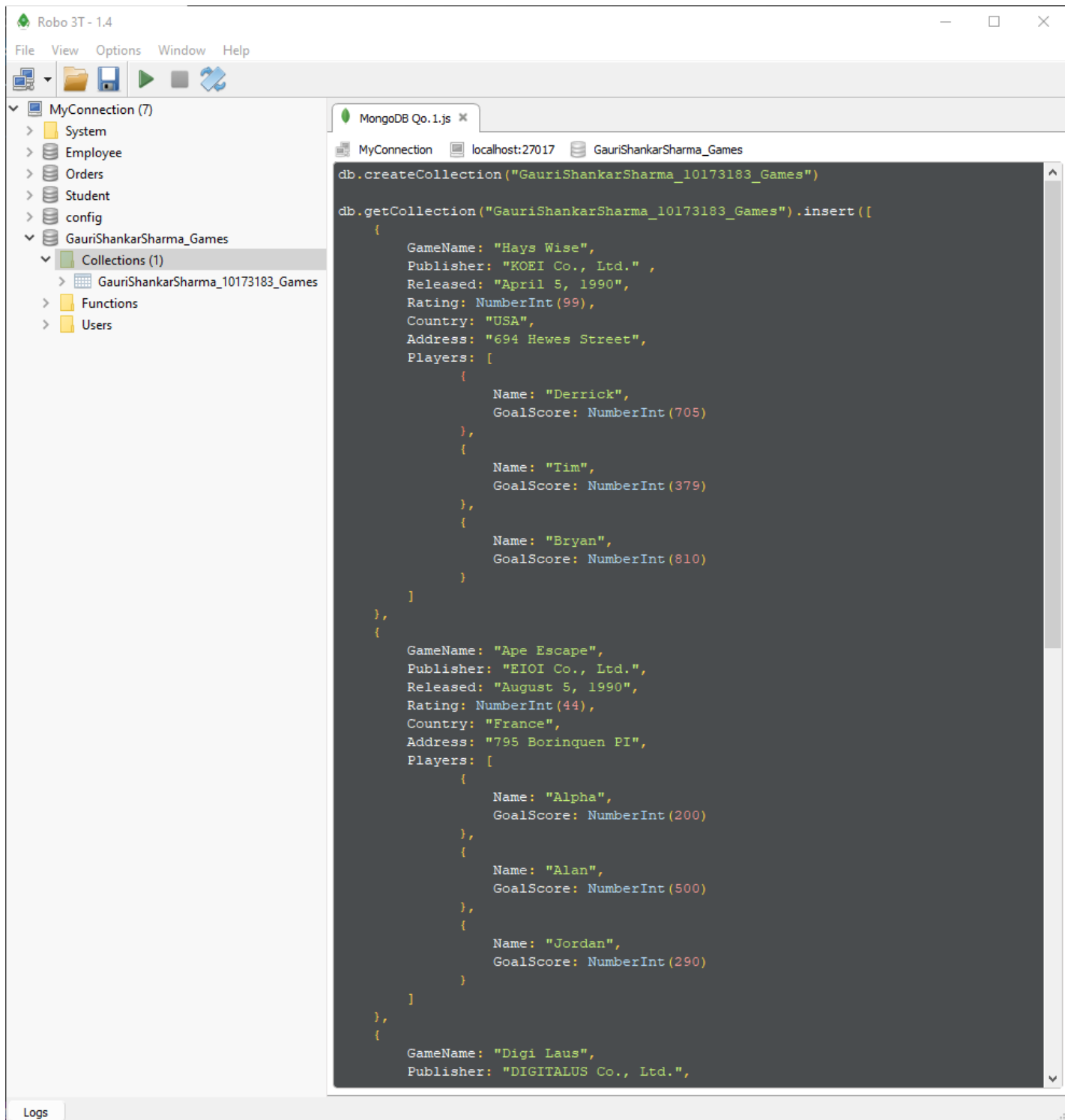


Task 1: MongoDB

Qo.1



The screenshot shows the Robo 3T 1.4 application window. On the left, a tree view under 'MyConnection (7)' shows a database named 'GauriShankarSharma_Games' with a collection 'GauriShankarSharma_10173183_Games'. The main editor on the right displays a JavaScript script for connecting to MongoDB and inserting data into the specified collection. The script uses the 'MyConnection' connection string and 'localhost:27017' as the host. It creates a collection named 'GauriShankarSharma_10173183_Games' and inserts three documents. Each document represents a game with fields for GameName, Publisher, Released date, Rating, Country, Address, and a list of players with their names and goal scores.

```
db.createCollection("GauriShankarSharma_10173183_Games")

db.getCollection("GauriShankarSharma_10173183_Games").insert([
  {
    GameName: "Hays Wise",
    Publisher: "KOEI Co., Ltd." ,
    Released: "April 5, 1990",
    Rating: NumberInt(99),
    Country: "USA",
    Address: "694 Hewes Street",
    Players: [
      {
        Name: "Derrick",
        GoalScore: NumberInt(705)
      },
      {
        Name: "Tim",
        GoalScore: NumberInt(379)
      },
      {
        Name: "Bryan",
        GoalScore: NumberInt(810)
      }
    ]
  },
  {
    GameName: "Ape Escape",
    Publisher: "EIOI Co., Ltd.",
    Released: "August 5, 1990",
    Rating: NumberInt(44),
    Country: "France",
    Address: "795 Borinquen PI",
    Players: [
      {
        Name: "Alpha",
        GoalScore: NumberInt(200)
      },
      {
        Name: "Alan",
        GoalScore: NumberInt(500)
      },
      {
        Name: "Jordan",
        GoalScore: NumberInt(290)
      }
    ]
  },
  {
    GameName: "Digi Laus",
    Publisher: "DIGITALUS Co., Ltd.",
```

Robo 3T - 1.4

File View Options Window Help

MyConnection (7)

- System
- Employee
- Orders
- Student
- config
- GauriShankarSharma_Games
 - Collections (1)
 - GauriShankarSharma_10173183_Games
 - Functions
 - Users

MongoDB Qo.1.js

MyConnection localhost:27017 GauriShankarSharma_Games

```
GoalScore: NumberInt(290)
    }
  ],
  {
    GameName: "Digi Laus",
    Publisher: "DIGITALUS Co., Ltd.",
    Released: "September 5, 1990",
    Rating: NumberInt(50),
    Country: "Italy",
    Address: "154 Arlington Avenue",
    Players: [
      {
        Name: "Alpha",
        GoalScore: NumberInt(300)
      },
      {
        Name: "Aubrey",
        GoalScore: NumberInt(200)
      }
    ]
  },
  {
    GameName: "Danone",
    Publisher: "Danone Co., Ltd.",
    Released: "August 11, 1990",
    Rating: NumberInt(66),
    Country: "France",
    Address: "897 Borinquen PI",
    Players: [
      {
        Name: "Gabriel",
        GoalScore: NumberInt(400)
      },
      {
        Name: "Paul",
        GoalScore: NumberInt(100)
      },
      {
        Name: "Arthur",
        GoalScore: NumberInt(200)
      },
      {
        Name: "Victor",
        GoalScore: NumberInt(120)
      }
    ]
  }
]
})
```

Logs

robo3t

db.createC.. x db.getColl.. x

0.087 sec.

```
/* 1 */
{
  "ok" : 1.0
}
```

robo3t

db.createC.. x db.getColl.. x

0.002 sec.

Inserted 1 record(s) in 2ms

Qo.2

Robo 3T - 1.4

File View Options Window Help

MyConnection (7)

- System
- Employee
- GauriShankarSharma_Games
 - Collections (1)
 - GauriShankarSharma_10173183_Games
 - Functions
 - Users
 - Orders
 - Student
 - config

db.GauriShankarSharma_101... x Qo.1-6.js x

MyConnection localhost:27017 GauriShankarSharma_Games

```
db.GauriShankarSharma_10173183_Games.aggregate([
  {$match: {"GameName": "Hays Wise"}},
  {$project: {
    _id: "$GameName",
    No_of_players: {$size: "$Players"}
  }}
])
```

GauriShankarSharma_10173183_Games 0.001 sec.

```
/* 1 */
{
  "_id" : "Hays Wise",
  "No_of_players" : 3
}
```

Qo.3

The screenshot displays the Robo 3T 1.4 application interface. On the left, the 'MyConnection (7)' sidebar shows a tree view with 'GauriShankarSharma_Games' selected, containing a collection 'GauriShankarSharma_10173183_Games'. The main editor shows a JavaScript snippet for updating a document in the 'GauriShankarSharma_10173183_Games' collection. The update operation sets 'GameName' to 'Ape Escape' and adds a 'Players' array with a member named 'Alpha'. Below the code, a status bar indicates 'Updated 1 existing record(s) in 2ms'. At the bottom, a table view shows the resulting document with fields like '_id', 'GameName', 'Publisher', 'Released', 'Rating', 'Country', 'Address', and 'Players'.

```
db.GauriShankarSharma_10173183_Games.update(
  {"GameName": "Ape Escape"},
  {$pull: {
    "Players": {
      "Name": "Alpha"
    }
  }
})
db.GauriShankarSharma_10173183_Games.find(
  {"GameName": "Ape Escape"}
)
```

0.001sec.

Updated 1 existing record(s) in 2ms

GauriShankarSharma_10173183_Games	0 sec.
/* 1 */	
{	
"_id"	: ObjectId("60d8229c8369a7348a959365"),
"GameName"	: "Ape Escape",
"Publisher"	: "EIOI Co., Ltd.",
"Released"	: "August 5, 1990",
"Rating"	: 44,
"Country"	: "France",
"Address"	: "795 Borinquen PI",
"Players"	: [
{	
"Name"	: "Alan",
"GoalScore"	: 500
},	
{	
"Name"	: "Jordan",
"GoalScore"	: 290
}	
]	
}	

Logs

Qo.4

The screenshot displays the Robo 3T 1.4 application interface. On the left, the 'MyConnection (7)' tree shows the database structure, with 'GauriShankarSharma_Games' selected under 'Collections (1)'. The main editor shows a JavaScript snippet for updating a document in the 'GauriShankarSharma_10173183_Games' collection. The update sets the name of the first player to 'Michael' and their goal score to 300. Below the code, the execution status shows 'Updated 1 existing record(s) in 2ms'. At the bottom, a view of the document is shown, detailing game information and a list of players.

```
db.GauriShankarSharma_10173183_Games.update(
  {"Players.Name": "Jordan"},
  {$set: {"Players.1.Name": "Michael", "Players.1.GoalScore": NumberInt(300)}}
)
db.GauriShankarSharma_10173183_Games.find(
  {"Players.Name": "Michael"}
)
```

0.002 sec.

Updated 1 existing record(s) in 2ms

```
{
  "_id" : ObjectId("60d8a1baa588fe7aa27860ee"),
  "GameName" : "Ape Escape",
  "Publisher" : "EIOI Co., Ltd.",
  "Released" : "August 5, 1990",
  "Rating" : 44,
  "Country" : "France",
  "Address" : "795 Borinquen PI",
  "Players" : [
    {
      "Name" : "Alan",
      "GoalScore" : 500
    },
    {
      "Name" : "Michael",
      "GoalScore" : 300
    }
  ]
}
```

Qo.5

Robo 3T - 1.4

File View Options Window Help

MyConnection (7)

- System
- Employee
- GauriShankarSharma_Games
 - Collections (1)
 - GauriShankarSharma_10173183_Games
 - Functions
 - Users
- Orders
- Student
- config

db.GauriShankarSharma_10173183_Games.aggregate([
 {
 \$project: {
 _id: "\$Publisher",
 No_of_Players: {\$size: "\$Players"}
 }
 }
])

MyConnection localhost:27017 GauriShankarSharma_Games

GauriShankarSharma_10173183_Games 0.001 sec.

```
/* 1 */  
{  
  "_id" : "KOEI Co., Ltd.",  
  "No_of_Players" : 3  
}  
  
/* 2 */  
{  
  "_id" : "EIOI Co., Ltd.",  
  "No_of_Players" : 2  
}  
  
/* 3 */  
{  
  "_id" : "DIGITALUS Co., Ltd.",  
  "No_of_Players" : 2  
}  
  
/* 4 */  
{  
  "_id" : "Danone Co., Ltd.",  
  "No_of_Players" : 4  
}
```

Logs

Qo.6

The screenshot shows the Robo 3T 1.4 application window. On the left, the 'MyConnection (7)' tree is expanded to show the 'GauriShankarSharma_Games' database and the 'GauriShankarSharma_10173183_Games' collection. The main editor displays a MongoDB aggregation query:

```
db.GauriShankarSharma_10173183_Games.aggregate([
  {$unwind: "$Players"},
  {$group: {
    _id: "$Country",
    Total_Scores: {$sum: "$Players.GoalScore"}
  }}
])
```

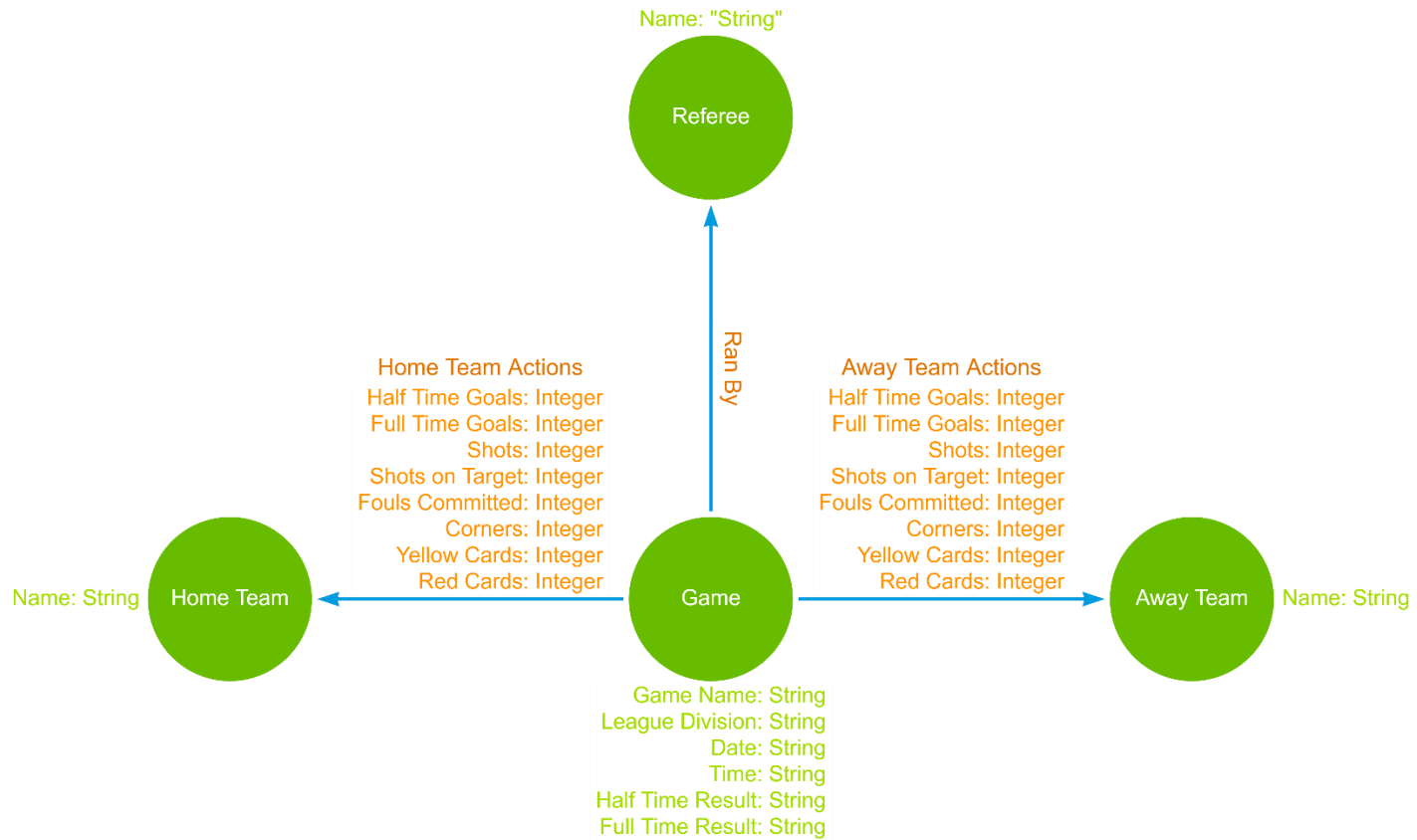
Below the query, the results are shown in a table format. The table has two columns: '_id' and 'Total_Scores'. The results are as follows:

_id	Total_Scores
France	1620
USA	1894
Italy	500

The bottom status bar shows 'Logs'.

Task2: Graph DB

Qo.1



Qo.2





neo4j\$



```
1 Load CSV With Headers From "file:///Task_2_PremierLeauge_2019.csv" as Data
2 Merge(:HomeTeam{Name:Data.HomeTeam})
```



Added 20 labels, created 20 nodes, set 20 properties, completed after 8 ms.



Code



Added 20 labels, created 20 nodes, set 20 properties, completed after 8 ms.



neo4j\$



```
1 Load CSV With Headers From "file:///Task_2_PremierLeauge_2019.csv" as Data
2 Merge(:AwayTeam{Name:Data.AwayTeam})
```



Added 20 labels, created 20 nodes, set 20 properties, completed after 9 ms.



Code



Added 20 labels, created 20 nodes, set 20 properties, completed after 9 ms.

neo4j\$

```
1 Match(g:Game)
2 With g
3 Load CSV With Headers From "file:///Task_2_PremierLeauge_2019.csv" as Data
4 Match(r:Referee)
5 Where g.GameName=Data.HomeTeam + " vs " +Data.AwayTeam and r.Name=Data.Referee
6 Create(g)-[:RanBy]-(r)
```

Created 288 relationships, completed after 1746 ms.

Table

Code

Created 288 relationships, completed after 1746 ms.

neo4j\$

```
1
2 Match(g:Game)
3 With g
4 Load CSV With Headers From "file:///Task_2_PremierLeauge_2019.csv" as Data
5 Match(h:HomeTeam)
6 Where g.GameName=Data.HomeTeam + " vs " +Data.AwayTeam and h.Name=Data.HomeTeam
7 Create(g)-[:AwayTeamActions{HalfTimeGoals:Data.HTHG, FullTimeGoals:Data.FTHG, Shots:Data.HS, ShotsOnTarget:Data.HST, Fouls:Data.HF, Corners:Data.HC, YellowCards:Data.HY, RedCards:Data.HR}]->(h)
```

Set 2304 properties, created 288 relationships, completed after 1637 ms.

Table

Code

Set 2304 properties, created 288 relationships, completed after 1637 ms.

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

neo4j\$

```

1 Match(g:Game)
2 With g
3 Load CSV With Headers From "file:///Task_2_PremierLeague_2019.csv" as Data
4 Match(a:AwayTeam)
5 Where g.GameName=Data.HomeTeam + " vs " +Data.AwayTeam and a.Name=Data.AwayTeam
6 Create(g)-[:AwayTeamActions{HalfTimeGoals:Data.HTAG, FullTimeGoals:Data.FTAG, Shots:Data.`AS`, ShotsOnTarget:Data.AST, Fouls:Data.AF, Corners:Data.AC, YellowCards:Data.AY, RedCards:Data.AR}]>([a])

```

Set 2304 properties, created 288 relationships, completed after 1574 ms.

Set 2304 properties, created 288 relationships, completed after 1574 ms.

Qo.3

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

neo4j\$ Match(h:HomeTeam) With h Match (a:AwayTeam) Return h, a

*(40) HomeTeam(20) AwayTeam(20)

Qo.4

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

neo4j\$

```
1 Match(g:Game)-[rb:RanBy]→(r:Referee)
2 Return r.Name As Referee, Count(rb) As `Refereed Matches`
```

	Referee	Refereed Matches
1	"M Oliver"	23
2	"M Dean"	22
3	"K Friend"	20
4	"G Scott"	14
5	"J Moss"	20
6	"C Pawson"	15
7	"G M..."	22

Started streaming 22 records after 7 ms and completed after 28 ms.



neo4j\$

```
1 Match(g:Game)-[rb:RanBy]→(r:Referee)
2 Return r.Name As Referee, Count(rb) As `Refereed Matches`
```

	Referee	Refereed Matches
7	"C Kavanagh"	20
8	"A Marriner"	17
9	"M Atkinson"	25
10	"A Taylor"	23
11	"L Mason"	13
12	"S Attwell"	15
15		

Started streaming 22 records after 7 ms and completed after 28 ms.

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

neo4j\$

1 Match(g:Game)-[rb:RanBy]→(r:Referee)

2 Return r.Name As Referee, Count(rb) As `Refereed Matches`

Table

Text

Code

	Referee	Refereed Matches
13	"D Coote"	11
14	"O Langford"	1
15	"P Tierney"	20
16	"A Madley"	9
17	"P Bankes"	7
18	"S Hooper"	9

Started streaming 22 records after 7 ms and completed after 28 ms.



neo4j\$

```
1 Match(g:Game)-[rb:RanBy]-(r:Referee)
2 Return r.Name As Referee, Count(rb) As `Refereed Matches`
```

	Referee	Refereed Matches
17	"P Banks"	7
18	"S Hooper"	9
19	"T Robinson"	1
20	"R Jones"	1
21	"S Scott"	1
22	"D England"	1

Started streaming 22 records after 7 ms and completed after 28 ms.

Qo.5

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

neo4j\$

```
1 Match(g:Game)-[rb:RanBy]→(r:Referee)
2 With r, Count(rb) As RM
3 With Max(RM) As MRM
4 Match(g:Game)-[rb:RanBy]→(r:Referee)
5 With MRM, r, Count(rb) As RM
6 Where RM=MRM
7 return r.Name As Refree, MRM As `Most Refereed Match`
```

	Refree	Most Refereed Match
1	"M Atkinson"	25

Started streaming 1 records after 12 ms and completed after 16 ms.

Qo.6

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

neo4j\$

```
1 Match(g:Game)-[:AwayTeamActions]→(a:AwayTeam)
2 Where g.FullTimeResult="A" and a.Name="Arsenal"
3 Return count(g) As `Matches Wonned by Arsenal As Away Team`
```

Table

1	2
---	---

A

Text

>

Code

Started streaming 1 records after 1 ms and completed after 2 ms.

Qo.7

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

neo4j\$

```
1 Match(g:Game)-[:HomeTeamActions]→(h:HomeTeam)
2 Where g.FullTimeResult="A" And h.Name="Man United"
3 Return g
4 Union All
5 Match(g:Game)-[:AwayTeamActions]→(a:AwayTeam)
6 Where g.FullTimeResult="H" And a.Name="Man United"
7 Return g
```

* (6)

Game(6)

Graph

Table

Text

Code

10173183

Qo.8

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

neo4j\$

```
1 Match(g:Game)-[:HomeTeamActions]→(h:HomeTeam)
2 Where g.FullTimeResult="H" And g.HalfTimeResult="A" And h.Name="Liverpool"
3 Return g
4 Union All
5 Match(g:Game)-[:AwayTeamActions]→(a:AwayTeam)
6 Where g.FullTimeResult="A" And g.HalfTimeResult="H" And a.Name="Liverpool"
7 Return g
```

*(1) Game(1)

Graph

Table

Text

Code

Aston Villa vs Liverpool

Displaying 1 nodes, 0 relationships.