IMPLEMENTATION:

Installation:
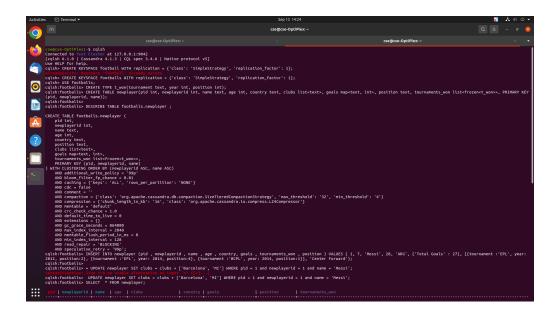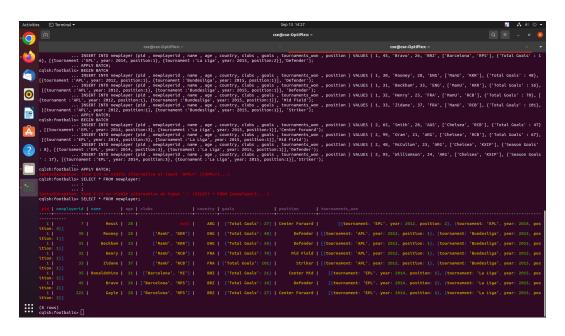

Queries:

1.CREATE KEYSPACE football WITH replication = {'class': 'SimpleStrategy', 'replication_factor': 1};
2.CREATE TYPE t_won(tournament text, year int, position int);
3.CREATE TABLE newplayer(pid int, newplayerid int, name text, age int, country text, clubs list<text>, goals map<text, int>, position text, tournaments_won list<frozen<t_won>>, PRIMARY KEY(pid, newplayerid, name));
4.DESCRIBE TABLE football.newplayer ;
5.INSERT INTO newplayer (pid , newplayerid , name , age , country, goals , tournaments_won , position) VALUES (1, 7, 'Messi', 28, 'ARG', {'Total Goals' : 27}, [{tournament :'EPL', year: 2012, position:2}, {tournament :'EPL', year: 2014, position:4}, {tournament :'BCPL', year: 2014, position:1}], 'Center Forward');
6.UPDATE newplayer SET clubs = clubs + ['Barcelona', 'MI'] WHERE pid = 1 and newplayerid = 1 and name = 'Messi';
7.DELETE from newplayer WHERE pid = 1 and newplayerid = 1 and name ='Messi';
8.BEGIN BATCH
    ... INSERT INTO newplayer (pid , newplayerid , name , age , country, clubs , goals , tournaments_won , position) VALUES (1, 35, 'Ronaldohino', 21, 'BRZ', ['Barcelona', 'MI'], {'Total Goals' : 21}, [{tournament :'EPL', year: 2014, position:1}, {tournament :'La Liga', year: 2015, position:2}], 'Center Mid');
    ... INSERT INTO newplayer (pid , newplayerid , name , age , country, clubs , goals , tournaments_won , position) VALUES (1, 222, 'Gayle', 28, 'BRZ', ['Barcelona', 'RPS'], {'Total Goals' : 27}, [{tournament :'EPL', year: 2014, position:1}, {tournament :'La Liga', year: 2015, position:2}],'Center Forward');
    ... INSERT INTO newplayer (pid , newplayerid , name , age , country, clubs , goals , tournaments_won , position) VALUES (1, 45, 'Bravo', 26, 'BRZ', ['Barcelona', 'RPS'], {'Total Goals' : 16}, [{tournament :'EPL', year: 2014, position:1}, {tournament :'La Liga', year: 2015, position:2}],'Defender');
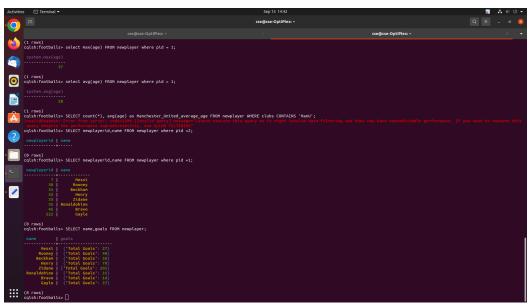   ... APPLY BATCH;

9.SELECT * FROM newplayer WHERE pid = 1;
10.select count(*) FROM newplayer where pid = 1;
11.select min(age) FROM newplayer where pid = 1;
12.select max(age) FROM newplayer where pid = 1;
13.select avg(age) FROM newplayer where pid = 1;
14.SELECT name, goals FROM newplayer;

Screenshots:

Terminal 1 — Sep 13 14:27 — cse@cse-OptiPlex: ~

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... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 1, 45, 'Bravo', 26, 'BRZ', ['Barcelona', 'RPS'], {'Total Goals' : 16}, [{tournament :'EPL', year: 2014, position:1}, {tournament :'La Liga', year: 2015, position:2}],'Defender');
... APPLY BATCH;
cqlsh:footballs> BEGIN BATCH
... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 1, 30, 'Rooney', 28, 'ENG', ['ManU', 'KKR'], {'Total Goals' : 48}, [{tournament :'APL', year: 2012, position:1}, {tournament :'Bundesliga', year: 2015, position:1}], 'Defender');
... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 1, 31, 'Beckham', 33, 'ENG', ['ManU', 'KKR'], {'Total Goals' : 56}, [{tournament :'APL', year: 2012, position:1}, {tournament :'Bundesliga', year: 2015, position:1}], 'Defender');
... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 1, 32, 'Henry', 25, 'FRA', ['ManU', 'RCB'], {'Total Goals' : 70}, [{tournament :'APL', year: 2012, position:1}, {tournament :'Bundesliga', year: 2015, position:1}], 'Mid Field');
... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 1, 33, 'Zidane', 37, 'FRA', ['ManU', 'RCB'], {'Total Goals' : 101}, [{tournament :'APL', year: 2012, position:1}, {tournament :'Bundesliga', year: 2015, position:1}], 'Striker');
... APPLY BATCH;
cqlsh:footballs> BEGIN BATCH
... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 2, 65, 'Smith', 28, 'AUS', ['Chelsea', 'RCB'], {'Total Goals' : 47}, [{tournament :'EPL', year: 2014, position:3}, {tournament :'La Liga', year: 2015, position:1}],'Center Forward');
... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 2, 99, 'Oram', 21, 'ARG', ['Chelsea', 'RCB'], {'Total Goals' : 67}, [{tournament :'EPL', year: 2014, position:3}, {tournament :'La Liga', year: 2015, position:1}],'Mid Field');
... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 2, 48, 'McCullum', 23, 'ARG', ['Chelsea', 'KXIP'], {'Season Goals' : 8}, [{tournament :'EPL', year: 2014, position:3}, {tournament :'La Liga', year: 2015, position:1}],'Defender');
... INSERT INTO newplayer (pid , newplayerId , name , age , country, clubs , goals , tournaments_won , position ) VALUES ( 2, 95, 'Williamson', 24, 'ARG', ['Chelsea', 'KXIP'], {'Season Goals' : 17}, [{tournament :'EPL', year: 2014, position:3}, {tournament :'La Liga', year: 2015, position:1}],'Striker');
...
cqlsh:footballs> APPLY BATCH;
SyntaxException: line 1:0 no viable alternative at input 'APPLY' ([APPLY]...)
cqlsh:footballs> SELECT * FROM newplayer;
... :
... ;
SyntaxException: line 1:23 no viable alternative at input ':' (SELECT * FROM [newplayer]:...)
cqlsh:footballs> SELECT * FROM newplayer;

 pid | newplayerId | name       | age | clubs               | country | goals               | position       | tournaments_won
-----+-------------+------------+-----+---------------------+---------+---------------------+----------------+-----------------
   1 |           7 |      Messi | 28  |                null | ARG     | {'Total Goals': 27} | Center Forward | [{tournament: 'EPL', year: 2012, position: 2}, {tournament: 'EPL', year: 2014, position: 4}]
   1 |          30 |     Rooney | 28  |        ['ManU', 'KKR'] | ENG   | {'Total Goals': 48} |       Defender | [{tournament: 'APL', year: 2012, position: 1}, {tournament: 'Bundesliga', year: 2015, position: 1}]
   1 |          31 |    Beckham | 33  |        ['ManU', 'KKR'] | ENG   | {'Total Goals': 56} |       Defender | [{tournament: 'APL', year: 2012, position: 1}, {tournament: 'Bundesliga', year: 2015, position: 1}]
   1 |          32 |      Henry | 25  |        ['ManU', 'RCB'] | FRA   | {'Total Goals': 70} |       Mid Field| [{tournament: 'APL', year: 2012, position: 1}, {tournament: 'Bundesliga', year: 2015, position: 1}]
   1 |          33 |     Zidane | 37  |        ['ManU', 'RCB'] | FRA   | {'Total Goals': 101} |      Striker   | [{tournament: 'APL', year: 2012, position: 1}, {tournament: 'Bundesliga', year: 2015, position: 1}]
   1 |          35 | Ronaldohino | 21 |    ['Barcelona', 'MI'] | BRZ   | {'Total Goals': 21} |     Center Mid | [{tournament: 'EPL', year: 2014, position: 1}, {tournament: 'La Liga', year: 2015, position: 2}]
   1 |          45 |      Bravo | 26  |    ['Barcelona', 'RPS'] | BRZ  | {'Total Goals': 16} |       Defender | [{tournament: 'EPL', year: 2014, position: 1}, {tournament: 'La Liga', year: 2015, position: 2}]
   1 |         222 |      Gayle | 28  |    ['Barcelona', 'RPS'] | BRZ  | {'Total Goals': 27} | Center Forward | [{tournament: 'EPL', year: 2014, position: 1}, {tournament: 'La Liga', year: 2015, position: 2}]

(8 rows)
cqlsh:footballs>
```

Terminal 2 — Sep 13 14:42 — cse@cse-OptiPlex: ~

```
(1 rows)
cqlsh:footballs> select max(age) FROM newplayer where pid = 1;

 system.max(age)
-----------------
              37

(1 rows)
cqlsh:footballs> select avg(age) FROM newplayer where pid = 1;

 system.avg(age)
-----------------
              28

(1 rows)
cqlsh:footballs> SELECT count(*), avg(age) as Manchester_United_average_age FROM newplayer WHERE clubs CONTAINS 'ManU';
InvalidRequest: Error from server: code=2200 [Invalid query] message="Cannot execute this query as it might involve data filtering and thus may have unpredictable performance. If you want to execute this query despite the performance unpredictability, use ALLOW FILTERING"
cqlsh:footballs> SELECT newplayerid,name FROM newplayer where pid =2;

 newplayerid | name
-------------+------

(0 rows)
cqlsh:footballs> SELECT newplayerid,name FROM newplayer where pid =1;

 newplayerid | name
-------------+-------------
           7 |       Messi
          30 |      Rooney
          31 |     Beckham
          32 |       Henry
          33 |      Zidane
          35 | Ronaldohino
          45 |       Bravo
         222 |       Gayle

(8 rows)
cqlsh:footballs> SELECT name,goals FROM newplayer;

 name        | goals
-------------+----------------------
       Messi | {'Total Goals': 27}
      Rooney | {'Total Goals': 48}
     Beckham | {'Total Goals': 56}
       Henry | {'Total Goals': 70}
      Zidane | {'Total Goals': 101}
 Ronaldohino | {'Total Goals': 21}
       Bravo | {'Total Goals': 16}
       Gayle | {'Total Goals': 27}

(8 rows)
cqlsh:footballs>
```

Terminal 3

```
cqlsh:footballs>
cqlsh:footballs> select count(*) FROM newplayer where pid = 1;

 count
-------
     8

(1 rows)
cqlsh:footballs> select name, country, clubs, ageanalyser(age) as Age_Analysis FROM newplayer WHERE pid = 1;
InvalidRequest: Error from server: code=2200 [Invalid query] message="Unknown function 'ageanalyser'"
cqlsh:footballs> select min(age) FROM newplayer where pid = 1;

 system.min(age)
-----------------
              21

(1 rows)
cqlsh:footballs> select max(age) FROM newplayer where pid = 1;

 system.max(age)
-----------------
              37

(1 rows)
cqlsh:footballs> select avg(age) FROM newplayer where pid = 1;

 system.avg(age)
-----------------
              28

(1 rows)
```