

AMERICAN INTERNATIONAL UNIVERSITY- BANGLADESH (AIUB)

FACULTY OF SCIENCE AND TECHNOLOGY DEPARTMENT OF SCIENCE

INTRODUCTION TO DATABASE

Summer 2021-2022 Section: B

Project: SCHOOL MANAGEMENT

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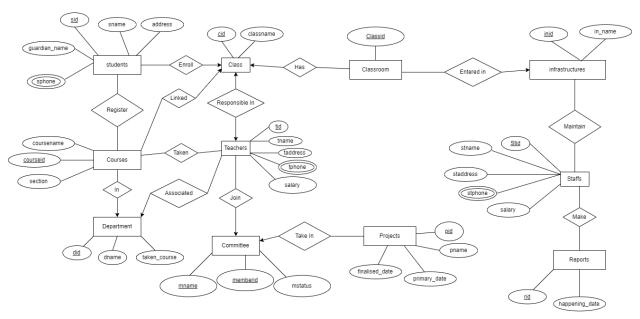
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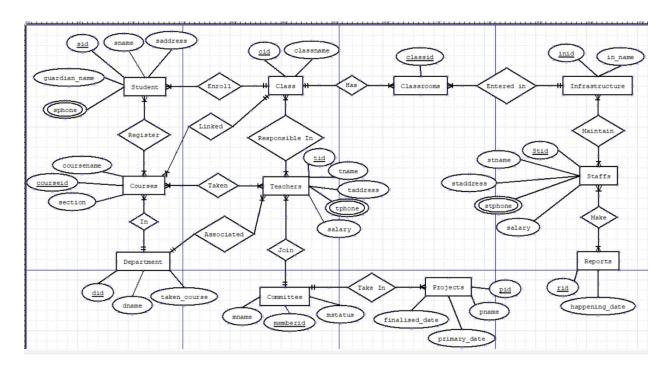
Topic: School Management

Case study:

In the school management system of 'A' Kinder Garden Public school, students of different classes are there. One student can enroll in one class only and a class may have many students. The management database has information of students like unique student's ID (primary key), phone number, Student's name, Guardian's name, Student's address. Students can register to courses. Courses have their own information like unique course ID, course name, course sections. One student may register in many courses and one course might be registered by many students. Courses are linked to classes as there are 1 to 10 different classes. Classes have their own information too like unique class ID, class name. Every class and course have different class and different course ID. One course is for one unique class. A class has more than one course. These courses are taken by teachers. Teachers have information stored like unique teacher Id (primary key), teacher name, teacher address, salary. One teacher is responsible for more than one classes. One class has more than one teachers for having multiple courses. Teachers are responsible for different classes. Each department is associated with teachers of different classes. One department has many teachers but a teacher in in single department. Departments also have information like unique department ID, department name, courses taken. So, courses are connected to departments too. Each class has their own classrooms. Classrooms have info like classroom ID which is unique. One class has multiple classrooms because of sections. Infrastructure category has classrooms entered in their model. Infrastructure has things like infrastructure ID, infrastructure name. Again, infrastructure is maintained by the staff. Staffs have their own information like Id, name, phone, address, salary. Many staffs are there to take care of infrastructure. Staffs also make reports on programs happening in school. Each report has different report ID, report name, happening date. Teachers are there joined in the school committee board. A committee board has many teachers attending. A committee board has its unique member id, member name, member status. School committee board take various projects about research and educational purposes. Projects have their own ID, name, primary date, finalized date. Every unique ID in all entities are primary key.

ER Diagram: (both in Draw.io and DIA software)





Normalization:

Enroll (<u>sid</u>, sname, saddress, sphone, guardian_name, <u>cid</u>, classname)

1NF: Phone multivalued attribute

 $2NF: \underline{sid}, sname, saddress, sphone, guardian_name, cid$

cid, classname

```
3NF: No transitive dependency
     sid, sname, saddress, sphone, guardian_name, cid
     cid, classname
Table: sid, sname, saddress, sphone, guardian_name, cid
      cid, classname
Register (sid, sname, saddress, sphone, guardian_name, courseid, coursename, section)
1NF: Phone multivalued attribute
2NF: sid, sname, saddress, sphone, guardian name
     courseid, coursename, section
     csid, sid, courseid
3NF: No transitive dependency
     sid, sname, saddress, sphone, guardian_name
     courseid, coursename, section
     csid, sid, courseid
Table: sid, sname, saddress, sphone, guardian_name
      courseid, coursename, section
      csid, sid, courseid
In (courseid, coursename, section, did, dname, taken_course)
1NF: No multivalued attributes
2NF: courseid, coursename, section, did
     did, dname, taken_course
3NF: No transitive dependency
     courseid, coursename, section, did
     did, dname, taken_course
Table: courseid, coursename, section, did
      did, dname, taken_course
Linked (courseid, coursename, section, cid, classname)
1NF: No multivalued attributes
2NF: courseid, coursename, section, cid
     cid, classname
3NF: No transitive dependency
```

courseid, coursename, section, cid

```
cid, classname
Table: courseid, coursename, section, cid
      cid, classname
Taken (courseid, coursename, section, tid, tname, taddress, salary, tphone)
1NF: Phone multivalued attribute
2NF: courseid, coursename, section
     tid, tname, taddress, salary, tphone
     ctid, courseid, tid
3NF: No transitive dependency
     courseid, coursename, section
     tid, tname, taddress, salary, tphone
     ctid, courseid, tid
Table: courseid, coursename, section
      tid, tname, taddress, salary, tphone
      ctid, courseid, tid
Associated (tid, tname, taddress, salary, tphone, did, dname, taken_course)
1NF: Phone multivalued attribute
2NF: tid, tname, taddress, salary, tphone, did
     did, dname, taken_course
3NF: No transitive dependency
     tid, tname, taddress, salary, tphone, did
     did, dname, taken_course
Table: tid, tname, taddress, salary, tphone, did
      did, dname, taken_course
Responsible In (tid, tname, taddress, salary, tphone, cid, classname)
1NF: Phone multivalued attribute
2NF: tid, tname, taddress, salary, tphone
     cid, classname
     tcid, tid, cid
3NF: No transitive dependency
     tid, tname, taddress, salary, tphone
```

```
cid, classname
tcid, tid, cid
Table: tid, tname, taddress, salary, tphone
cid, classname
tcid, tid, cid
Join (tid, tname, taddress, salary, tphone, memberid, mname, mstatus)
1NF: Phone multivalued attribute
2NF: tid, tname, taddress, salary, tphone, memberid
memberid, mname, mstatus
3NF: No transitive dependency
tid, tname, taddress, salary, tphone, memberid
memberid, mname, mstatus
Table: tid, tname, taddress, salary, tphone, memberid
```

memberid, mname, mstatus

Table: <u>cid</u>, classname <u>classid</u>, cid

classid, inid

```
Table: inid, in_name
      classid, inid
Take In (memberid, mname, mstatus, pid, pname, primary_date, finalized_date)
1NF: No multivalued attributes
2NF: memberid, mname, mstatus,
     pid, pname, primary_date, finalized_date, memberid
3NF: No transitive dependency
     memberid, mname, mstatus,
     pid, pname, primary_date, finalized_date, memberid
Table: memberid, mname, mstatus,
      pid, pname, primary_date, finalized_date, memberid
Maintain (<u>inid</u>, in_name, <u>stid</u>, stname, staddress, stphone, salary)
1NF: Phone multivalued attribute
2NF: inid, in_name
     stid, stname, staddress, stphone, salary
     instid, inid, stid
3NF: No transitive dependency
     inid, in_name
     stid, stname, staddress, stphone, salary
     instid, inid, stid
Table: <u>inid</u>, in_name
      stid, stname, staddress, stphone, salary
      instid, inid, stid
Make (stid, stname, staddress, stphone, salary, rid, happening_date)
1NF: Phone multivalued attribute
2NF: stid, stname, staddress, stphone, salary
     rid, happening_date
```

rstid, stid, rid

3NF: No transitive dependency

stid, stname, staddress, stphone, salary

<u>rid</u>, happening_date

rstid, stid, rid

Table: stid, stname, staddress, stphone, salary

rid, happening_date

rstid, stid, rid

Total Table:

sid, sname, saddress, sphone, guardian_name, cid

cid, classname

sid, sname, saddress, sphone, guardian_name

courseid, coursename, section

csid, sid, courseid

courseid, coursename, section, did

did, dname, taken_course

courseid, coursename, section, cid

cid, classname

courseid, coursename, section

tid, tname, taddress, salary, tphone

ctid, courseid, tid

tid, tname, taddress, salary, tphone, did

did, dname, taken_course

tid, tname, taddress, salary, tphone

cid, classname

tcid, tid, cid

tid, tname, taddress, salary, tphone, memberid

memberid, mname, mstatus

cid, classname

classid, cid

inid, in_name

classid, inid

memberid, mname, mstatus

pid, pname, primary_date, finalized_date, memberid

inid, in_name

stid, stname, staddress, stphone, salary

<u>instid</u>, inid, stid<u>stid</u>, stname, staddress, stphone, salary<u>rid</u>, happening_date<u>rstid</u>, stid, rid

Final Table:

- 1. **Students** (sid, sname, saddress, sphone, guardian_name, cid)
- 2. Class (cid, classname)
- 3. Courses_Students (csid, sid, courseid)
- 4. **Courses1** (courseid, coursename, section, did)
- 5. Courses2 (courseid, coursename, section, cid)
- 6. Courses_Teachers (ctid, courseid, tid)
- 7. **Teachers1** (tid, tname, taddress, salary, tphone, did)
- 8. **Department** (did, dname, taken_course)
- 9. **Teachers_Class** (tcid, tid, cid)
- 10. **Teachers2** (tid, tname, taddress, salary, tphone, memberid)
- 11. Classrooms1 (classid, cid)
- 12. **Infrastructures** (inid, in_name)
- 13. Classrooms2 (classid, inid)
- 14. **Committee** (memberid, mname, mstatus)
- 15. **Projects** (pid, pname, primary_date, finalized_date, memberid)
- 16. Infrastructures_Staffs (instid, inid, stid)
- 17. **Staffs** (<u>stid</u>, stname, staddress, stphone, salary)
- 18. **Reports** (<u>rid</u>, happening_date)
- 19. **Reports&Staffs** (<u>rstid</u>, stid, rid)

Table Creation:

CLASS Table: create table class (cid number (10) constraint cid_pk primary key, classname varchar2 (10))

Desc class

Results	Results Explain Describe Saved SQL History											
Object Type TABLE Object CLASS												
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment			
CLASS	CID	Number	-	10	0	1	-	-	-			
	CLASSNAME	Varchar2	10	-	-	-	/	-	-			
								1	I - 2			

STUDENTS Table: create table Students (sid number(10) constraint sid_pk primary key, sname varchar(10), saddress varchar2(10), sphone number(10) not null, guardian_name varchar(10), cid number(10) constraint Students_cid_fk references class(cid))

Desc students

Object Type	TABLE Object \$1	TUDENTS							
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
STUDENTS	SID	Number	-	10	0	1	-	-	-
	SNAME	Varchar2	10	-	-	-	/	-	-
	SADDRESS	Varchar2	10	-	-	-	/	-	-
	<u>SPHONE</u>	Number	-	10	0	-	-	-	-
	GUARDIAN_NAME	Varchar2	10	-	-	-	~	-	-
	CID	Number	-	10	0	-	/	-	-
									1 - 6

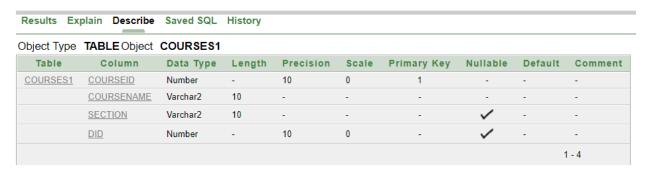
DEPARTMENT Table: create table department (did number (10) constraint did_pk primary key, dname varchar (10), taken_course varchar2 (10) not null)

Desc department



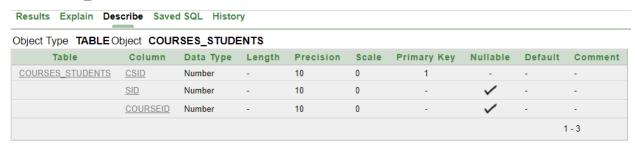
COURSES1 Table: create table Courses1 (courseid number (10) constraint courseid_pk primary key, coursename varchar2(10) not null, section varchar (10), did number (10) constraint Courses1_did_fk references department(did))

Desc courses1



COURSES_STUDENTS Table: create table Courses_Students (csid number(10) constraint csid_pk primary key, sid number(10) constraint Courses_Students_sid_fk references Students(sid), courseid number (10) constraint Courses_Students_courseid_fk references Courses1(courseid))

Desc courses_students



COURSES2 Table: create table Courses2 (courseid number (10) constraint courseid_pk1 primary key, coursename varchar2(10) not null, section varchar (10), cid number (10) constraint Courses2_cid_fk references class(cid))

Desc courses2

INEGUILS EA	piani Describe	Javeu Jul	Thistory						
Object Type	TABLE Object	COURSES2							
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
COURSES2	COURSEID	Number	-	10	0	1	-	-	-
	COURSENAME	Varchar2	10	-	-	-	-	-	-
	SECTION	Varchar2	10	-	-	-	/	-	-
	CID	Number	-	10	0	-	/	-	-
									1 - 4

TEACHERS1 Table: create table Teachers1 (tid number(10) constraint tid_pk primary key, tname varchar2(10), taddress varchar(10), salary number(10) not null, tphone number(10) not null unique, did number (10) constraint Teachers1_did_fk references department(did))

Desc teachers1

Object Type TABLE Object TEACHERS1												
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment			
TEACHERS1	TID	Number	-	10	0	1	-	-	-			
	TNAME	Varchar2	10	-	-	-	~	-	-			
	TADDRESS	Varchar2	10	-	-	-	/	-	-			
	SALARY	Number	-	10	0	-	-	-	-			
	TPHONE	Number	-	10	0	-	-	-	-			
	DID	Number	-	10	0	-	~	-	-			
									1 - 6			

COURSES_TEACHERS Table: create table Courses_Teachers (ctid number(10) constraint ctid_pk primary key, courseid number (10) constraint Courses_Teachers_courseid_fk references Courses1(courseid), tid number(10) constraint Courses_Teachers_fk1 references Teachers1(tid) not null)

Desc Courses_Teachers

Object Type TABLE O	Object Type TABLE Object COURSES_TEACHERS												
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment				
COURSES_TEACHERS	CTID	Number	-	10	0	1	-	-	-				
	COURSEID	Number	-	10	0	-	/	-	-				
	TID	Number	-	10	0	-	-	-	-				
								1	I - 3				

TEACHERS_CLASS Table: create table Teachers_Class (tcid number (10) constraint tcid_pk primary key, tid number(10) constraint Teachers_Class_fk references Teachers1(tid), cid number (10) constraint Teachers_Class_cid_fk1 references class(cid))

Desc Teachers_Class

Object Type TABLE Object TEACHERS_CLASS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
TEACHERS_CLASS	TCID	Number	-	10	0	1	-	-	-
	TID	Number	-	10	0	-	/	-	-
	CID	Number	-	10	0	-	/	-	-
								1	1 - 3

10. COMMITTEE Table: create table Committee (memberid number(10) constraint memberid_pk primary key, mname varchar2(10) not null, mstatus varchar (10))

Desc committee

Object Type TABLE Object COMMITTEE

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
COMMITTEE	MEMBERID	Number	-	10	0	1	-	-	-
	MNAME	Varchar2	10	-	-	-	-	-	-
	MSTATUS	Varchar2	10	-	-	-	/	-	-
									1 - 3

TEACHERS2 Table: create table Teachers2 (tid number(10) constraint tid_pk1 primary key, tname varchar2(10), taddress varchar(10), salary number(10) not null, tphone number(10) not null unique, memberid number(10) constraint Teachers2_Class_fk references Committee(memberid))

Desc teachers2

Object Type	TABLE Object	t TEACHER	S2						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
TEACHERS2	TID	Number	-	10	0	1	-	-	-
	TNAME	Varchar2	10	-	-	-	~	-	-
	TADDRESS	Varchar2	10	-	-	-	/	-	-
	SALARY	Number	-	10	0	-	-	-	-
	TPHONE	Number	-	10	0	-	-	-	-
	MEMBERID	Number	-	10	0	-	~	-	-
									1 - 6

CLASSROOMS1 Table: create table Classrooms1 (classid number (10) constraint classid_pk1 primary key, cid number (10) constraint Classrooms1_cid_fk1 references class(cid))

Desc classrooms1

Object Type TA	BLE Object	CLASSRO	DMS1						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CLASSROOMS1	CLASSID	Number	-	10	0	1	-	-	-
	CID	Number	-	10	0	-	/	-	-
								1	- 2

INFRASTRUCTURES Table: create table Infrastructures (inid number(10) constraint Infrastructures_pk1 primary key, in_name varchar2(10) not null)

Desc infrastructures

Object Type TABLE Object INFRASTRUCTURES

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INFRASTRUCTURES	INID	Number	-	10	0	1	-	-	-
	IN_NAME	Varchar2	10	-	-	-	-	-	-
								1	- 2

CLASSROOMS2 Table: create table Classrooms2 (classid number (10) constraint classid_pk primary key, inid number (10) constraint Classrooms2_inid_fk references Infrastructures(inid))

Desc classrooms2

Object Type TAI	BLE Object	CLASSRO	DMS2						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CLASSROOMS2	CLASSID	Number	-	10	0	1	-	-	-
	INID	Number	-	10	0	-	/	-	-
									1 - 2

PROJECTS Table: create table Projects (pid number(10) constraint pid_pk primary key, pname Varchar2(20) not null, primary_date date, finalized_date date, memberid number(10) constraint Projects_Class_fk references Committee(memberid))

Desc projects

Object Type	TABLE Object P	ROJECTS							
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PROJECTS	PID	Number	-	10	0	1	-	-	-
	<u>PNAME</u>	Varchar2	20	-	-	-	-	-	-
	PRIMARY_DATE	Date	7	-	-	-	/	-	-
	FINALIZED_DATE	Date	7	-	-	-	/	-	-
	<u>MEMBERID</u>	Number	-	10	0	-	/	-	-
									1 - 5

STAFFS Table: create table Staffs (stid number(10) constraint Staffs_pk primary key, stname varchar2(10) not null, staddress varchar(10) not null, stphone number(10) unique, salary number(10) not null)

Desc staffs

Object Typ	Object Type TABLE Object STAFFS								
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
<u>STAFFS</u>	STID	Number	-	10	0	1	-	-	-
	STNAME	Varchar2	10	-	-	-	-	-	-
	STADDRESS	Varchar2	10	-	-	-	-	-	-
	STPHONE	Number	-	10	0	-	/	-	-
	SALARY	Number	-	10	0	-	-	-	-
									1 - 5

INFRASTRUCTURES_STAFFS Table: create table Infrastructures_Staffs(instid number(10) constraint instid_pk primary key, inid number (10) constraint Infrastructures_Staffs_inid_fk references Infrastructures (inid), stid number(10) constraint Infrastructures_Staffs_fk1 references Staffs(stid))

Desc infrastructures_staffs

Object Type TABLE Object	INFRASTI	RUCTURES_	STAFFS						
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INFRASTRUCTURES_STAFFS	INSTID	Number	-	10	0	1	-	-	-
	INID	Number	-	10	0	-	/	-	-
	STID	Number	-	10	0	-	/	-	-
								1	1 - 3

REPORTS Table: create table Reports (rid number(10) constraint Reports_pk primary key, happening_date date not null)

Desc reports

Object Type TABLE Object REPORTS									
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
REPORTS	RID	Number	-	10	0	1	-	-	-
	HAPPENING_DATE	Date	7	-	-	-	-	-	-
								,	1 - 2

REPORTS_STAFFS Table: create table Reports_Staffs (rstid number(10) constraint Reports_Staffs_pk primary key, stid number(10) constraint Reports_Staffs_fk references Staffs (stid) unique, rid number(10) constraint Reports_Staffs_fk1 references Reports (rid) not null unique)

Desc reports_staffs

Object Type TABLE Object REPORTS_STAFFS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
REPORTS_STAFFS	RSTID	Number	-	10	0	1	-	-	-
	STID	Number	-	10	0	-	/	-	-
	RID	Number	-	10	0	-	-	-	-
								1	1 - 3

Sequence and Data Insertion:

10 rows returned in 0.00 seconds

Class table:

```
Autocommit Display 10
CREATE SEQUENCE class sp
          INCREMENT BY 1
          START WITH 01
          MAXVALUE 100
          NOCACHE
          NOCYCLE;
insert into class (cid, classname) values (class sp.nextval, 'Sunflower')
insert into class (cid, classname) values (class sp.nextval,
insert into class (cid, classname) values (class sp.nextval, 'Magnolia')
insert into class (cid, classname) values (class sp.nextval, 'Lily')
insert into class (cid, classname) values (class sp.nextval, 'Tulip') insert into class (cid, classname) values (class sp.nextval, 'Peony') insert into class (cid, classname) values (class sp.nextval, 'Daisy')
insert into class (cid, classname) values (class sp.nextval, 'Jasmine')
insert into class (cid, classname) values (class sp.nextval, 'Orchid') insert into class (cid, classname) values (class sp.nextval, 'Dahlia')
select* from class
Results Explain Describe Saved SQL History
        CLASSNAME
 CID
        Sunflower
 1
 2
        Rose
 3
        Magnolia
 4
        Lily
 5
        Tulip
 6
        Peony
 7
        Daisy
 8
        Jasmine
 9
        Orchid
 10
        Dahlia
```

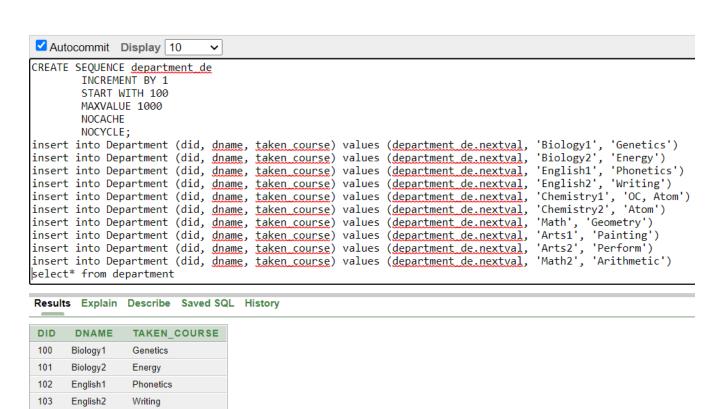
Students table:

```
✓ Autocommit Display 10
                                                              ~
CREATE SEQUENCE students st
INCREMENT BY 1
                  START WITH 11
                 MAXVALUE 1000
                 NOCACHE
                 NOCYCLE;
                                                                                                                                                                                                                             'Jack', '13 Street', '8945327', 'Elsa', '1')
'Joshua', 'Brik Steet', '2539273', 'Albert', '2')
'Alen', 'Daf Lane', '9886253', 'Anna', '3')
'Bob', '49 Street', '3743648', 'Alex', '4')
'Miley', 'Iex City', '2304983', 'Einstein', '5')
'Yugi', '20 Square', '2394883', 'Gallileo', '6')
'Peter', '1B Block', '9083232', 'Newton', '7')
'Ted', 'Isc Lane', '3483743', 'Levi', '8')
'Fiona', 'Love Road', '9124793', 'Shrek', '9')
'Bobby', '2B Block', '0834833', 'Houston', '10')
insert into students (<u>sid</u>, <u>sname</u>, <u>saddress</u>, <u>sphone</u>, <u>guardian name</u>, <u>cid</u>) values (<u>students st.nextval</u>, insert into students (<u>sid</u>, <u>sname</u>, <u>saddress</u>, <u>sphone</u>, <u>guardian name</u>, <u>cid</u>) values (<u>students st.nextval</u>,
insert into students (sid, sname, saddress, sphone, guardian name, cid) values
                                                                                                                                                                              (students st.nextval,
insert into students (<u>sid</u>, <u>sname</u>, <u>saddress</u>, <u>sphone</u>, <u>guardian name</u>, <u>cid</u>) values (<u>students st.nextval</u>, insert into students (<u>sid</u>, <u>sname</u>, <u>saddress</u>, <u>sphone</u>, <u>guardian name</u>, <u>cid</u>) values (<u>students st.nextval</u>,
insert into students (sid, sname, saddress, sphone, guardian name, cid) values
                                                                                                                                                                              (students st.nextval,
insert into students (<u>sid</u>, <u>sname</u>, <u>saddress</u>, <u>sphone</u>, <u>guardian name</u>, <u>cid</u>) values (<u>students st.nextval</u>, insert into students (<u>sid</u>, <u>sname</u>, <u>saddress</u>, <u>sphone</u>, <u>guardian name</u>, <u>cid</u>) values (<u>students st.nextval</u>,
insert into students (<u>sid</u>, <u>sname, saddress, sphone, guardian name, cid</u>) values (<u>students st.nextval</u>,
insert into students (<u>sid</u>, <u>sname</u>, <u>saddress</u>, <u>sphone</u>, <u>guardian name</u>, <u>cid</u>) values (<u>students st.nextval</u>,
select* from students
Results Explain Describe Saved SQL History
```

SID	SNAME	SADDRESS	SPHONE	GUARDIAN_NAME	CID
11	Jack	13 Street	8945327	Elsa	1
12	Joshua	Brik Steet	2539273	Albert	2
13	Alen	Daf Lane	9886253	Anna	3
14	Alen	Daf Lane	9886253	Anna	3
15	Bob	49 Street	3743648	Alex	4
16	Miley	Tex City	2304983	Einstein	5
17	Yuqi	20 Square	2394883	Gallileo	6
18	Peter	1B Block	9083232	Newton	7
19	Ted	TSc Lane	3483743	Levi	8
20	Fiona	Love Road	9124793	Shrek	9

10 rows returned in 0.00 seconds CSV Exp

Department table:



10 rows returned in 0.00 seconds

Chemistry1

Chemistry2

Math

Arts1

Arts2

Math2

OC, Atom

Geometry

Painting

Perform

Arithmetic

Atom

104

105

106

107

108

109

Course1 table:

```
CREATE SEQUENCE COURSES1_co
    INCREMENT BY 1
    START WITH 110
    MAXVALUE 121
    NOCACHE
    NOCYCLE;
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Genetics', 'A', '100')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Writing', 'A', '103')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Geometry', 'A', '106')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Atom', 'A', '105')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Arithmetic', 'A', '109')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Painting', 'A', '107')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Perform', 'A', '108')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Perform', 'A', '108')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Phonetics', 'A', '102')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Phonetics', 'A', '102')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Phonetics', 'A', '102')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Phonetics', 'A', '101')
insert into Courses1 (courseid, coursename, section, did) values (COURSES1_co.nextval, 'Phonetics', 'A', '104')
select* from courses1
```

Results Explain Describe Saved SQL History

COURSEID	COURSENAME	SECTION	DID
110	Genetics	Α	100
111	Writing	Α	103
112	Geometry	Α	106
113	Atom	Α	105
114	Arithmetic	Α	109
115	Painting	Α	107
116	Perform	Α	108
117	Phonetics	Α	102
118	Energy	Α	101
119	OC, Atom	Α	104

10 rows returned in 0.00 seconds

Courses_ Students table:

10 rows returned in 0.00 seconds

```
Autocommit Display 10
CREATE SEQUENCE COURSES STUDENTS cs
            INCREMENT BY 1
            START WITH 21
            MAXVALUE 1000
            NOCACHE
            NOCYCLE;
insert into <u>courses students</u> (<u>csid</u>, <u>sid</u>, <u>courseid</u>) values (<u>COURSES STUDENTS cs.nextval</u>, '11', '110') insert into <u>courses students</u> (<u>csid</u>, <u>sid</u>, <u>courseid</u>) values (<u>COURSES STUDENTS cs.nextval</u>, '12', '118')
insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '13',
insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '14',
insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '15', insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '16',
                                                                                                                                             '119')
insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '16', insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '17', insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '18',
                                                                                                                                             '112')
                                                                                                                                             '115')
insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '19',
insert into courses students (csid, sid, courseid) values (COURSES STUDENTS cs.nextval, '20', '114')
select* from courses students
Results Explain Describe Saved SQL History
 CSID SID
                   COURSEID
 21
           11
                   110
 22
           12
                   118
 23
           13
                   117
 24
           14
                   111
 25
           15
                   119
 26
           16
                   113
 27
           17
                   112
 28
           18
                   115
 29
           19
                   116
           20
                   114
```

Courses2 table:

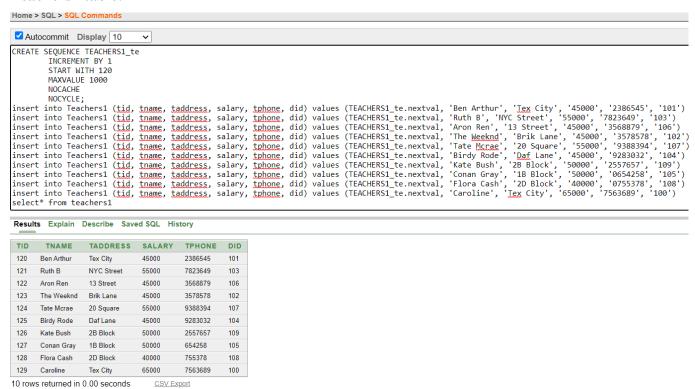
```
CREATE SEQUENCE COURSES2_cou
INCREMENT BY 1
START WITH 110
MAXVALUE 121
NOCACHE
NOCYCLE;
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Genetics', 'A', '1')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Writing', 'A', '4')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Writing', 'A', '7')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Geometry', 'A', '7')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Atom', 'A', '6')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Arithmetic', 'A', '10')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Penform', 'A', '9')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Penform', 'A', '9')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Phonetics', 'A', '3')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Phonetics', 'A', '3')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Energy', 'A', '2')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Energy', 'A', '2')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Energy', 'A', '2')
insert into Courses2 (courseid, coursename, section, cid) values (COURSES2_cou.nextval, 'Energy', 'A', '2')
```

Results Explain Describe Saved SQL History

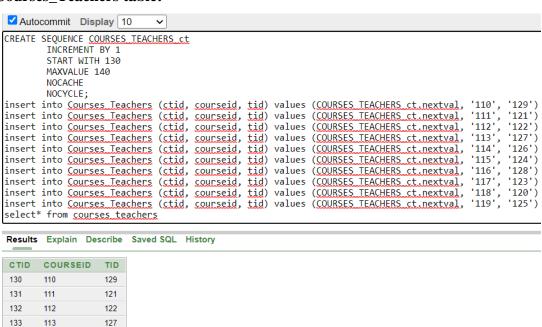
COURSEID	COURSENAME	SECTION	CID
110	Genetics	Α	1
111	Writing	Α	4
112	Geometry	Α	7
113	Atom	Α	6
114	Arithmetic	Α	10
115	Painting	Α	8
116	Perform	Α	9
117	Phonetics	Α	3
118	Energy	Α	2
119	OC, Atom	Α	5

10 rows returned in 0.00 seconds

Teachers1 table:

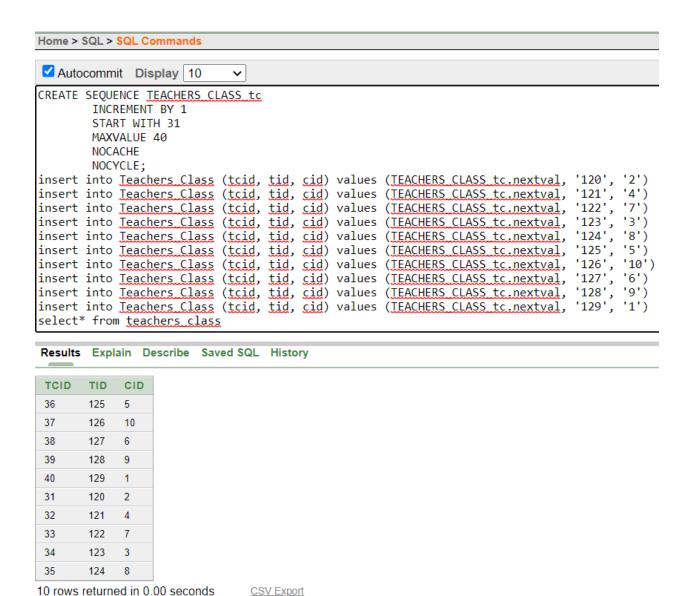


Courses Teachers table:



10 rows returned in 0.00 seconds

Teachers Class table:



Committee table:

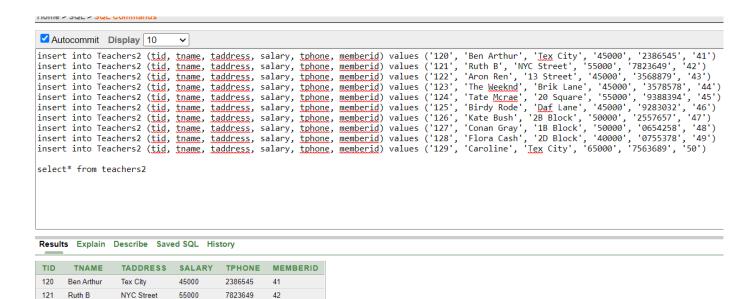
```
CREATE SEQUENCE COMMITTEE CO
INCREMENT BY 1
START WITH 41
MAXVALUE 1000
NOCACHE
NOCYCLE;
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Ben', 'C. Head')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Ruth', 'Asst. Head')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Aron', 'Supervisor')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Meekend', 'Manager')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Weekend', 'Manager')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Birdy', 'CareTaker')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Kate', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Kate', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Conan', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Flora', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Flora', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Flora', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Flora', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Conan', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Caroline', 'Member')
insert into Committee (memberid, mname, mstatus) values (COMMITTEE co.nextval, 'Caroline', 'Member')
```

Results Explain Describe Saved SQL History

MEMBERID	MNAME	MSTATUS
41	Ben	C. Head
42	Ruth	Asst. Head
43	Aron	Supervisor
44	Weeknd	Manager
45	Tate	G. Manager
46	Birdy	CareTaker
47	Kate	Member
48	Conan	Member
49	Flora	Member
50	Caroline	Member

10 rows returned in 0.00 seconds CSV Export

Teacher2 table: (without sequence)



10 rows returned in 0.00 seconds

13 Street

20 Square

Daf Lane

2B Block

1B Block

2D Block

Tex City

122 Aron Ren

124 Tate Mcrae

125 Birdy Rode

126 Kate Bush

Conan Grav

Flora Cash

Caroline

127

128

CSV Export

3568879

3578578

9388394

9283032

2557657

654258

755378

7563689

43

45

46

47

48

49

45000

45000

55000

45000

50000

50000

40000

65000

Classrooms1 table: (without sequence)

Home > SQL > SQL Commands ✓ Autocommit Display 10 insert into Classrooms1 (classid, cid) values ('51', '1') insert into Classrooms1 (classid, cid) values ('52', insert into Classrooms1 (classid, cid) values ('53' insert into Classrooms1 (classid, cid) values ('54' insert into Classrooms1 (classid, cid) values ('55', insert into Classrooms1 (classid, cid) values ('56', insert into Classrooms1 (classid, cid) values ('57' insert into Classrooms1 (classid, cid) values ('58', insert into Classrooms1 (classid, cid) values ('59', '9') insert into Classrooms1 (classid, cid) values ('60', '10') select* from classrooms1

Results	Explain	Describe	Saved SQL	History
---------	---------	----------	-----------	---------

CLASSID	CID
51	1
52	2
53	3
54	4
55	5
56	6
57	7
58	8
59	9
60	10

10 rows returned in 0.00 seconds CSV Export

Infrastructures table: (without sequence)

nome > SQL > SQL Commands

```
✓ Autocommit Display 10
insert into Infrastructures (inid, in name) values ('61',
                                                           'Indoor1')
insert into Infrastructures (inid, in name) values ('62',
                                                           'Indoor2')
insert into Infrastructures (inid, in name) values ('63',
                                                           'Hallway')
insert into Infrastructures (inid, in name) values ('64'
                                                           'Outdoor1')
insert into Infrastructures (inid, in name) values ('65',
                                                           'Outdoor2')
insert into Infrastructures (inid, in name) values ('66'
                                                           'Lab')
insert into Infrastructures (inid, in name) values ('67',
                                                           'Studio')
insert into Infrastructures (inid, in name) values ('68',
                                                           'Indoor3')
insert into Infrastructures (inid, in name) values ('69',
                                                           'Indoor4')
insert into Infrastructures (inid, in name) values ('70', 'Outdoor3')
select* from infrastructures
```

Results Explain Describe Saved SQL History

INID	IN_NAME
61	Indoor1
62	Indoor2
63	Hallway
64	Outdoor1
65	Outdoor2
66	Lab
67	Studio
68	Indoor3
69	Indoor4
70	Outdoor3

10 rows returned in 0.00 seconds CSV Export

Classrooms2 table: (without sequence)

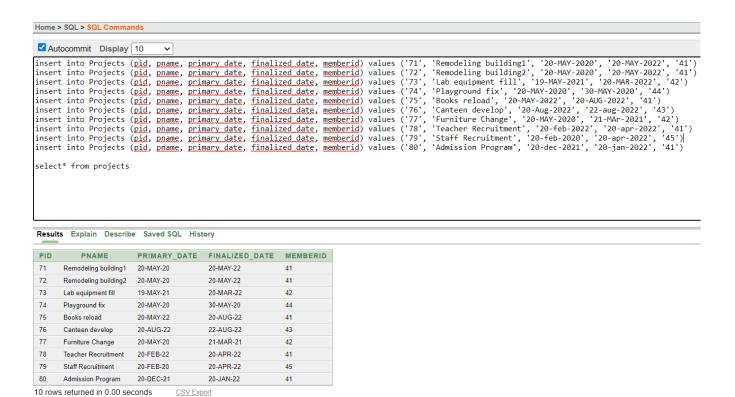
Home > SQL > SQL Commands ✓ Autocommit Display 10 insert into Classrooms2 (classid,inid) values ('51', '61') insert into Classrooms2 (classid,inid) values ('52', '62') insert into Classrooms2 (classid,inid) values ('53' '70') '69') insert into Classrooms2 (classid,inid) values ('54' insert into Classrooms2 (classid, inid) values ('55', '62') insert into Classrooms2 (classid,inid) values ('56' '63') insert into Classrooms2 (classid,inid) values ('57' '67') insert into Classrooms2 (classid,inid) values ('58', '68') insert into Classrooms2 (classid, inid) values ('59', '69') insert into Classrooms2 (classid,inid) values ('60', '66') select* from classrooms2

Results Explain Describe Saved SQL History	Results	Explain	Describe	Saved SQL	History
--	---------	---------	----------	-----------	---------

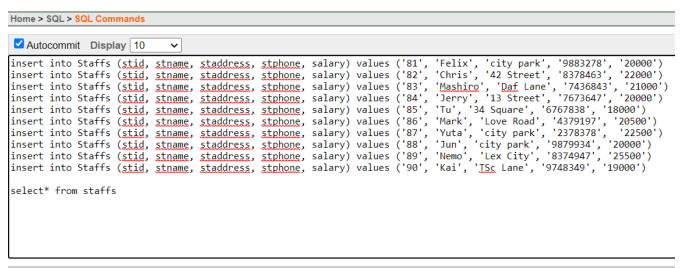
CLASSID	INID
51	61
52	62
53	70
54	69
55	62
56	63
57	67
58	68
59	69
60	66

10 rows returned in 0.00 seconds

Projects table: (without sequence)



Staffs table: (without sequence)

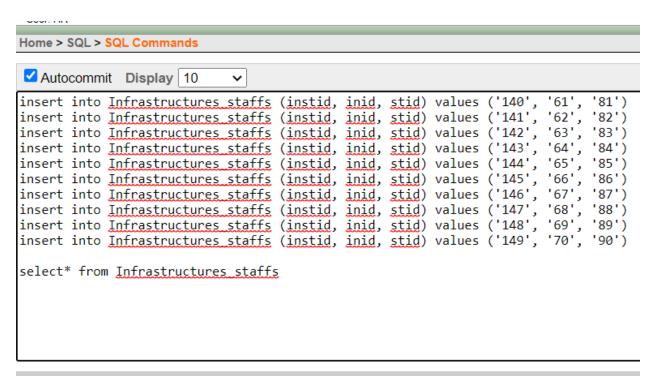


Results	Explain	Describe	Saved SQL	History

STID	STNAME	STADDRESS	STPHONE	SALARY
83	Mashiro	Daf Lane	7436843	21000
84	Jerry	13 Street	7673647	20000
85	Tu	34 Square	6767838	18000
86	Mark	Love Road	4379197	20500
87	Yuta	city park	2378378	22500
88	Jun	city park	9879934	20000
89	Nemo	Lex City	8374947	25500
90	Kai	TSc Lane	9748349	19000
81	Felix	city park	9883278	20000
82	Chris	42 Street	8378463	22000

10 rows returned in 0.00 seconds CSV Export

INFRASTRUCTURES_STAFFS Table: (without sequence)

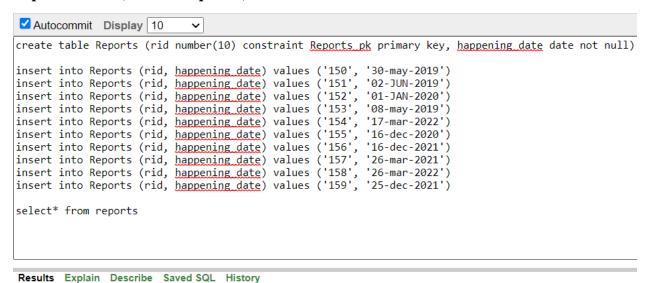


Results	Explain	Describe	Saved SQL	History

INID	STID
61	81
62	82
63	83
64	84
65	85
66	86
67	87
68	88
69	89
70	90
	61 62 63 64 65 66 67 68 69

10 rows returned in 0.02 seconds

Reports Table: (without sequence)



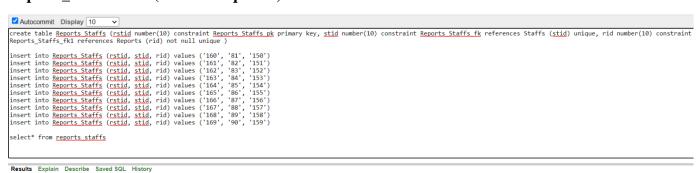
RID HAPPENING DATE

RID	HAPPENING_DATE
150	30-MAY-19
151	02-JUN-19
152	01-JAN-20
153	08-MAY-19
154	17-MAR-22
155	16-DEC-20
156	16-DEC-21
157	26-MAR-21
158	26-MAR-22
159	25-DEC-21

10 rows returned in 0.00 seconds

CSV Export

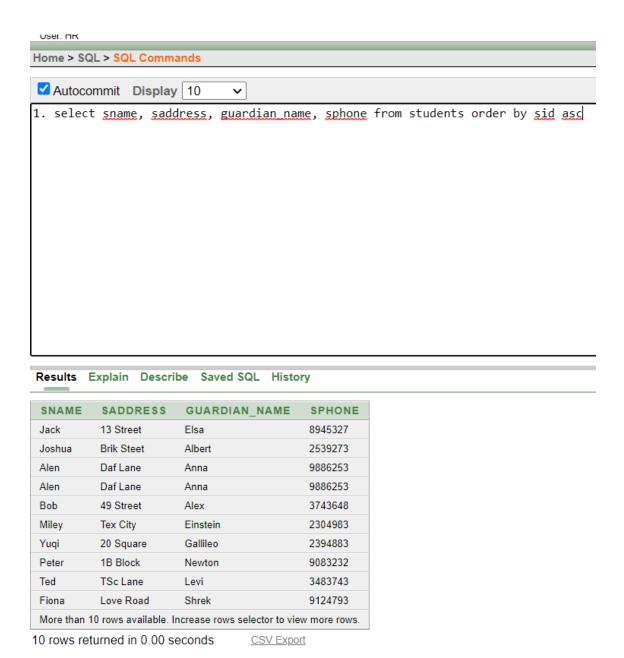
Reports_staffs table: (without sequence)



10 rows returned in 0.00 seconds

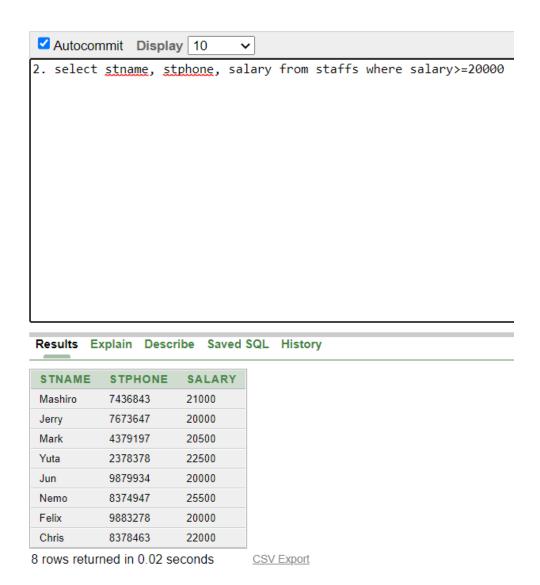
Query:

- 1. Display name, address, guardian's name, contact number of all students. Order the query in an ascending order by student IDs.
- select sname, saddress, guardian_name, sphone from students order by sid asc



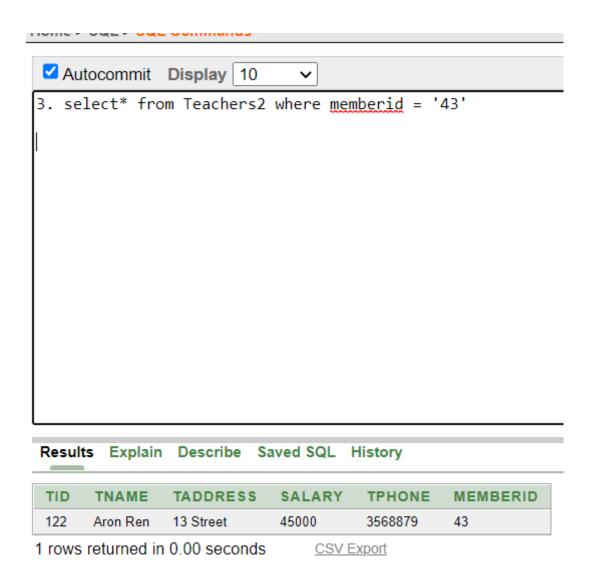
2. Display the name, phone number, salary of the staffs whose salary is more than or equal 20000.

- select stname, stphone, salary from staffs where salary>=20000



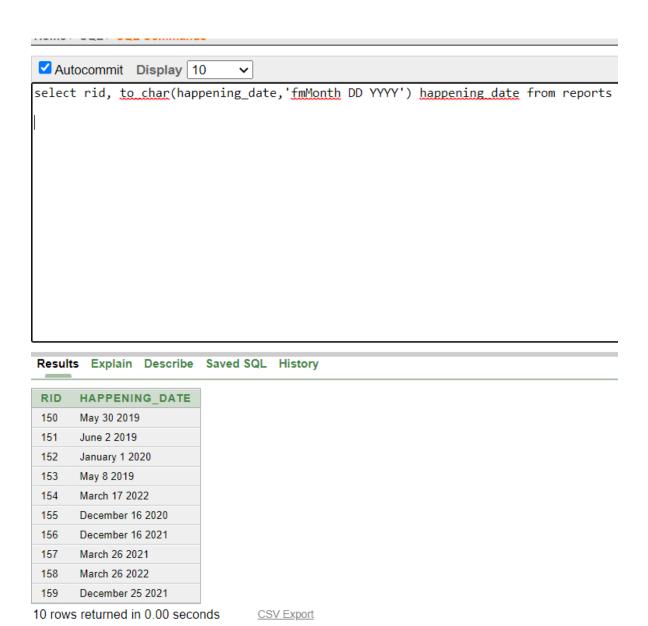
3. Display all information of the committee member from Teachers table whose member id is 43.

- select* from Teachers2 where memberid = '43'



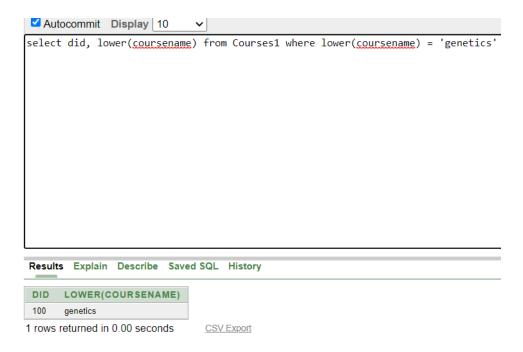
4. Display the report IDs and the happening dates when all reports were notified (in Month-DD-YYYY format).

- select rid, to_char(happening_date, 'fmMonth DD YYYY') happening_date from reports



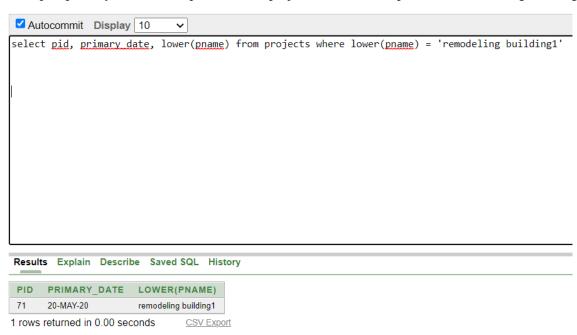
5. Find out the department ID, name of the course from Courses1 table where course name is genetics.

- select did, lower(coursename) from Courses1 where lower(coursename) = 'genetics'



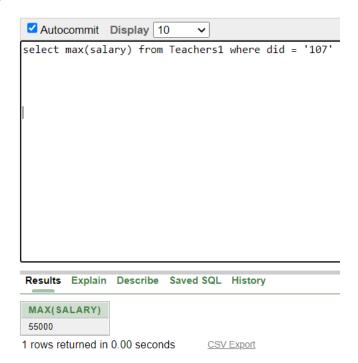
6. Find out the project id, primary_date, name of the project where project name is remodeling building 1.

- select pid, primary_date, lower(pname) from projects where lower(pname) = 'remodeling building1'



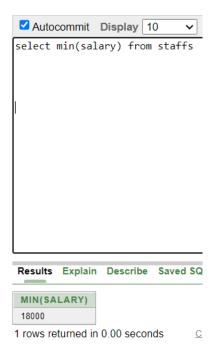
7. Find out the maximum salary of teachers where department id is 107.

- select max(salary) from Teachers1 where did = '107'



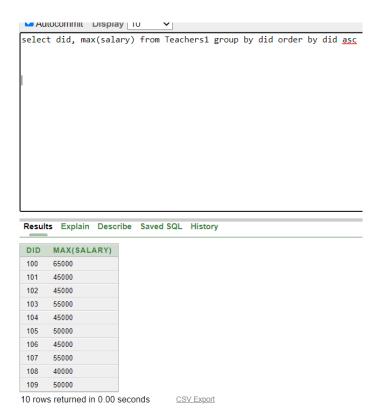
8. Find out the minimum salary of staffs.

- select min(salary) from staffs



9. Find out department id, maximum salary of teachers in an ascending order by department ID.

- select did, max(salary) from Teachers1 group by did order by did asc



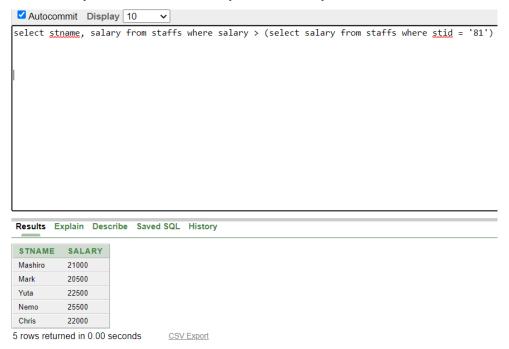
10. Find out student's name, sid of those students whose ID is same as Joshua's ID.

- select sname, sid from students where sid = (select sid from students where sname ='Joshua')



11. Display the name and salary for all staffs who earn more than staff ID 81.

- select stname, salary from staffs where salary > (select salary from staffs where stid = '81')



12. Display happening date for all reports who notified after report ID 153.

- select happening_date from reports where happening_date > (select happening_date from reports where rid = '153')



13. Display the teacher's name, salary for all teachers whose address is Tex City.

- select tname, salary from teachers 1 where taddress = ALL (select taddress from teachers 1 where taddress = 'Tex City')

select	tname,	salary	from	teachers1	where	taddress	= ALL	(select	taddress	from	teachers1	where	taddress =	' <u>Tex</u>	City')
l															
Results	Explair	n Descri	be Sa	aved SQL H	listory										
TNAM	E CAL	.ARY													
Ben Arth															
Caroline	6500	0													
2 rows re	eturned i	n 0 00 se	conds	CSV Ex	coort										

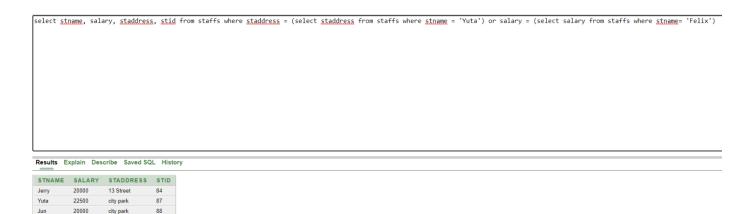
14. Find out staff's name, salary, address, stid of the staffs whose address is as same as Yuta's address or whose salary is same as Felix's.

- select stname, salary, staddress, stid from staffs where staddress = (select staddress from staffs where stname = 'Yuta') or salary = (select salary from staffs where stname= 'Felix')

city park

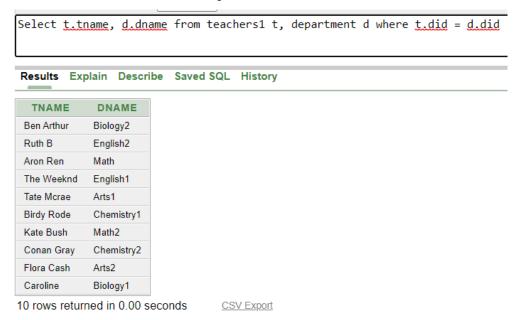
CSV Export

4 rows returned in 0.00 seconds



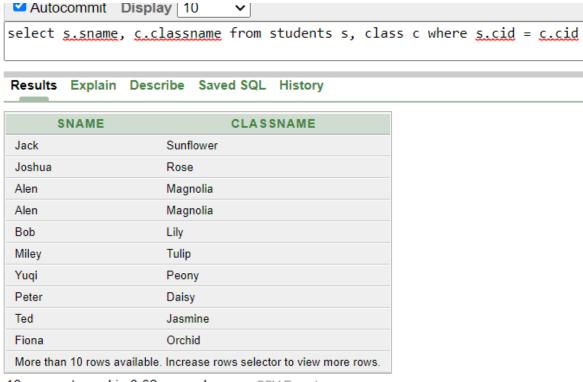
15. Display teachers' name and department name for each teacher.

-Select t.tname, d.dname from teachers1 t, department d where t.did = d.did



16. Display student's name and class name for each student.

- select s.sname, c.classname from students s, class c where s.cid = c.cid



10 rows returned in 0.02 seconds

17. Display staff's name, salary and report name for each staff.

- select st.stname, st.salary, r.happening_date from staffs st, report r where st.stid = r.stid

select p.pname, p.primary date, co.mname from projects p, committee co where p.memberid = co.memberid

Results	Explain	Describe	Saved SQL	- History
PN	AME	PRIMA	RY_DATE	MNAME
Remodeli	ng building1	20-MAY-2	20	Ben
Remodeli	ng building2	20-MAY-2	20	Ben
Lab equip	ment fill	19-MAY-2	21	Ruth
Playgrour	nd fix	20-MAY-2	20	Weeknd
Books rel	oad	20-MAY-2	22	Ben
Canteen	develop	20-AUG-	22	Aron
Furniture	Change	20-MAY-2	20	Ruth
Teacher F	Recruitment	20-FEB-2	2	Ben
Staff Rec	ruitment	20-FEB-2	.0	Tate
Admission	n Program	20-DEC-2	21	Ben
10 rows r	eturned in	0.00 seco	nds C	SV Export

18. Display section, classname for each course.

- select cou.section, c.classname from courses2 cou, class c where cou.cid = c.cid

select cou.section, c.classname from courses2 cou, class c where cou.cid = c.cid

Results	Explain	Describe	Saved SQL	History

SECTION	CLASSNAME
Α	Sunflower
Α	Lily
Α	Daisy
Α	Peony
Α	Dahlia
Α	Jasmine
Α	Orchid
Α	Magnolia
Α	Rose
Α	Tulip

10 rows returned in 0.00 seconds

19. Find out which student is in which class by displaying student's name, class name.

- select s.sname, c.classname from students s, class c where s.cid = c.cid

select <u>s.sname</u>, <u>c.classname</u> from students s, class c where <u>s.cid</u> = <u>c.cid</u> Results Explain Describe Saved SQL History SNAME CLASSNAME Jack Sunflower Joshua Rose Alen Magnolia Alen Magnolia Lily Bob Miley Tulip Yuqi Peony Peter Daisy Ted Jasmine Fiona Orchid More than 10 rows available. Increase rows selector to view more rows.

10 rows returned in 0.00 seconds

CSV Export

20. Create a view called STU VU based on the student ID, student's name and class ID from the students table. Display the contents of the STU_VU view.

- create view STU_VU as select sid, sname, cid from Students select* from STU_VU

Results Explain Describe Saved SQL

create view STU_VU as select sid, sname, cid from Students select* from STU VU

	Apiani Describe 3	
SID	SNAM	E CID
11	Jack	1
12	Joshua	2
13	Alen	3
14	Alen	3
15	Bob	4
16	Miley	5
17	Yuqi	6
18	Peter	7
19	Ted	8
20	Fiona	9
More than 10) rows available. Increase	rows selector to view more rows.

10 rows returned in 0.00 seconds