CS209A Tutorial Week 11

In this tutorial, we continue the application from week 9. The main task in week 9 was to implement a simple Grade Query system. So far, the system reads data from CSV file `StudentsGrade.csv` and then stores the data to database.

Now – in this practical –the system includes client and server. The approach is to implement the same method / function as the week 9 but in a different way. The server loads data which is stored in `StudentDB.sqlite` when it starts and then waits for the query command from the client. The client prompts the user to enter the query command, sends the command to the server, which performs the query operation and returns the result to the client. The client displays the returned results.

Here are the query commands you need to implement:
1. Query a student's grade by name
2. Query the names and grades of students by a grade range
3. Query TOP students

Specific send message and response message requirements of the client and server are as follows(The green font indicates that the user is required to input the command from the client's console):

1. Query a student's grade by name
Command format: NAME student's name

Client:
```
Please send a command:
NAME Abebe Veronica
62
```

Server:
```
Received NAME Abebe Veronica
Command processed
```

2. Query the names and grades of students by a grade range
Command format: GRADE down-bound upper-bound

Client:
```
Please send a command:
GRADE 60 70
Abebe Veronica,62
Acquah Kyra,67
Ando Theodore,67
Brantley Van,68
Chen Ariel,61
Chen Helen,68
Contreras Gabriel,67
Du Claire,68
Finkle Nathan,61
Gai Sean,68
Gitelman Daniel,67
```

```
Guo Jingwen,67
Huynh Brandon,68
Johnson Thomas,61
Joshi Rohan,68
Kallini Julie,67
Kim Heidi,67
Lewandowski Carina,68
Liotine Camille,61
Liu Katie,68
Marcu Theodor,67
Morck Bobby,68
Oak Malika,61
Osgood Morlan,68
Park Naomi,67
Sands Spencer,68
Shoaib Zoya,61
Sirisakunngam Kwan,68
Sommers Grace,67
Stempel Grace,67
Uberoy Urvashi,68
Wang Janet,61
Wedbush Brady,68
Xu Andrew,67
Zhao Dora,68
```

Server:
```
Received GRADE 60 70
Command processed
```

3. Query TOP students
Command format: TOP number

Client:
```
Please send a command:
TOP 1
Afolabi Daniel,100
Ahmad Fawaz,100
Ajjarapu Neel,100
Aravena Scott,100
Arora Somya,100
Azam Shamailah,100
Barkachi Chris,100
Barnes Kyle,100
Basili David,100
Batscha Ziv,100
Baughman Maggie,100
Berman Ami,100
Bethel-Brescia Chaz,100
Bickenbach Pablo,100
Catoto Bianca,100
Chan Charmaine,100
Chang Anabelle,100
Chen Alexander,100
Chen Grace,100
Cheng Alex,100
Chou Gene,100
Cooper Mitchell,100
Costa Caio,100
Crawford Mariah,100
```

```
Cyr Tigar,100
Dai Allen,100
Daniel Noah,100
Dardik Sara,100
Darko Winfred,100
Devraj Arjun,100
Di Vittorio Caroline,100
Ding Kimberly,100
Elgamal Amina,100
Farah Ahmed,100
Fastow Matthew,100
Finch Kevin,100
Freeman Robbie,100
Galstyan Narek,100
Godoy Mateo,100
Goldberg Yoni,100
Goodman Daniel,100
Gupta Arul,100
Guthrie Claire,100
Hack Abby,100
Hamin Maia,100
Hammack Zach,100
He Jacqueline,100
He Nina,100
Hein Anthony,100
Ho Long,100
Hong Grace,100
Houle Brendan,100
Jagetia Rahul,100
Jia Watson,100
Jing Lucy,100
Johnson Nicholas,100
Joseph Rod Eric,100
Jubas Daniel,100
Kane Olivia,100
Kar Nabhonil,100
Katzman Lyra,100
Kim Jason,100
Kim Nicholas,100
Kipkorir Allan,100
Koh Ze-Xin,100
Kohli Aditya,100
Kortum Grace,100
Koslowe Hillel,100
Kostic Aleksandra,100
Lacayo Satuye,100
Laude Audrey,100
Lee Dale,100
Liang Ben,100
Limpasuvan Drew,100
Lin Andy,100
Lin William,100
Liu David,100
Liu Nicholas,100
Lu Christine,100
Markakis Markos,100
Masood Zaynab,100
Mathoniere Alex,100
McDaniel Kolby,100
McElroy David,100
Medghalchi Arman,100
```

```
Mendoza Felipe,100
Meng Lillian,100
Miller McGinnis,100
Minge Chris,100
Miron Jack,100
Nganthavee Pang,100
Nguyen Leanna,100
Nishikawa Fu Max,100
O'Leary Natalie,100
Opena Miguel,100
Pachisia Divyanshu,100
Park Raymond,100
Peck Fleming,100
Perez Bryan,100
Phillips Stephen,100
Polcyn Stephen,100
Powell Carlin,100
Rakovitsky Ariel,100
Ramesh Vinay,100
Rao Rohan,100
Ratliffe Joe,100
Raval Hari,100
Ritossa Joel,100
Romano Mensheng,100
Rubin Joseph,100
Schmeller Nicholas,100
Schwartz Uri,100
Shanker Tan,100
Sheng Jenny,100
Sinha Ishan,100
Skepasts Aaron,100
Son Justin,100
Song Yang,100
Spirollari Paskalino,100
Stengel Gabriel,100
Stowe Jarret,100
Suh HJ,100
Sweeny William,100
Sylejmani Doruntina,100
Tam Katie,100
Tan Jason,100
Tang Lauren,100
Thomas Emerson,100
Tian Mason,100
Todd David,100
Vuong Erin,100
Waksbaum Jake,100
Wang Albert,100
Wang Henry,100
Webb Toussaint,100
Weng Angela,100
Wolfe Isaac,100
Xu Jason,100
Xue Ivy,100
Yan Arthur,100
Yap Ben,100
Ye Christopher,100
Yin Emily,100
Ying Karen,100
Yip Suki,100
Yuan Wesley,100
```

```
Zaller Isabel,100
Zeng Haley,100
Zou Anne,100
Zuluaga David,100
```

Server:

```
Received TOP 1
Command processed
```