groups query results based on specified columns.
- You can choose which data to group based on the given options.

Ex:

```

Enter your choice (1-14): 8
Select category to group by:
1. Group by Country
2. Group by Movie
3. Group by Date of Release
Enter your choice 1-3: 2
('Movie', 38)
('Series', 9)

```

9. *Subqueries Function*:

- Supports nested operations within queries.
- You can choose which data to subquery based on the given options.

Ex:

```

Enter your choice (1-14): 9
Select Subquery to produce:
1. Movie to Studio
2. Movie to Director
3. Movie to Actor
Enter your choice 1-3: 2
(4, 'ANNE+', 'Drama', 'TV Dramas,Romantic TV Dramas,Dutch TV Shows', 'Turkish', 'Series', 'Belgium,Netherlands', '< 30 minutes', 54, '1-Oct-16', '3/4/2021', 'Upon moving into a new place, a 20-something runs into a former flame that triggers memories of past relationships since their split four years ago.', 4, 4)
(5, 'Moxie', 'Animation, Short, Drama', 'Social Issue Dramas,Teen Movies,Dramas,Comedies,Movies Based on Books', 'English', 'Movie', 'Lithuania,Poland,France,Iceland,Italy,Spain,Greece,Czech Republic,Belgium,Portugal,Canada,Hungary,Mexico,Slovakia,Sweden,South Africa,Netherlands,Germany,Thailand,Turkey,Singapore,Romania,Argentina,Israel,Switzerland,Australia,United Kingdom,Brazil,Malaysia,India,Colombia,Hong Kong,Japan,South Korea,United States,Russia', '1-2 hour', None, '22-Sep-11', '3/4/2021', 'Inspired by her moms rebellious past and a confident new friend, a shy 16-year-old publishes an anonymous zine calling out sexism at her school.', 5, 5)
(6, 'The Con-Heartist', 'Comedy, Romance', 'Romantic Comedies,Comedies,Romantic Films,Thai Comedies,Thai Films', 'Thai', 'Movie', 'Thailand', '> 2 hours', None, '3-Dec-20', '3/3/2021', 'After her ex-boyfriend cons her out of a large sum of money, a former bank employee tricks a scam artist into helping her swindle him in retaliation.', 6, 6)
(7, 'Gleboka woda', 'Drama', 'TV Dramas,Polish TV Shows,Social Issue TV Dramas', 'Polish', 'Series', 'Poland', '< 30 minutes', None, '14-Jun-11', '3/3/2021', 'A group of social welfare workers led by their new director tries to provide necessary aid to people struggling with various problems.', 7, 7)
(8, 'Instynkt', 'Crime', 'TV Dramas,Crime TV Dramas,Polish TV Shows', 'Polish', 'Series', 'Poland', '< 30 minutes', None, '3-Mar-11', '3/3/2021', 'An enigmatic commissioner joins the Warsaw Police, where her unconventional investigation methods unsettle the officers in the homicide department.', 8, 8, 8, None)

```

10. *Transactions Function*:

- a. Ensures consistency of a database operation by wrapping multiple SQL statements within a transaction block.
11. *Error Handling Function*:
 - a. Implements mechanisms to catch and handle exceptions during database operations.
12. *Show Tables*:
 - a. This show the names of all the tables within the Database

Ex:

```
Enter your choice (1-14): 12
Tables in 'Netflix_schema':
writer
productionhouse
director
ratings
awards
movie
casts
actor
```

13. *Show all DB Data*:
 - a. This shows all the data joined together within the Database.

Ex:

```
Enter your choice (1-14): 13
Listing all Netflix data in one view...

All Netflix Data:
Movie ID      Title      Genre      Languages      Movie/Series      Country Runtime Box Office      Year of Release Netflix Release Summary Director IDS
Studio ID     Casts ID   Studio Name Director
4 ANNE+ Drama TV Dramas,Romantic TV Dramas,Dutch TV Shows Turkish Series Belgium,Netherlands < 30 minutes 54 1-Oct-16 3
/4/2021 Upon moving into a new place, a 20-something runs into a former flame that triggers memories of past relationships since their split four ye
ars ago. 4 4 None None
5 Moxie Animation, Short, Drama Social Issue Dramas,Teen Movies,Dramas,Comedies,Movies Based on Books English Movie Lithuania,Poland,Fra
nce,Iceland,Italy,Spain,Greece,Czech Republic,Belgium,Portugal,Canada,Hungary,Mexico,Slovakia,Sweden,South Africa,Netherlands,Germany,Thailand,Turke
y,Singapore,Romania,Argentina,Israel,Switzerland,Australia,United Kingdom,Brazil,Malaysia,India,Colombia,Hong Kong,Japan,South Korea,United States,R
ussia 1-2 hour None 22-Sep-11 3/4/2021 Inspired by her moms rebellious past and a confident new friend, a shy 16-year-old p
ublishes an anonymous zine calling out sexism at her school. 5 5 5 None Stephen Irwin
6 The Con-Heartist Comedy, Romance Romantic Comedies,Comedies,Romantic Films,Thai Comedies,Thai Films Thai Movie Thailand >
2 hrs None 3-Dec-20 3/3/2021 After her ex-boyfriend cons her out of a large sum of money, a former bank employee tricks a scam ar
tist into helping her swindle him in retaliation. 6 6 6 None Mez Tharatorn
7 Gleboka woda Drama TV Dramas,Polish TV Shows,Social Issue TV Dramas Polish Series Poland < 30 minutes None 14-Jun-11 3
/3/2021 A group of social welfare workers led by their new director tries to provide necessary aid to people struggling with various problems. 7 7
7 None None
8 Instynkt Crime TV Dramas,Crime TV Dramas,Polish TV Shows Polish Series Poland < 30 minutes None 3-Mar-11 3/3/
2021 An enigmatic commissioner joins the Warsaw Police, where her unconventional investigation methods unsettle the officers in the homicide depa
rtment. 8 8 8 None None
9 Only a Mother Drama Social Issue Dramas,Dramas,Movies Based on Books,Period Pieces,Swedish Movies Swedish Movie Lithuania,Poland,Fra
```

14. *Exit Program*:
 - a. This successfully exits the program.

Ex:

```
Enter your choice (1-14): 14
Exiting the program.

C:\Users\deji1\OneDrive\Desktop\CMPS431W>
```

15.