

Database Systems HW1

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Q1. Normalization

1NF:

ExtracurricularActivities(Activity, ActivityType, ActivityTimings, ActivityLead, ActivityJoiningDate, ActivityLevel)
StudentInfo(StudentID, StudentName, DOB, Year, GuardianID, GuardianName, GuardianContact, Activity, ActivityJoinDate)

Dependencies:

- Full:

{StudentID, Activity} -> {~~ActivityTiming~~, ActivityLead, ActivityJoiningDate, ActivityLevel}

- Partial:

{StudentID} -> {StudentName, DOB, Year}

{Activity} -> {ActivityType}

- Transitive:

{StudentID} -> {GuardianID} -> {GuardianName, GuardianContact}

2NF:

ActivityParticipants(StudentID (FK), Activity (FK), ActivityJoiningDate) **And also ActivityLevel**
ActivityInfo(Activity, ActivityType, ~~ActivityLead~~, ~~ActivityTimings~~, ~~ActivityLevel~~)
StudentInfo(StudentID, StudentName, DOB, Year, GuardianID, GuardianName, GuardianContact, ~~Activity~~, ~~ActivityJoinDate~~)

Reason: For activity participants, join date will depend on both studentid and activity

3NF:

StudentInfo(StudentID, StudentName, DOB, Year, GuardianID (FK))
ActivityDetails(Activity, ActivityType, ~~ActivityLevel~~)
ActivityTimings(Activity, ActivityTiming, ActivityLead)
ActivityParticipation(StudentID (FK), Activity (FK), ActivityJoinDate) **ActivityLevel**
GuardianInfo(GuardianID, GuardianName, GuardianContact)
StudentExtracurricular(StudentID (PK), Activity (PK), ActivityTimings (PK))

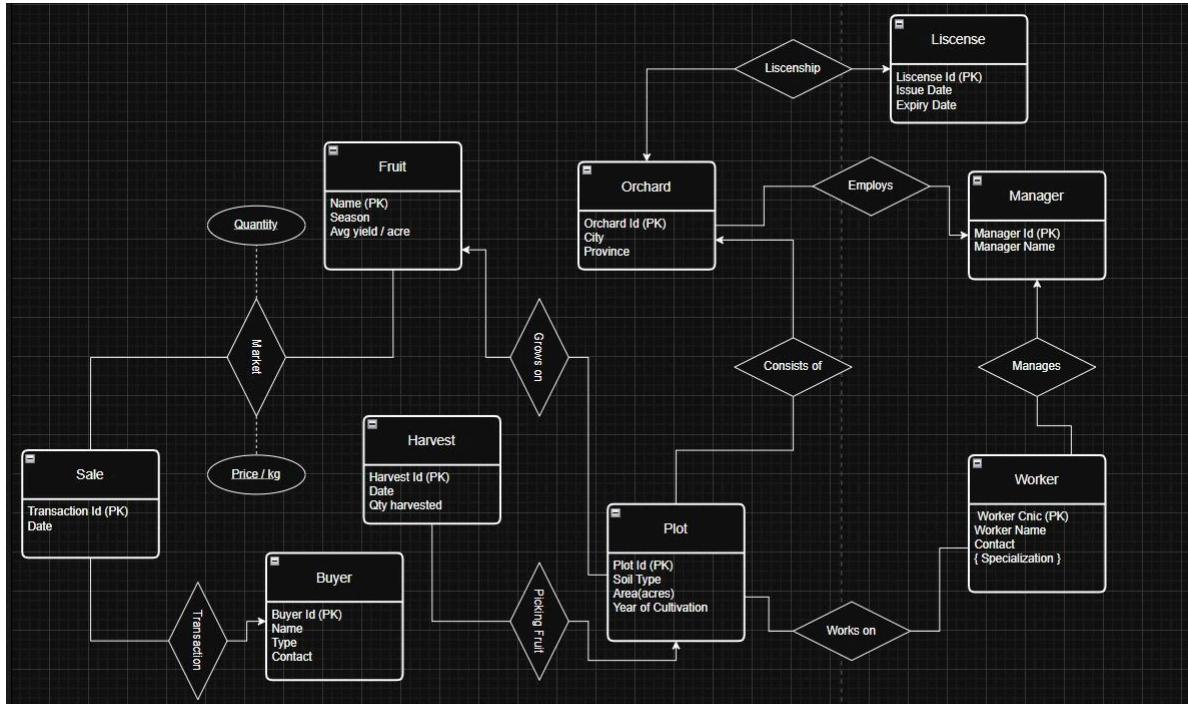
Reason:

StudentInfo -> It'll all depend on StudentID

ActivityParticipation -> Same reason as in 2NF

ActivityDetails -> Activity itself will determine the type and level

Q2. Orchard ERD:



Q3. Khaadi ERD:

