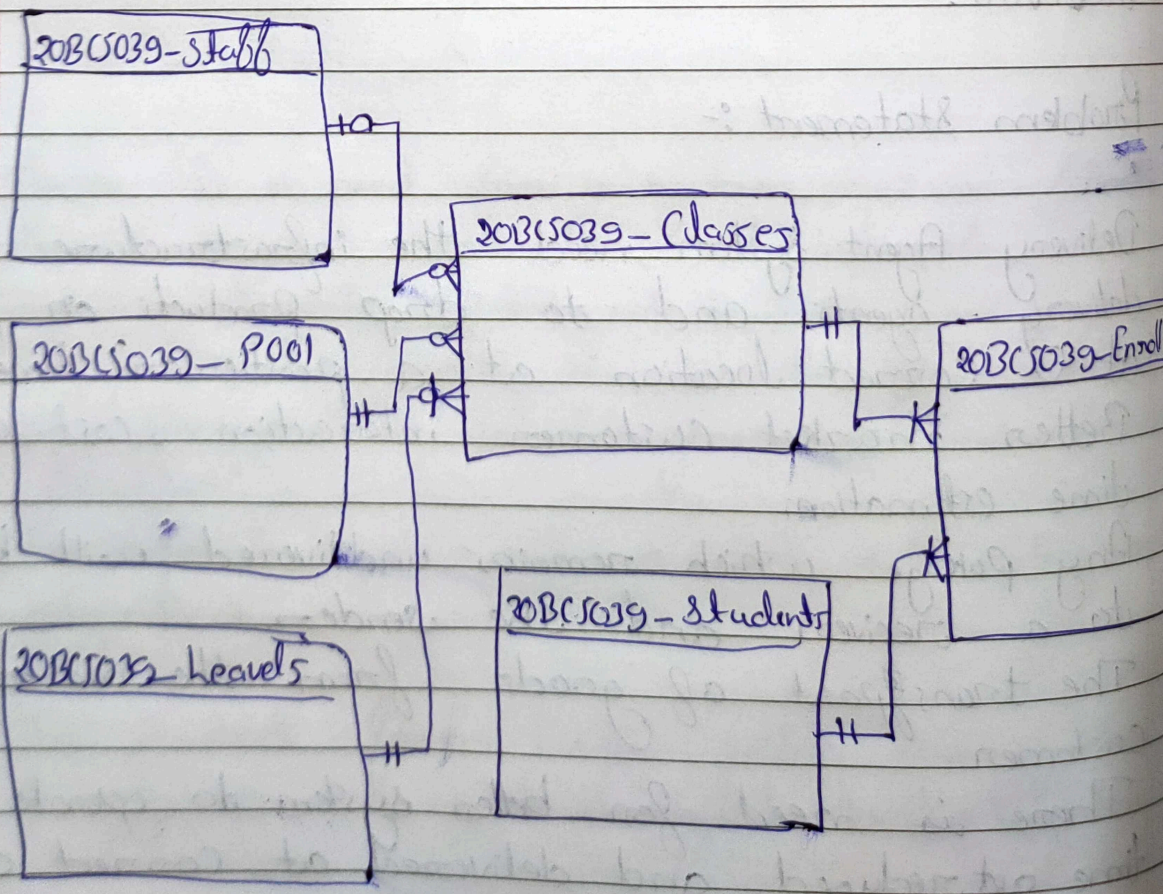
Devansh Mahant 20BCS039

Question-1

Schema ->

20BCS039_Leavels(Leavels, ClassName)
20BCS039- Pool(Pool, PoolName, Location)
20BCS039_Staff(FirstName, MiddleInitial, LastName, Suffix, Salarie, PayAmound, StaffID)
20BCS039-Classes(LessonIndex, Level, SectioID, Semester, Days, Time, Pool, Instructure, Limit, Enrolled, Price)
20BCS039-Enrollment(LessonIndex, SID, Status, Ch, AmountPaid, DateEnrolled)
20BCS039_Students(SID, FirstName, MiddleInitial, Last, Suffix, BirthDay, LocalStreet, LocalCity, Local PostalCode, LocalPh



Ans-2

Cardinality (Degree)

20BCS039_Staff [Optional 1-Optional Many] 20BCS039_Classes
20BCS039_Pool [Mandatory 1-optional Many] 20BCS039_Classes
20BCS039_Leaves [Mandatory 1-Mandatory Many] 20BCS039_Classes
20BCS039_Classes [Mandatory 1-Mandatory Many] 20BCS039_Enrollment
20BCS039_Enrollment [Mandatory Many-Mandatory 1] 20BCS039_Students

Ans-4

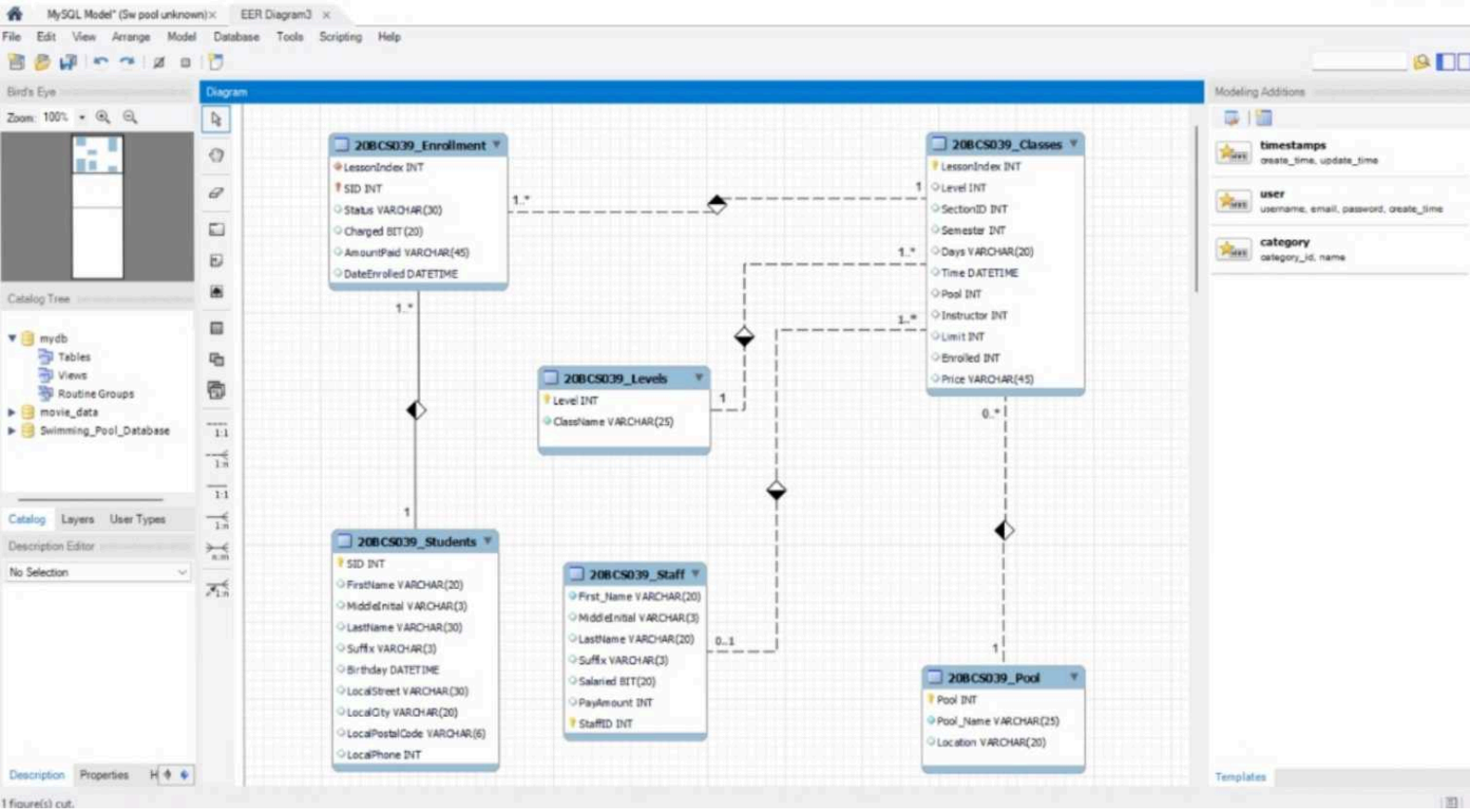
The Table "20BCS039_Enrollment" is a weak entity. Here the entity cannot exist on its own as it does not have a primary key, and its existence depends solely on the presence of the "20BCS039_Students" entity. The "LessonIndex" and "SID" together form the Primary key (as composit key) but the table does not have a candidate key to Independently act as a Primary key

Here, we cannot make the "20BCS039_Enrollment" as 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.

Ans- 5

There is no Readundancy in Data, even though there are repeating Column Names in different tables, [20BCS039_Staff, 20BCS039_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.

20BCS039_Persons which contains the Commen data of Staff and Students with the remaining 2 orignal table containing their distinct properties of Staff and Students.


MySQL Model* (Sw pool unknown)
EER Diagram3
File Edit View Arrange Model Database Tools Scripting Help
Bird's Eye
Zoom: 100%
Catalog Tree
mydb
Tables
Views
Routine Groups
movie_data
Swimming_Pool_Database
Catalog Layers User Types
Description Editor
No Selection
Description Properties
Diagram
20BCS039_Enrollment
LessonIndex INT
SID INT
Status VARCHAR(30)
Charged BIT(20)
AmountPaid VARCHAR(45)
DateEnrolled DATETIME
20BCS039_Classes
LessonIndex INT
Level INT
SectionID INT
Semester INT
Days VARCHAR(20)
Time DATETIME
Pool INT
Instructor INT
Limit INT
Enrolled INT
Price VARCHAR(45)
20BCS039_Levels
Level INT
ClassName VARCHAR(25)
20BCS039_Students
SID INT
FirstName VARCHAR(20)
MiddleInitial VARCHAR(3)
LastName VARCHAR(30)
Suffix VARCHAR(3)
Birthday DATETIME
LocalStreet VARCHAR(30)
LocalCity VARCHAR(20)
LocalPostalCode VARCHAR(6)
LocalPhone INT
20BCS039_Staff
First_Name VARCHAR(20)
MiddleInitial VARCHAR(3)
LastName VARCHAR(20)
Suffix VARCHAR(3)
Salaried BIT(20)
PayAmount INT
StaffID INT
20BCS039_Pool
Pool INT
Pool_Name VARCHAR(25)
Location VARCHAR(20)
1..*
1
0..1
Modeling Additions
timestamps
create_time, update_time
user
username, email, password, create_time
category
category_id, name
Templates
1 figure(s) cut.