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Database Management

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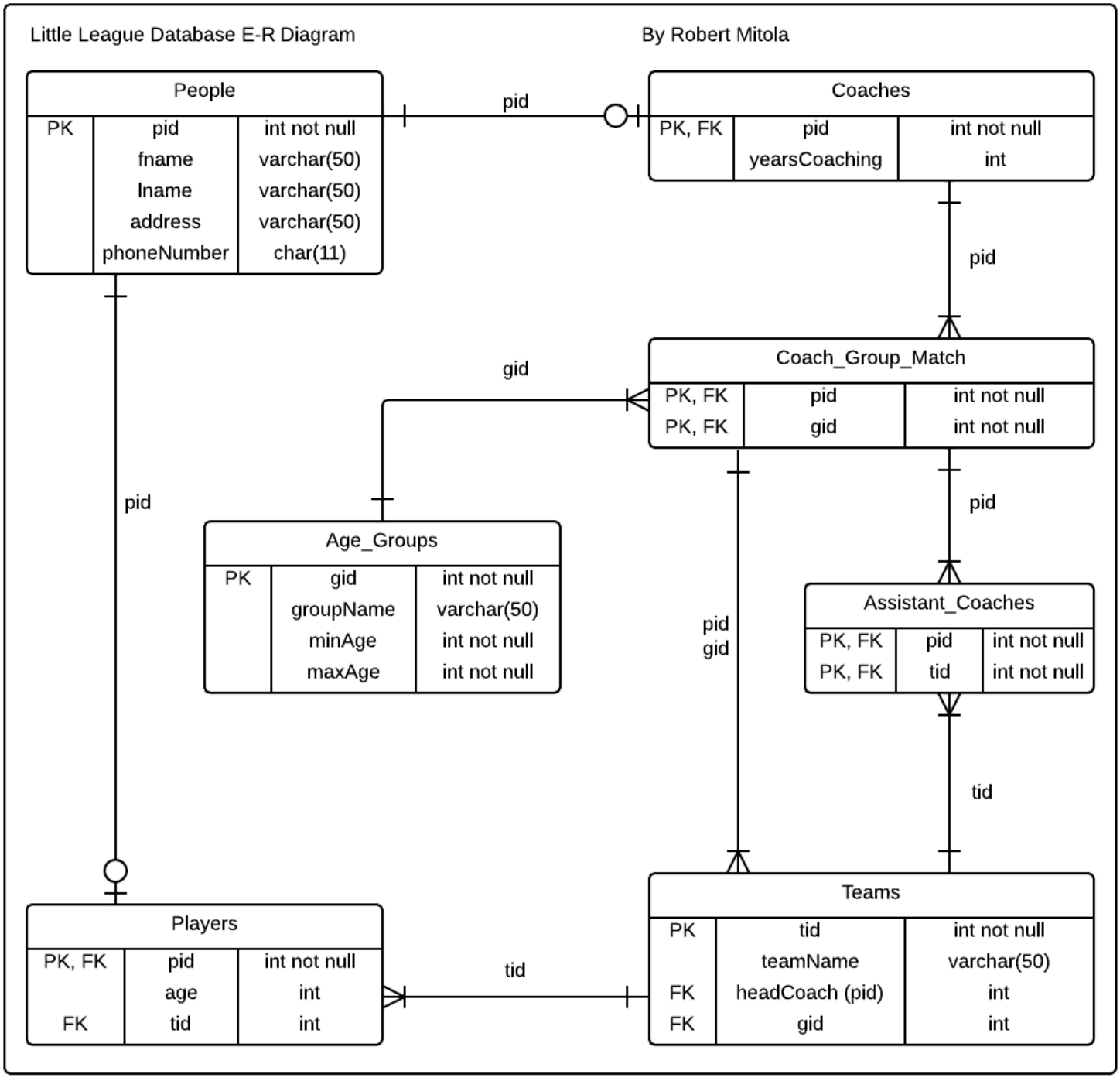
Normalization 3



Functional Dependencies

People Table

pid → fname, lname, address, phoneNumber

Coaches Table

pid → yearsCoaching

Coach_Group_Match Table

pid, gid

Age Groups Table

gid → groupName, minAge, maxAge

Assistant Coaches

pid, tid

Players Table

pid → age, tid

Teams Table

tid → teamName, headCoach, gid

Prove that the database is in 3NF.

The database is in third normal form because, firstly, there are no partial key dependencies. No attributes depend on only one part of a composite key in any of the tables. For the most part the tables do not have composite keys, with the exception of Coach_Group_Match and Assistant_Coaches. However, these tables do not include anything besides the composite keys. Secondly, there are no multiple key dependencies or transitive

dependencies. The attributes of each table are dependent upon the whole key and nothing but the key, as shown in the functional dependencies above.

View to display all teams in the 10-14 age group.

```
CREATE VIEW group_view AS
SELECT *
FROM teams t, coach_group_match c, age_groups a
WHERE t.headCoach = c.pid
AND t.gid = c.gid
AND c.gid = a.gid
AND a.minAge = 10
AND a.maxAge = 14;
```