

American International University Bangladesh

##### **Project Title:**

##### School Management System

**Prepared for-**

**xxxx**

**Prepared by-**

|  |  |
| --- | --- |
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# Business and System summary:

School management system has been designed to make an new era for our developing nation. It will help us to store the data of student, teacher as well as admin and school information. Not only that in near future by developing the system we can expand the database and work for the welfare for the education system of our nation. By managing this kind of data we can easily run a school system without any hardship or facing complicated issues. If we have to keep and maintain those data in a hardcopy or in a written papers then it will be more difficult to maintain the data and we will face a lot of security issues but if we came to a database system then it will be easy for us to cope up with this kind of complications.

# Business Environment

The project School Management Database System (SMDS) in based on database and oriented techniques. As there are many areas where we keep records in database, for which we using ORACLE 10g Express Edition software that is one of the best and easiest software to keep information. In this project, we use C# as the front and which is a Object Oriented Programming Language. It is a web connectivity based application in which many user can access it through a server at a time.

### Hardware:

Processor : Intel Core 2 Duo

Memory : 2 GB RAM

Cache Memory : 5 MB

### Software:

Operating System: Windows 7(professionals)

Front-End-Tool: C#

Back-End : Oracle 10g

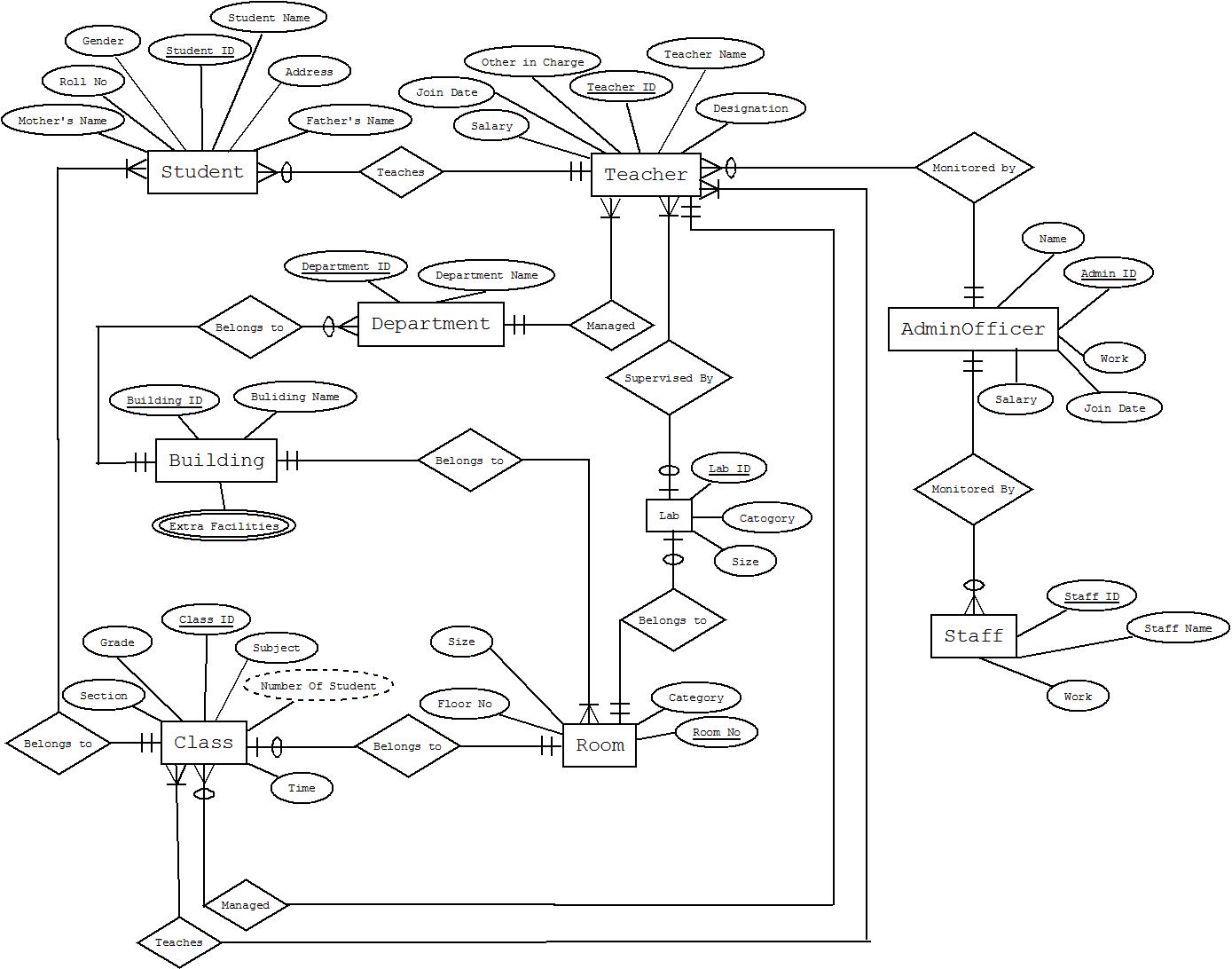
# Technical Summary

School Management Database System is database system where we can store all in information of data. Every student is identify uniquely through there student id and every student has a class teacher through teacher id we can know this. Besides, teacher id is representing every teacher uniquely. As teacher and student, every single person who worked in a school can identify through only a number and this number is unique. Moreover, class room, lab, department, building everything is here identifying through a unique number. Through this unique number,any one can access relationship between two of any one. This makes this system very efficient system. When we make some update or modify we only use that unique number through this we required to change in a one portion than it will automatically change all over. And this database system has some advanced option that removes the problem of some mistake like when u put any information but it is not appropriate for this column than this database system will deny the entry. Through this we reduce many of redundancy.

### Project Objectives

This project is for the introduction to the school management system. It is the computerized system of storing student teacher and admins information . It has made the process of storing students, teachers, admin and schools data so much easier than ever imagined. In our country there are thousands of school. It is very difficult to maintain the hand writing document but using this system we can easily store information . This system also provide excellent security of data and provide reliable storage and backup facilities.

# ER Diagram:



# Normalization:

**Monitored By(Admin\_0fficer & Staff):**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Admin\_id | Name | Work | Salary | JoinDate | Staff\_id | Name | work |

**1NF:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| AdminOfficer\_id | AdminOfficer\_  Name | AdminOfficer\_  Work | AdminOfficer\_  Salary | AdminOfficer\_  JoinDate | Staff\_id | Staff\_  Name | Staff\_  work |

**2NF:**

**Table: Admin\_Officer**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| AdminOfficer\_id | AdminOfficer\_Name | AdminOfficer\_Work | AdminOfficer\_Salary | AdminOfficer\_  JoinDate |

**Table: Staff**

|  |  |  |  |
| --- | --- | --- | --- |
| Staff\_id | Staff\_Name | Staff\_work | AdminOfficer\_id |

**Belongs to (Building & Department):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Building\_id | Building\_name | Extra\_facilities | Department\_id | Department\_name |

**1NF:**

|  |  |  |  |
| --- | --- | --- | --- |
| Building\_id | Building\_name | Department\_id | Department\_name |

Extra\_Facilities

|  |  |
| --- | --- |
| Building\_id | Facilities |

**2NF:**

**Table: Department**

|  |  |  |
| --- | --- | --- |
| Department\_id | Department\_name | Building\_id |

**Table: Building**

|  |  |
| --- | --- |
| Building\_id | Building\_name |

**Table: Extra\_Facilities**

|  |  |
| --- | --- |
| Building\_id | Facilities |

**Belongs to (Buidling & Room):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Building\_id | Building\_name | Extra\_Facilities | Room\_no | Size | Category | Floor\_no |

**1NF:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Building\_id | Building\_name | Room\_no | Room\_size | Room\_category | Floor\_no |

Extra\_Facilities

|  |  |
| --- | --- |
| Building\_id | Facilities |

**2NF:**

**Table: Building**

|  |  |
| --- | --- |
| Building\_id | Building\_name |

**Table: Room**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Room\_no | Room\_size | Room\_category | Floor\_no | Building\_id |

**Table: Extra\_Facilities**

|  |  |
| --- | --- |
| Building\_id | Facilities |

**Managed (Teacher & Department):**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Department\_id | Department\_name | Teacher\_id | Teacher\_name | Salary | Designation | Other\_incharge | JoinDate |

**1NF:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Department\_  id | Department\_  name | Teacher\_  id | Teacher\_  name | Teacher\_  salary | Designation | Other\_incharge | Teacher\_  JoinDate |

**2NF:**

**Table: Department**

|  |  |
| --- | --- |
| Department\_id | Department\_name |

**Table: Teacher**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Teacher\_id | Teacher\_name | Teacher\_salary | Designation | Other\_in\_charge | Teacher\_JoinDate | Department\_id |

**Supervised By (Teacher & Lab):**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Teacher\_id | Teacher\_name | Salary | Designation | Other\_in\_charge | JoinDate | Lab\_id | Size | Category |

**1NF:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Teacher\_  id | Teacher\_  name | Teacher\_  salary | Designation | Other\_in\_charge | Teacher\_  JoinDate | Lab\_id | Lab\_size | Lab\_  category |

**2NF:**

**Table: Teacher**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Teacher\_id | Teacher\_name | Teacher\_salary | Designation | Other\_in\_charge | Teacher\_JoinDate |

**Table: Lab**

|  |  |  |
| --- | --- | --- |
| Lab\_id | Lab\_size | Lab\_category |

**Belongs to (Lab & Room):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Room\_no | Size | Category | Floor\_no | Lab\_id | Size | Category |

**1NF:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Room\_no | Room\_size | Room\_category | Floor\_no | Lab\_id | Lab\_size | Lab\_category |

**2NF:**

**Table: Room**

|  |  |  |  |
| --- | --- | --- | --- |
| Room\_no | Room\_size | Room\_category | Floor\_no |

**Table: Lab**

|  |  |  |  |
| --- | --- | --- | --- |
| Lab\_id | Lab\_size | Lab\_category | Room\_no |

**Belongs to (Class & Room):**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class\_id | Grade | Section | Subject | Time | Numberofstudent | Room\_no | Size | Category | Floor\_no |

**1NF:**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class\_id | Grade | Section | Subject | Time | Numberofstudent | Room\_  no | Room\_  size | Room\_  category | Floor\_no |

**2NF:**

**Table: Class**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Class\_id | Grade | Section | Subject | Time | Numberofstudent | Room\_no |

**Table: Room**

|  |  |  |  |
| --- | --- | --- | --- |
| Room\_no | Room\_size | Room\_category | Floor\_no |

**Teaches (Student &Teacher):**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Student\_  id | Student\_  name | Gender | Address | Father\_  name | Mother\_  name | Roll\_  no | Teacher\_  Id | Teacher\_  name | Salary | Other\_in\_  charge | Designation | Joindate |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Student\_  id | Student\_  name | Gender | Address | Father\_  name | Mother\_  name | Roll\_  no | Teacher\_  id | Teacher  \_  name | Teacher\_  Salary | Other\_  in\_  charge | Designation | Teacher\_  Join  date |

**1NF:**

**2NF:**

**Table: Student**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Student\_id | Student\_name | Gender | Address | Father\_name | Mother\_name | Roll\_no | Teacher\_id |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Teacher\_id | Teacher\_name | Teacher\_Salary | Other\_in\_charge | Designation | Teacher\_Joindate |

**Table: Teacher**

**Belongs to (Class & Student):**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Student\_  id | Student\_  name | Gender | Address | Father\_  name | Mother\_  name | Roll\_  no | Class\_  id | Grade | Section | Sunject | Time | Num  Of  student |

**1NF:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Student\_  id | Student\_  name | Gender | Address | Father\_  name | Mother\_  name | Roll\_  no | Class\_  id | Grade | Section | Sunject | Time | Num  Of  student |

**2NF:**

**Table: Student:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Student\_id | Student\_name | Gender | Address | Father\_name | Mother\_name | Roll\_no | Class\_id |

**Table: Class**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class\_id | Grade | Section | Sunject | Time | Numberofstudent |

**Managed (Class & Teacher):**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class\_  id | Grade | Section | Time | NumOf  Student | Subject | Teacher\_  id | Teacher\_  Name | Designation | Salary | Join\_  Date | Other\_  in\_  charge |

**1NF:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class\_  id | Grade | Section | Time | NumOf  Student | Subject | Teacher\_  id | Teacher\_  name | Designation | Teacher\_  salary | Teacher\_  Join  date | Other\_  in\_  charge |

**2NF:**

**Table: Class**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Class\_id | Grade | Section | Time | Numberofstudent | Subject | Teacher\_id |

**Table: Teacher**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Teacher\_id | Teacher\_name | Designation | Teacher\_salary | Teacher\_JoinDate | Other\_in\_charge |

**Teaches (Class & Teacher):**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class\_  id | Grade | Section | Time | NumOf  Student | Subject | Teacher\_  id | Teacher\_  Name | Designation | Salary | Join\_  Date | Other\_  in\_  charge |

**1NF:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class\_  id | Grade | Section | Time | NumOf  Student | Subject | Teacher\_  id | Teacher\_  name | Designation | Teacher\_  salary | Teacher\_  Join  date | Other\_  in\_  charge |

**2NF:**

**Table: Class**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class\_id | Grade | Section | Time | Numberofstudent | Subject |

**Table: Teacher**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Teacher\_id | Teacher\_name | Designation | Teacher\_salary | Teacher\_JoinDate | Other\_in\_charge |

**Table: Teacher\_Class**

|  |  |
| --- | --- |
| Teacher\_id | Class\_id |

# Schema Diagram:

Staff

1.Staff\_id

2.Staff\_name

3.Staff\_work

4.Admin\_id

Admin\_Officer

1.Adminofficer\_id

2.Adminofficer\_name

3.Adminofficer\_salary

4.Adminofficer\_joidate

5Adminofficer\_work

Department

1.Department\_id

2.Department\_name

3.Building\_no

Room

1.Room\_id

2.Room\_size

3.Room\_category

4.Building\_no

5.Floor\_no

Lab

1.Lab\_id

2.Lab\_category

3.Lab\_size

4.Room\_no

5.Teacher\_id

Teacher

1.Teachr\_id

2.Teacher\_name

3.Teacher\_salary

4.teacher\_joindate

5.Designation

6.Other\_in\_charge

7.Manger\_id

8.Department\_id

Building

1.Building\_id

2.Building\_name

Student

1.Student\_id

2.Student\_name

3.Roll\_no

4.Fathers\_name

5.Mothers\_name

6.Address

7.Teacher\_id

8.Class\_id

9.Gender

Class

1.Class\_id

2.Grade

3.Section

4.Teacher\_id

5.Number\_of\_student

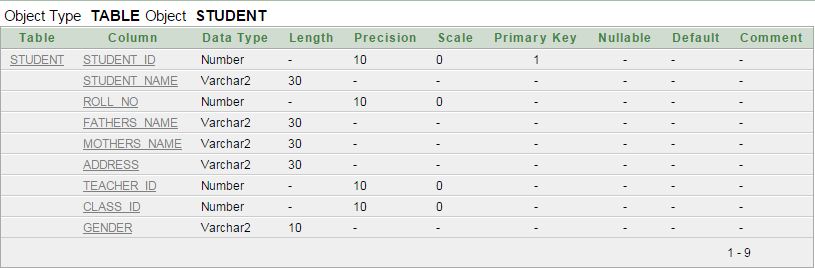
6.Time

7.Subject

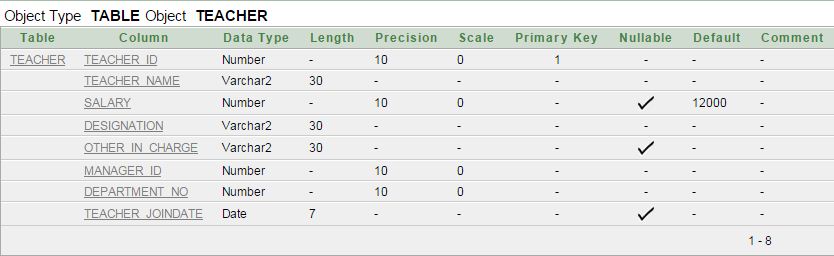
8.Room\_no

# Table Description:

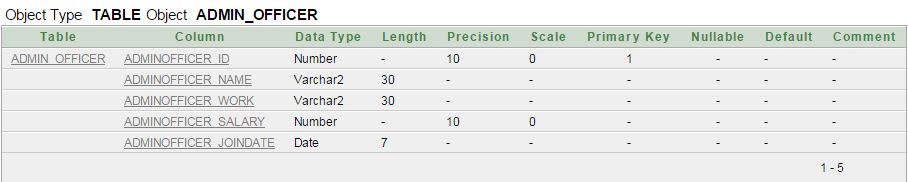
desc student;



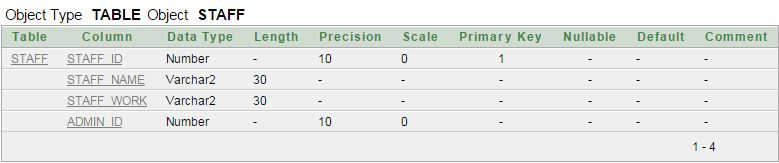
desc teacher;



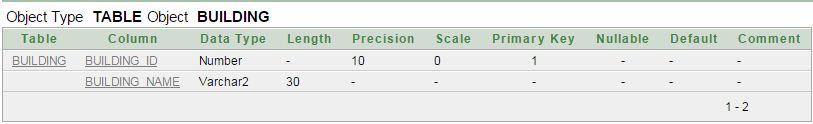
desc admin\_officer;



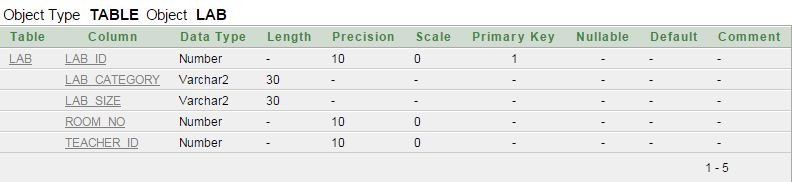
desc staff;



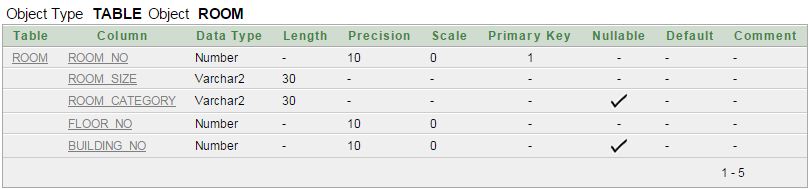
desc building;



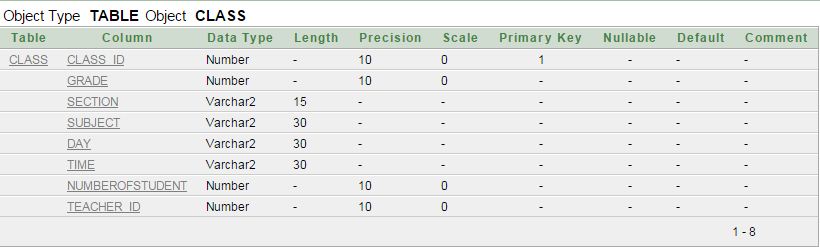
desc lab;



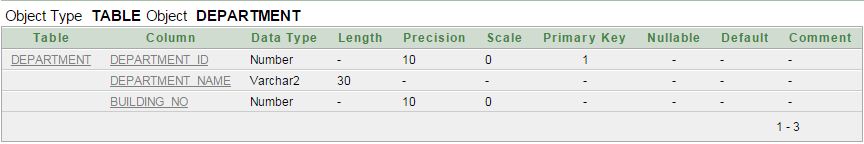
desc room;



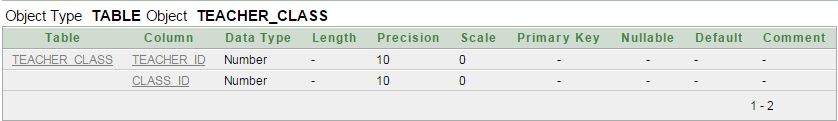
desc class;



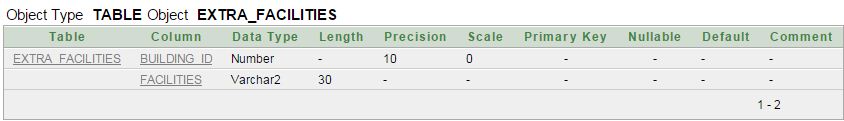
desc department;



desc teacher\_class;

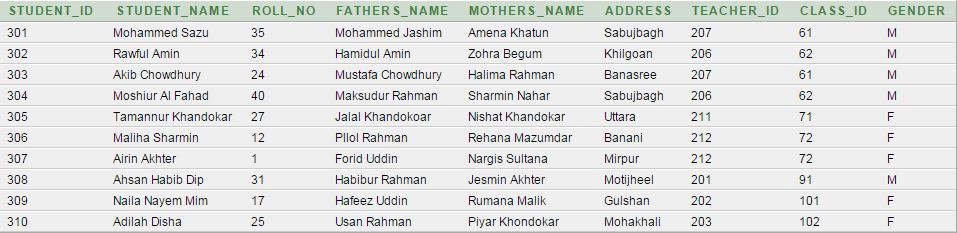


descextra\_facilities;

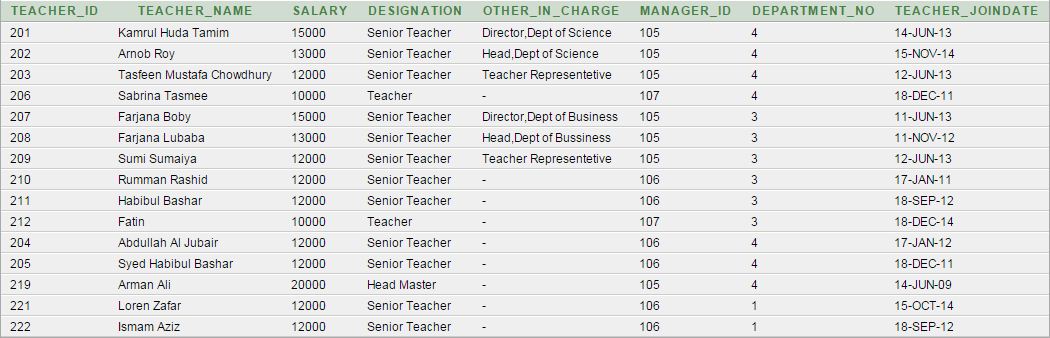


# Showing Data:

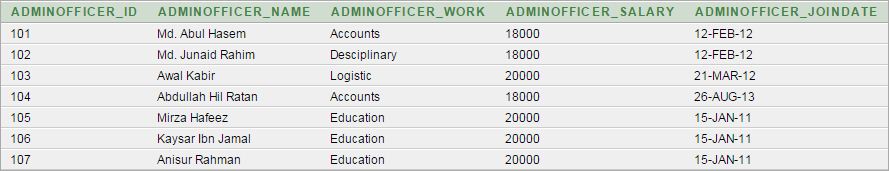
Select \*from student



Select \*from teacher



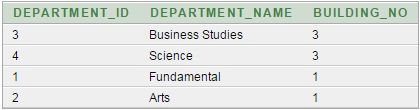
Select \*from admin\_officer;



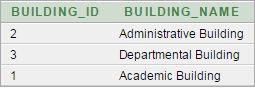
Select \*from staff;



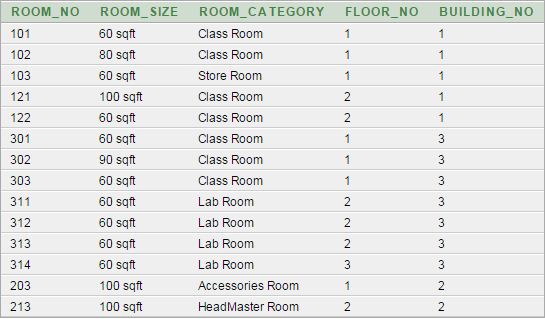
Select \*from department;



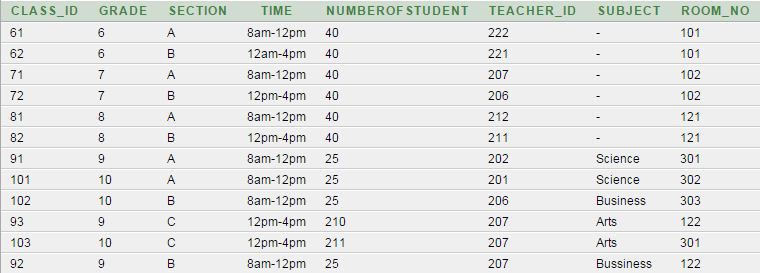
Select \*from building;



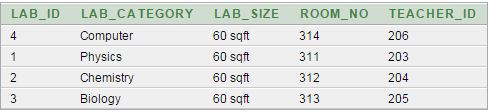
Select \*from room;



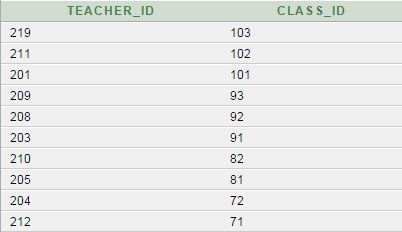
Select \*from class;



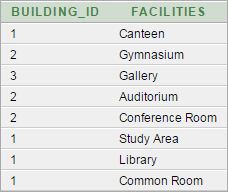
Select \*from lab;



Select \*from teacher\_class;



Select \*from extra\_facilities;



# Task:

select s.student\_name,c.grade,c.section,c.time from student s,class c where c.grade=6 and c.class\_id=s.class\_id;



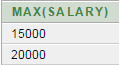
select s.student\_name,c.grade,c.section,c.time,r.room\_no from student s,class c,room r where c.grade=7 and c.class\_id=s.class\_id and c.room\_no=r.room\_no;



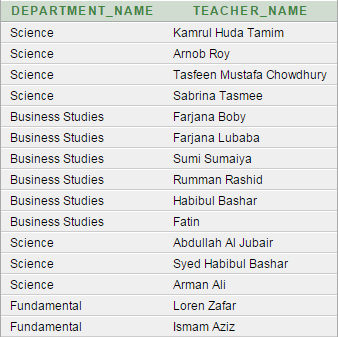
select b.building\_name,r.room\_no,c.time from building b,room r,class c,teacher t,teacher\_class p where t.teacher\_name in('Arnob Roy','Farjana Boby') and p.teacher\_id=t.teacher\_id and p.class\_id=c.class\_id and c.room\_no=r.room\_no and r.building\_no= b.building\_id;



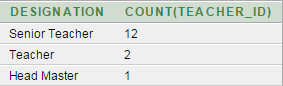
select max(salary) from teacher group by designation having max(salary)>12000;



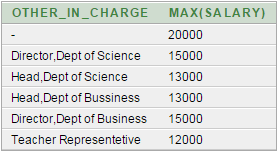
select d.department\_name,t.teacher\_name from teacher t,department d,building b where b.building\_name in('Academic Building','Departmental Building’) and d.department\_id =t.department\_no and b.building\_id=t.building\_no;



select designation,count(teacher\_id) from teacher group by designation;



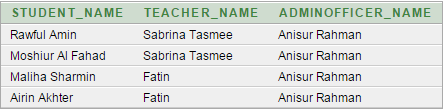
select other\_in\_charge,max(salary) from teacher group by other\_in\_charge;



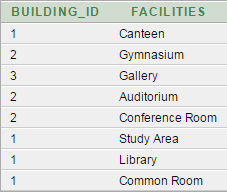
select adminofficer\_id,adminofficer\_name,adminofficer\_joindate,adminofficer\_salary from admin\_officer where adminofficer\_joindate <'1-Jan-2012';



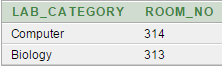
select s.student\_name,t.teacher\_name,a.adminofficer\_name from teacher t,admin\_officer a,student s where a.adminofficer\_id=107 and s.teacher\_id=t.teacher\_id and t.manager\_id= a.adminofficer\_id;



select b.building\_id,k.facilities from building b, extra\_facilities k where k.building\_id= b.building\_id;



select lab\_category , room\_no from lab where lab\_category in(‘Computer’,’Biology’);



# Problem Faced:

During creation of this database project naturally there were some problems. Due to inexperience,we often faced difficulty to use our time effectively. to complete database relationship diagramclearly showing every table ,attributes and data type were another tough task to complete .Thenthere are some problems regarding table creation. Some simple mistakes often made it difficult tocreate the required tables. Despite our best effort, there might be some fault in our developeddatabase. We hope to learn from our mistake and apply the knowledge that we gained from thisproject in the future to create more professional database.

# Project Learning Experienced

## Lesson Learned:

In this project, we learned how to make a table, relationship diagrams and clearly presenting every table,attributes, and data type in this project. We also learned how can show data from table and how to add constraint. Besides faced some challenging task like convert case study into a entity relationship diagram, normalization, creating appropriate table, inserting value as well as.

## Software& Future Plan:

This project was developed to fulfill some requirement .However there are a lots of scope to improve the performance of this management system. Adding some extra features like calculating marks, student’s attendance, teacher’s punctuality many more we have that type plan. Besides, we have master plan that is providing VUES database for every student, teacher

and also admin. We are hopeful about our project.