Lab 1

DBMS

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Question 1-5

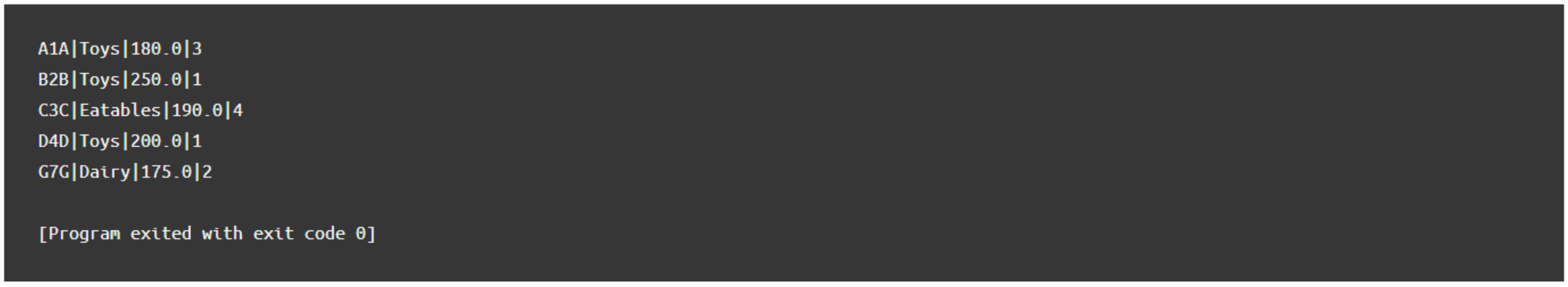
Table Creation and Insertion of Data

```
CREATE TABLE Warehouses (
  Code INTEGER PRIMARY KEY NOT NULL,
  Location TEXT NOT NULL ,
  Capacity INTEGER NOT NULL
 );

 CREATE TABLE Boxes (
  Code TEXT PRIMARY KEY NOT NULL,
  Contents TEXT NOT NULL ,
  Value REAL NOT NULL ,
  Warehouse INTEGER NOT NULL,
  CONSTRAINT fk_Warehouses_Code FOREIGN KEY (Warehouse) REFERENCES Warehouses(Code)
 );
  INSERT INTO Warehouses(Code,Location,Capacity) VALUES(1,'India',3);
 INSERT INTO Warehouses(Code,Location,Capacity) VALUES(2,'India',4);
 INSERT INTO Warehouses(Code,Location,Capacity) VALUES(3,'USA',7);
 INSERT INTO Warehouses(Code,Location,Capacity) VALUES(4,'France',2);
 INSERT INTO Warehouses(Code,Location,Capacity) VALUES(5,'JAPAN',8);

 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('A1A','Toys',180,3);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('B2B','Toys',250,1);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('C3C','Eatables',190,4);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('D4D','Toys',200,1);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('E5E','Dairy',75,1);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('F6F','Dairy',50,3);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('G7G','Dairy',175,2);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('H8H','Toys',140,4);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('I9I','Eatables',125,1);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('J10J','Eatables',150,2);
 INSERT INTO Boxes(Code,Contents,Value,Warehouse) VALUES('K11K','Dairy',90,5);
```

1)Select all boxes with a value larger than $150.

```
SELECT * FROM Boxes
WHERE Value > 150;
```

Output:

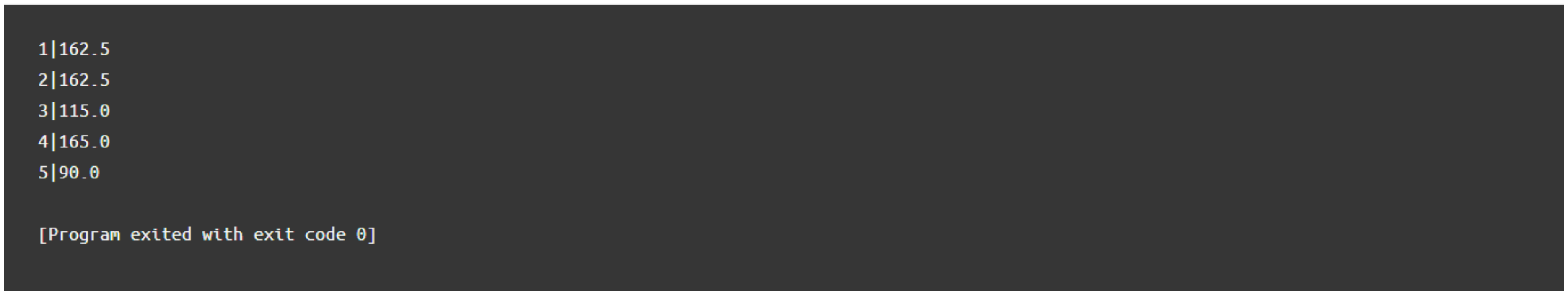


```
A1A|Toys|180.0|3
B2B|Toys|250.0|1
C3C|Eatables|190.0|4
D4D|Toys|200.0|1
G7G|Dairy|175.0|2

[Program exited with exit code 0]
```

2) Select the warehouse code and the average value of the boxes in each warehouse.

```
SELECT Warehouse, AVG(Value)
FROM Boxes
GROUP BY Warehouse;
```

Output:

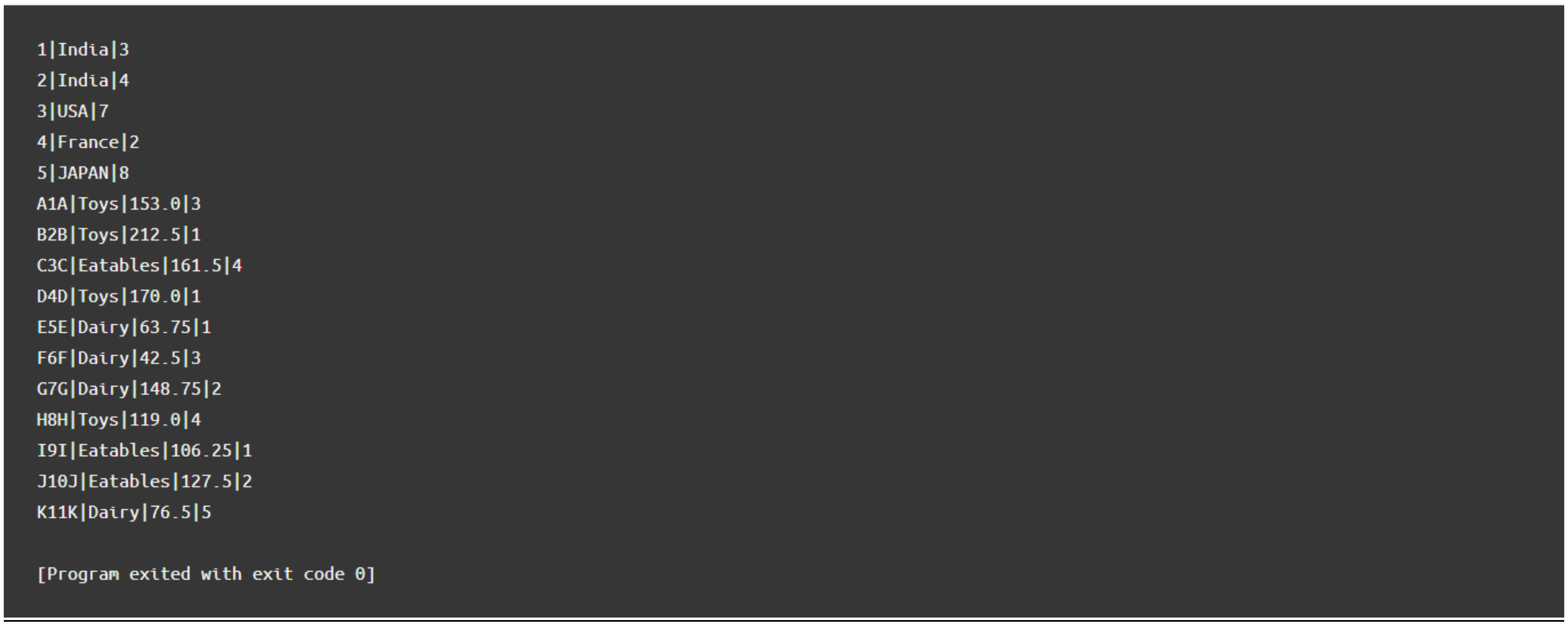


```
1|162.5
2|162.5
3|115.0
4|165.0
5|90.0

[Program exited with exit code 0]
```

3)Reduce the value of all boxes by 15%.

```
UPDATE Boxes SET Value = Value * 0.85;

SELECT * FROM Warehouses;               /*(DISPLAYING TABLE)*/
SELECT * FROM Boxes;                    /*(DISPLAYING TABLE)*/
```

Output:

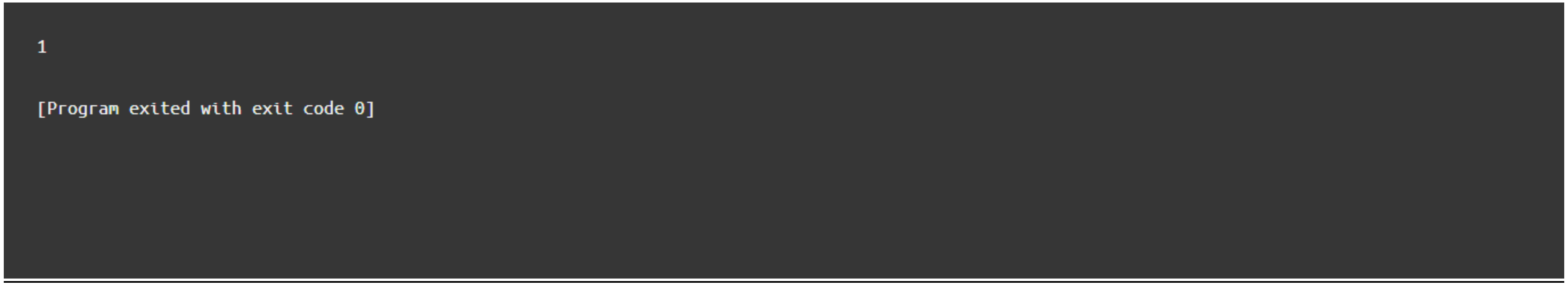


```
1|India|3
2|India|4
3|USA|7
4|France|2
5|JAPAN|8
A1A|Toys|153.0|3
B2B|Toys|212.5|1
C3C|Eatables|161.5|4
D4D|Toys|170.0|1
E5E|Dairy|63.75|1
F6F|Dairy|42.5|3
G7G|Dairy|148.75|2
H8H|Toys|119.0|4
I9I|Eatables|106.25|1
J10J|Eatables|127.5|2
K11K|Dairy|76.5|5

[Program exited with exit code 0]
```

4)Select the codes of all warehouses that are saturated (a warehouse is saturated if the number of boxes in it is larger than the warehouse's capacity).

```
SELECT Code
   FROM Warehouses
   WHERE Capacity <
   (
     SELECT COUNT(*)
       FROM Boxes
       WHERE Warehouse = Warehouses.Code
   );
```

Output:

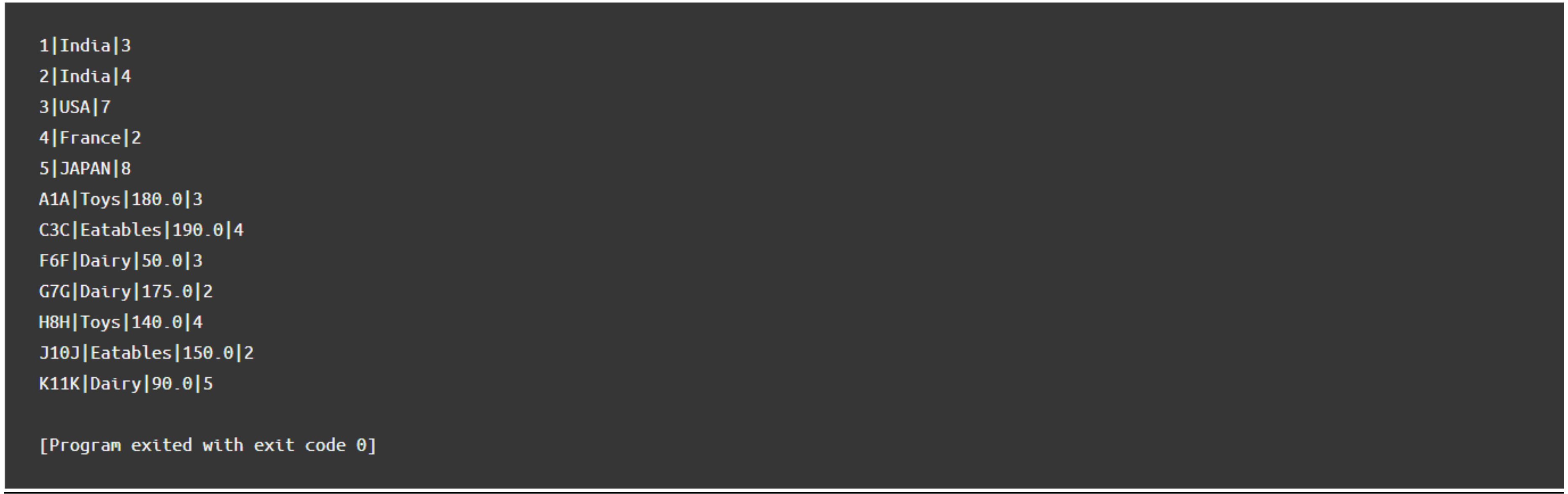


```
1

[Program exited with exit code 0]
```

5)Remove all boxes from saturated warehouses.

```
  DELETE FROM Boxes WHERE Warehouse IN
   (
     SELECT Code
       FROM Warehouses
       WHERE Capacity <
       (
         SELECT COUNT(*)
           FROM Boxes
           WHERE Warehouse = Warehouses.Code
       )
   );

SELECT * FROM Warehouses;               /*(DISPLAYING TABLE)*/
SELECT * FROM Boxes;                    /*(DISPLAYING TABLE)*/
```

Output:



```
1|India|3
2|India|4
3|USA|7
4|France|2
5|JAPAN|8
A1A|Toys|180.0|3
C3C|Eatables|190.0|4
F6F|Dairy|50.0|3
G7G|Dairy|175.0|2
H8H|Toys|140.0|4
J10J|Eatables|150.0|2
K11K|Dairy|90.0|5

[Program exited with exit code 0]
```

Question 6-10

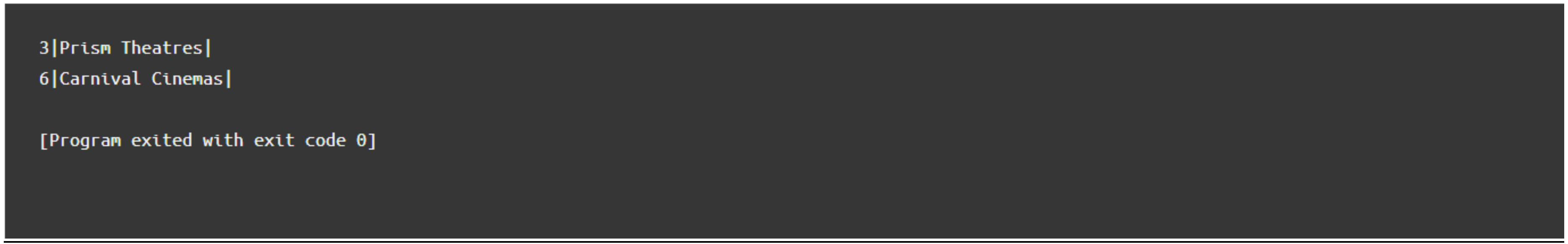
Table Creation and Insertion of Data

```
CREATE TABLE Movies (
  Code INTEGER PRIMARY KEY NOT NULL,
  Title TEXT NOT NULL,
  Rating TEXT
 );

 CREATE TABLE MovieTheaters (
  Code INTEGER PRIMARY KEY NOT NULL,
  Name TEXT NOT NULL,
  Movie INTEGER
    CONSTRAINT fk_Movies_Code REFERENCES Movies(Code)
 );

  INSERT INTO Movies (Code, Title, Rating) VALUES (9, 'Iron Man', 'G');
 INSERT INTO Movies (Code, Title, Rating) VALUES (1, 'Captain America : First Avenger', 'PG');
 INSERT INTO Movies (Code, Title, Rating) VALUES (2, 'Thor: Rangnarok', 'G');
 INSERT INTO Movies (Code, Title, Rating) VALUES (3, 'The Incredible Hulk', 'G');
 INSERT INTO Movies (Code, Title, Rating) VALUES (4, 'Avengers: Age of Ultron', NULL);
 INSERT INTO Movies (Code, Title, Rating) VALUES (5, 'Black Widow', NULL);
 INSERT INTO Movies (Code, Title, Rating) VALUES (6, 'Avengers: Infinity War', 'NC-17');
 INSERT INTO Movies (Code, Title, Rating) VALUES (7, 'Avengers: End Game', 'PG-13');
 INSERT INTO Movies (Code, Title, Rating) VALUES (8, 'Sherlock Holmes', NULL);

 INSERT INTO MovieTheaters (Code, Name, Movie) VALUES (1, 'SVS Theatres', 5);
 INSERT INTO MovieTheaters (Code, Name, Movie) VALUES (2, 'AMB Cinemas', 1);
 INSERT INTO MovieTheaters (Code, Name, Movie) VALUES (3, 'Prism Theatres', NULL);
 INSERT INTO MovieTheaters (Code, Name, Movie) VALUES (4, 'IMAX Cinemas', 6);
 INSERT INTO MovieTheaters (Code, Name, Movie) VALUES (5, 'INOX Cinemas', 3);
 INSERT INTO MovieTheaters (Code, Name, Movie) VALUES (6, 'Carnival Cinemas', NULL);
```

6) Select all movie theaters that are not currently showing a movie.

```
SELECT * FROM MovieTheaters WHERE Movie IS NULL;
```

Output:

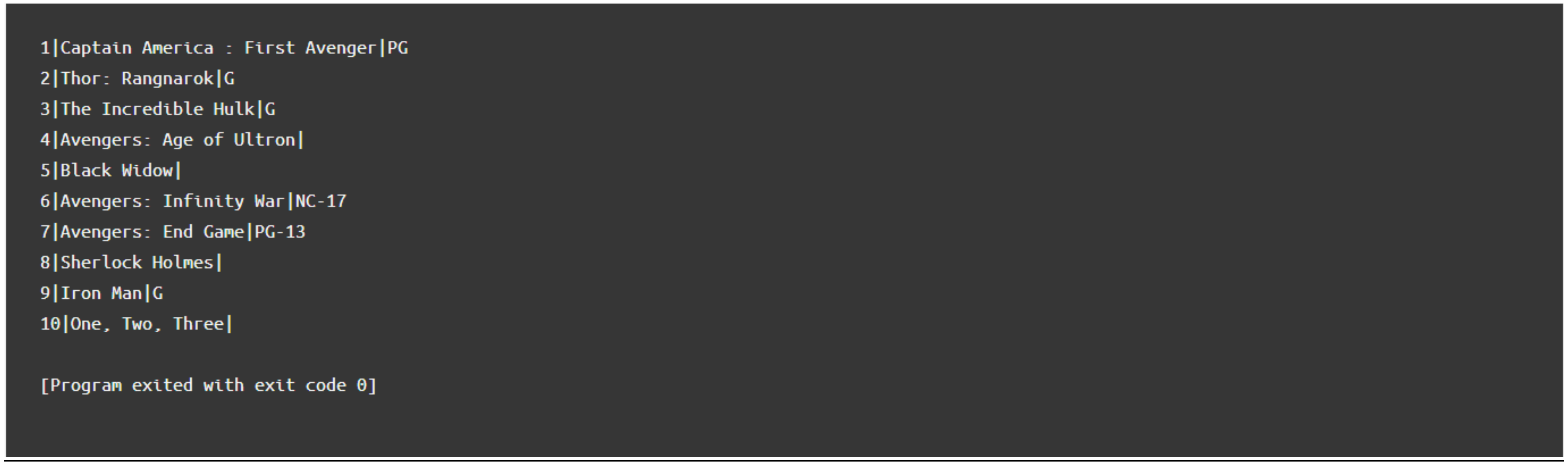


```
3|Prism Theatres|
6|Carnival Cinemas|

[Program exited with exit code 0]
```

7) Add the unrated movie "One, Two, Three".

```
INSERT INTO Movies (Code, Title, Rating) VALUES (10, 'One, Two, Three', null);
SELECT * FROM Movies;         /*(DISPLAYING TABLE)*/
```

Output:

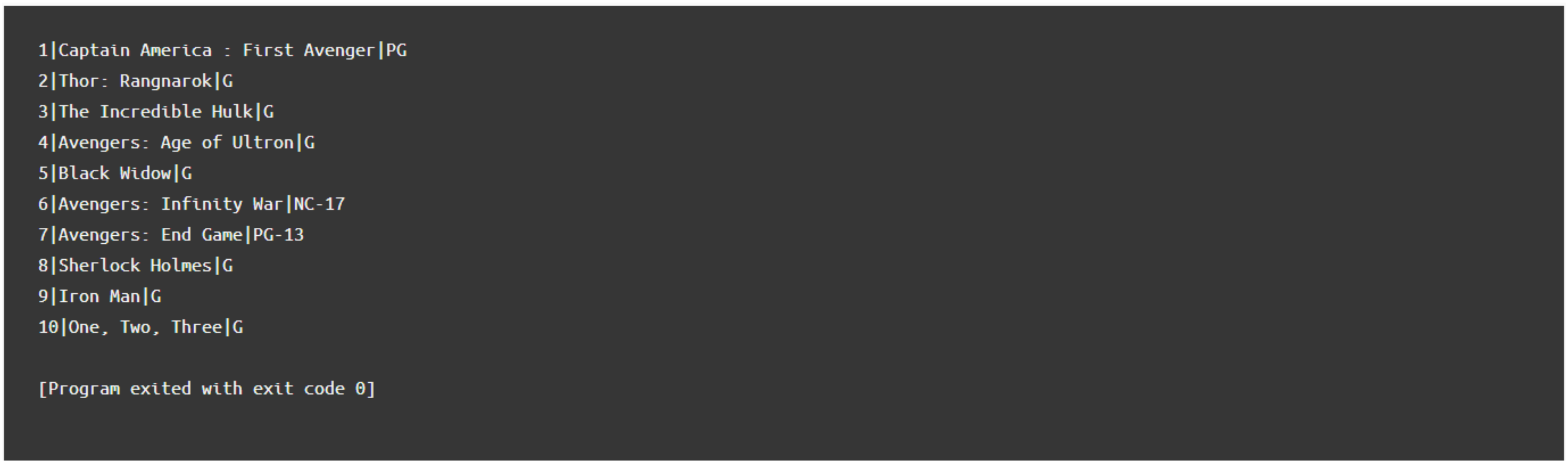


```
1|Captain America : First Avenger|PG
2|Thor: Rangnarok|G
3|The Incredible Hulk|G
4|Avengers: Age of Ultron|
5|Black Widow|
6|Avengers: Infinity War|NC-17
7|Avengers: End Game|PG-13
8|Sherlock Holmes|
9|Iron Man|G
10|One, Two, Three|

[Program exited with exit code 0]
```

8)Set the rating of all unrated movies to "G".

```
UPDATE Movies SET Rating = 'G' WHERE Rating IS NULL;
SELECT * FROM Movies;                    /*(DISPLAYING TABLE)*/
```

Output:

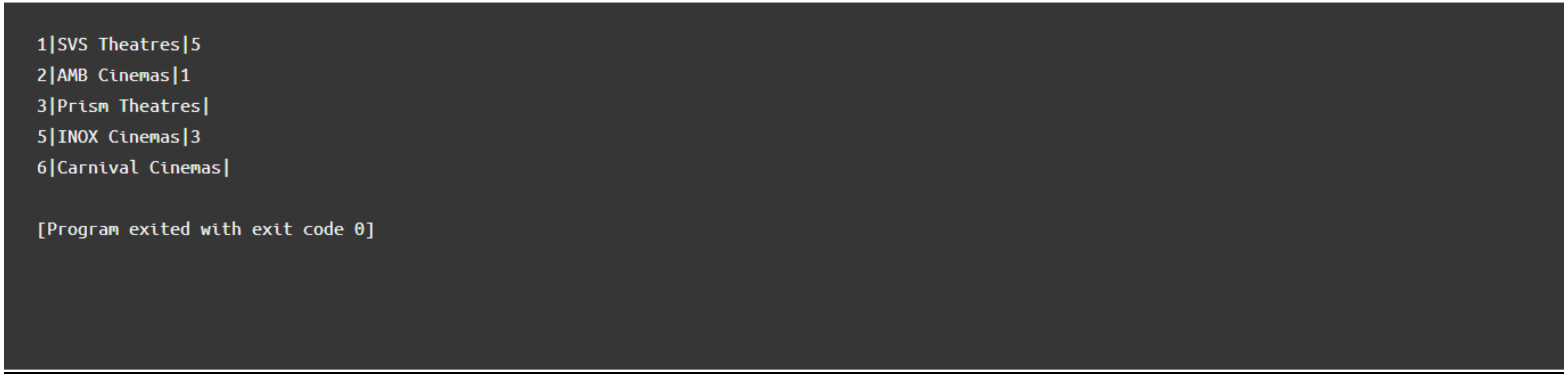


```
1|Captain America : First Avenger|PG
2|Thor: Rangnarok|G
3|The Incredible Hulk|G
4|Avengers: Age of Ultron|G
5|Black Widow|G
6|Avengers: Infinity War|NC-17
7|Avengers: End Game|PG-13
8|Sherlock Holmes|G
9|Iron Man|G
10|One, Two, Three|G

[Program exited with exit code 0]
```

9) Remove movie theaters projecting movies rated "NC-17".

```
DELETE FROM MovieTheaters WHERE Movie IN (SELECT Code From Movies WHERE Rating = 'NC-17');
SELECT * FROM MovieTheaters;                              /*(DISPLAYING TABLE)*/
```

Output:

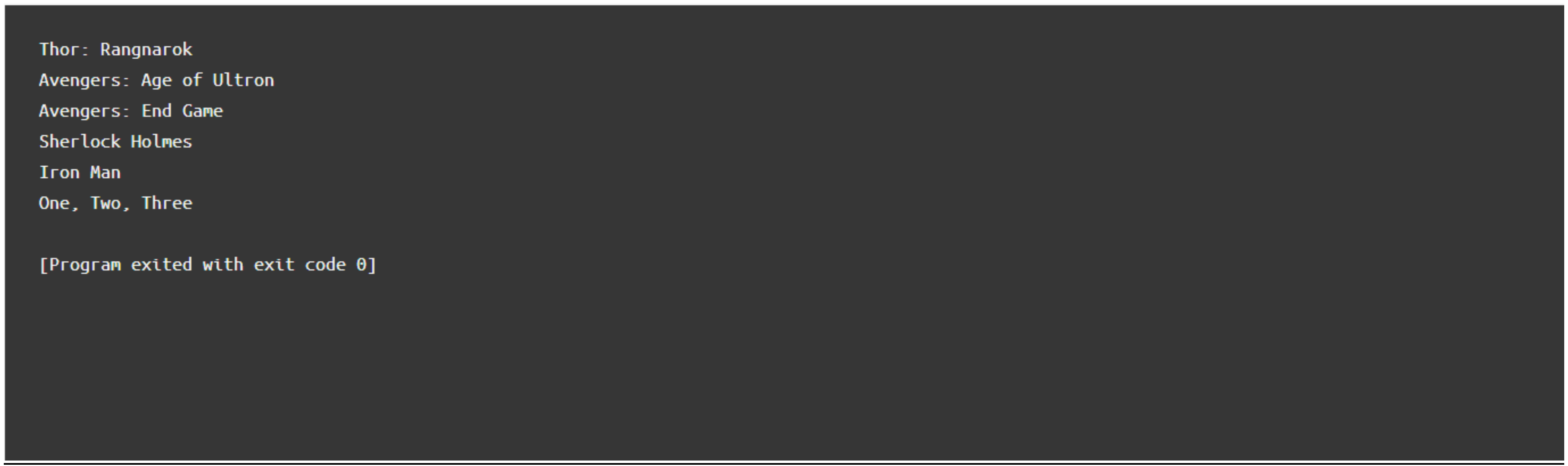


```
1|SVS Theatres|5
2|AMB Cinemas|1
3|Prism Theatres|
5|INOX Cinemas|3
6|Carnival Cinemas|

[Program exited with exit code 0]
```

10)Show the titles of movies not currently being shown in any theaters.

```
SELECT Title FROM Movies
  WHERE Code NOT IN
  (
    SELECT Movie FROM MovieTheaters
    WHERE Movie IS NOT NULL
  );
```

Output:



```
Thor: Rangnarok
Avengers: Age of Ultron
Avengers: End Game
Sherlock Holmes
Iron Man
One, Two, Three

[Program exited with exit code 0]
```