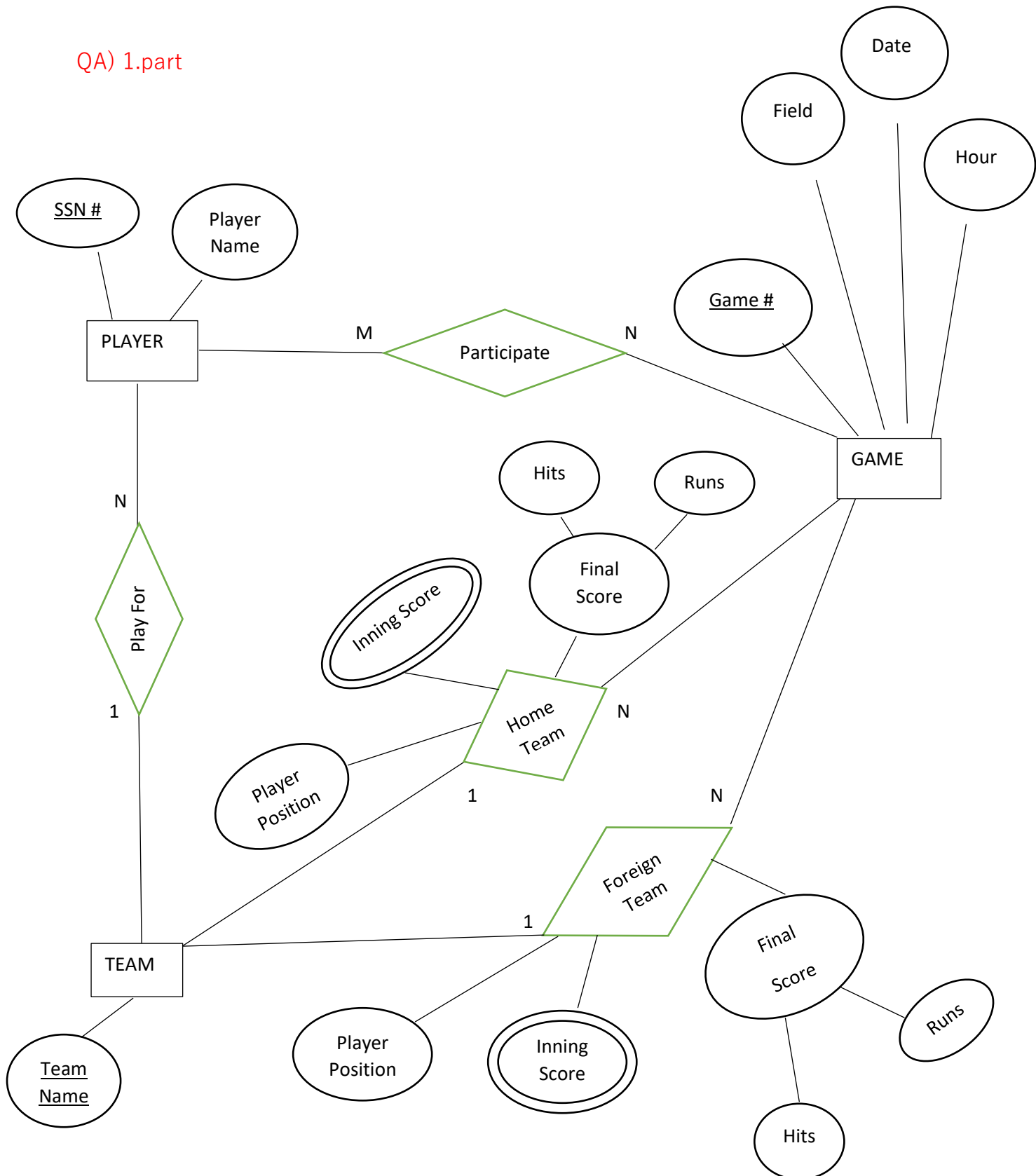Student Name/Surname: Aleyna Kütük

Student ID: 19022265x

Comp2411 - Database Systems

Assignment 1

QA) 1.part

ER Diagram entities and attributes:

- PLAYER: SSN #, Player Name
- GAME: Game #, Field, Date, Hour
- TEAM: Team Name
- Participate (M:N relationship between PLAYER and GAME)
- Play For (N:1 relationship between PLAYER and TEAM)
- Home Team (N:1 relationship): Inning Score, Final Score (Hits, Runs), Player Position
- Foreign Team (N:1 relationship): Inning Score, Final Score (Runs, Hits), Player Position

The ER schema diagram above is designed for a baseball league. Also in the diagram above, the following assumptions exist:

- Not all players, who play for a team, will participate to the game (because there are backup players too). So there is many to many relationship between player and game entities, each players can participate in many games and each game has many players.
- Player and team entities has one to many relationship because many players play for one team.
- There is possibility such that one player can play for home team or another team. So there is two different relationship between team and game entities. And each has the same type of attributes such as inning score, player position, final score.
- Team and game has one to many relationship because each team can have many games. And each game is identified uniquely by the Game #.

2.part

Note: PK = primary key, FK = foreign key

The strong entity set **PLAYER** table:
Schema: Player (SSN # (PK), Player Name, Team Name (FK))

SSN #	Player Name	Team Name

The strong entity set **TEAM** table:
Schema: Team (Team Name (PK))

Team Name

The relationship set **PARTICIPATE** table:

Schema: Participate (<u>SSN # (PK), Game # (PK)</u>)

SSN #	Game #

The strong entity set **GAME** table:

Schema: Game (<u>Game #(PK),</u> Field, Date, Hour,Team Name (FK), Hits, Runs, Player Position, Inning Score)

Note: We have two Home Team and Foreign Team relationship which both in between Game and Team entities. And both have one to many relationship so that Hits, Runs, Player Position, Inning Score attributes are doubled in the Game table.

<u>Game #</u>	Field	Date	Hour	Team Name	Hits	Runs	Player Position	Inning Score	Hits	Runs	Player Position	Inning Score

The multivalued attribute **INNING SCORE** requires separate table:

Note: We have multivalued attribute in both Home Team relationship and Foreign Team relationship. So, we need the same table for each.

Home Team R.

Inning Score

Foreign Team R.

Inning Score

QB)

1.

SELECT *

FROM STAFF

WHERE STAFF.GENDER = 'female' AND (SALARY < 5000 OR SALARY > 30000)

2.

SELECT STAFF_NAME

FROM STAFF

WHERE DEPARTMENT != 'HISTORY' AND DEPARTMENT != 'ACCOUNTING'

3.

SELECT *

FROM STUDENT

WHERE STUDENT_NAME LIKE '%JONES%'

ORDER BY STUDENT.GENDER ASC, BIRTHDATE ASC;

4.

SELECT COURSE_ID, COURSE_TITLE

FROM COURSE AS C, STAFF AS S

WHERE C.STAFF_ID = S.STAFF_ID AND S.STAFF_NAME = 'Raymond J. JOHNSON'

5.

SELECT S1.STAFF_NAME

FROM STAFF AS S1, STAFF AS S2

WHERE S1.BOSS_ID = S2.STAFF_ID AND S1.SALARY > S2.SALARY;

6.

SELECT S1.STAFF_NAME

FROM STAFF AS S1, STAFF AS S2

WHERE S1.DEPARTMENT = S2.DEPARTMENT AND (S2.STAFF_NAME = 'Amy Dancer' OR S2.STAFF_NAME = 'Jack Nelson')

EXCEPT

SELECT STAFF_NAME

FROM STAFF

WHERE STAFF_NAME = 'Amy Dancer' OR STAFF_NAME = 'Jack Nelson'

7.

SELECT STAFF_NAME

FROM STAFF

WHERE SALARY > (SELECT MAX(SALARY)

FROM STAFF

WHERE DEPARTMENT = 'ACCOUNTING')

8.

SELECT DEPARTMENT, count(STAFF_ID) as CountStaff, avg(SALARY) as AVGSalary

FROM STAFF

GROUP BY DEPARTMENT

HAVING COUNT(STAFF_ID) > 1