DBMS-CS310-ClassHackathon

Pratham Harshvardhan Dave

20BCS102

1.

1.1

Schema:

20BCS102_Levels(Level,ClassName)

20BCS102_Pool(Pool,PoolName,Location)

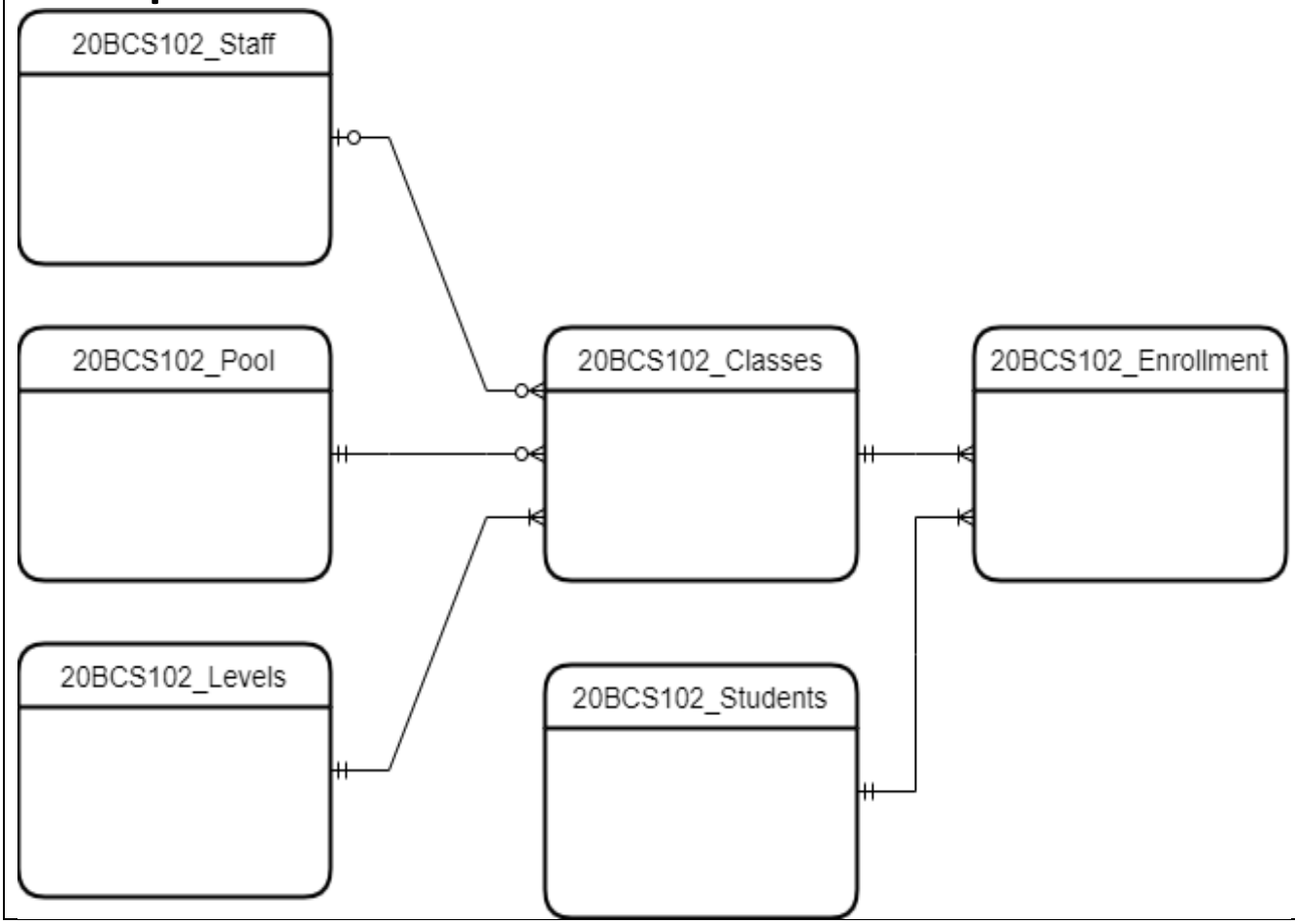
20BCS102_Staff(FirstName,MiddleInitial,LastName,Suffix,Salaried, PayAmount,StaffID)

20BCS102_Classes(LessonIndex,Level,SectionID,Semester,Days, Time,Pool,Instructor,Limit,Enrolled,Price)

20BCS102_Enrollment(LessonIndex,SID,Status,Charged, AmountPaid,DateEnrolled)

20BCS102_Students(SID,FirstName,MiddleInitial,LastName,Suffix, BirthDay,LocalStreet,LocalCity,LocalPostalCode,LocalPhone)

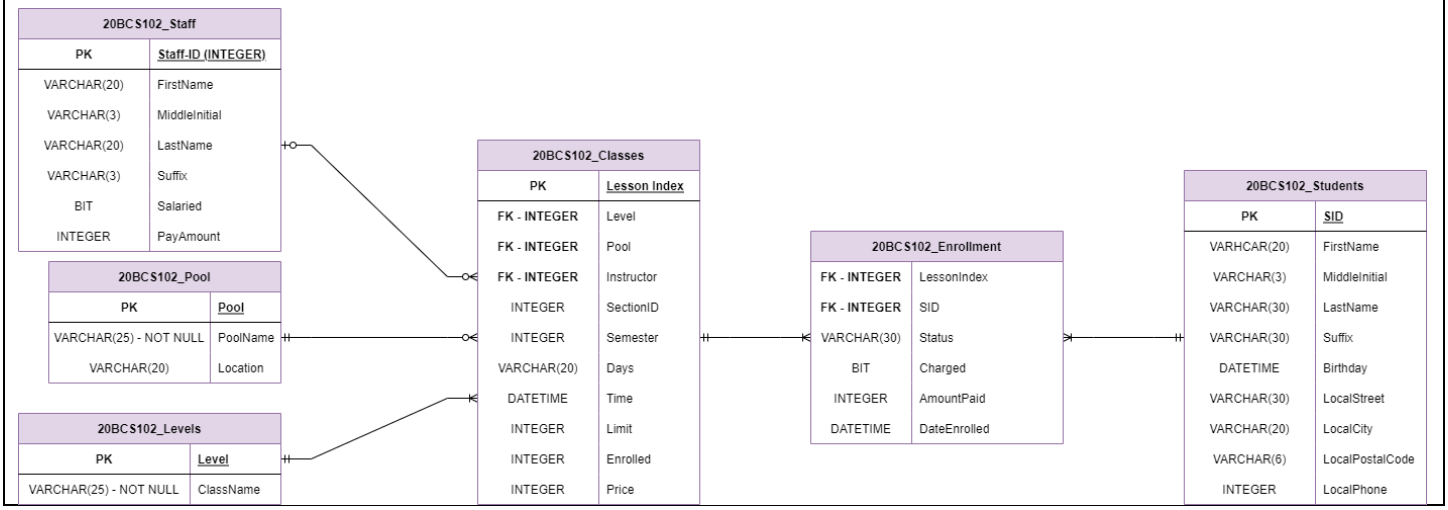
Conceptual Data Model



2. Cardinality (Degree)

20BCS102_Staff	**[Optional 1-Optional Many]**	20BCS102_Classes
20BCS102_Pool	**[Mandatory 1-Optional Many]**	20BCS102_Classes
20BCS102_Levels	**[Mandatory 1-Mandatory Many]**	20BCS102_Classes
20BCS102_Classes	**[Mandatory 1-Mandatory Many]**	20BCS102_Enrollment
20BCS102_Enrollment	**[Mandatory Many- Mandatory 1]**	20BCS102_ Students

3. Physical Data Model



4. The Table "**20BCS102_Enrollment**" is a weak entity. Here, the entity cannot exist on its own as it does not have a primary key, and its existence depends solely on the presence of the "**20BCS102_Students**" entity. The "L**essonIndex**" and "**SID**" together form the primary key (as a composite key) but the table does not have a Candidate key to independently act as a Primary Key.

Here, we cannot make the "**20BCS102_Enrollment**" a strong-entity by simply adding a Primary Key as we increase redundancy by including an un-necessary Information, hence ruining Normalacy of the ER Diagram.

5. There is no Redundancy in Data, even though there are repeating Column Names in different tables [20BCS102_Staff,20BCS102_Students] (first,middle,last name and suffix) as each serve to represent different piece of unrelated information.

However, using generalization, the ER can be improved by creating a separate table

20BCS102_Personswhich contains the common data of *Staff* and *Students* with the remaining 2 original tables containing their distinct properties of Staff and Students.