Project Report

INT-306 CA3

University management system

BY:

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Project objective:

In this project we are going to create multiple tables and form relations between them to get the required data from the tables.

There are six tables created for this project:

- Students

  This table contains the information of the students, the four attributes in this table are

  - NAME
  - ID
  - SCHOOL
  - Phone

- Staff

  This table contains the information of the staff, the four attributes in this table are

  - NAME
  - ID
  - Department
  - Phone
  - Salary

- Attendance

  This table contains the attendance record of the teachers and the students for one week. The eight attributes in this table are
  - ID
  - MONDAY
  - TUESDAY
  - WEDNESDAY
  - THURSDAY
  - FRIDAY
  - SATURDAY
- Games

  This table contains the game played by the students. This table only had two attributes
  - ID
  - GAME
- Midterm
  - ID
  - DBMS
  - DSA
  - R

- CA

  This table contains the marks of the two subjects of each student
  - ID
  - DBMS_CA_1
  - DBMS_CA_2
  - DSA_CA_1
  - DSA_CA_2
  - R_CA_1
  - R_CA_2
- Mentor

  This table contains the number of students a teacher is mentoring
  - ID
  - students

Tables created:

```
SQL> desc students;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------
 NAME                                               VARCHAR2(30)
 ID                                        NOT NULL NUMBER(10)
 PHONE                                              NUMBER(10)
 SCHOOL                                             VARCHAR2(20)
```

```
SQL> desc staff;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 NAME                                               VARCHAR2(30)
 ID                                        NOT NULL NUMBER(10)
 PHONE                                              NUMBER(10)
 DEPARTMENT                                         VARCHAR2(20)
 SALARY                                             NUMBER(7)
```

```
SQL> desc attandance;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ID                                        NOT NULL NUMBER(10)
 MONDAY                                             CHAR(1)
 TUESDAY                                            CHAR(1)
 WEDNESDAY                                          CHAR(1)
 THURSDAY                                           CHAR(1)
 FRIDAY                                             CHAR(1)
 SATURDAY                                           CHAR(1)
```

```
SQL> desc CA;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ID                                        NOT NULL NUMBER(10)
 DBMS_CA_1                                          NUMBER(2)
 DBMS_CA_2                                          NUMBER(2)
 DSA_CA_1                                           NUMBER(2)
 DSA_CA_2                                           NUMBER(2)
 R_CA_1                                             NUMBER(2)
 R_CA_2                                             NUMBER(2)
```

```
SQL> desc midterm
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DBMS                                               NUMBER(3)
 DSA                                                NUMBER(3)
 R                                                  NUMBER(3)
 ID                                        NOT NULL NUMBER(10)
```

```
SQL> desc games;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------
 ID                                        NOT NULL NUMBER(10)
 GAME                                               VARCHAR2(20)
```

All the tables have their ID attribute as their primary key as that is the only uniquely identifiable attribute in each of the table, and it is easier to form relations between the tables.

Check constraints are used for the phone column as well as the school and department column in the tables students and staff . Since the marks from the CA tables are all supposed to be less than 30, another check constraint is used

The constraints added can be checked using the command

```
Select constraint_name, constraint_type from user_constraints where
(table_name='students' OR table_name='staff' OR
table_name='attandance' OR table_name='CA' OR
table_name='midterm' OR table_name='games')
```

The constraints applied here are:

CONSTRAINT_NAME	C
STAFF_ID_PK	P
ATT_ID_PK	P
GAME_ID_PK	P
MID_PK	P
STUD_ID_PK	P
PK_CA_PK	P
STUD_SCHOOL	C
STAFF_DEPT	C
STUD_MARKS	C

DDL:

Creating tables:

- Create table students(Name varchar(30), ID number(10),Phone number(10),school varchar(20));
- Create table staff(Name varchar(30),ID number(10),phone number(10,school varchar(20));
- Create table attandance(Name varchar(30),ID Number(10),Monday char(1),Tuesday char(1),Wednesday char(1),Thursday char(1),Friday char(1),Saturday char(1));
- Create table CA(ID number(10), DBMS_CA_1 NUMBER(2),DBMS_CA_2,NUMBER(2),DSA_CA_1 NUMBER(2),DSA_CA_2 NUMBER(2),R_CA_1 NUMBER(2),R_CA_2 NUMBER(2));
- Create table midterm(DBMS NUMBER(3), DSA NUMBER(3), R NUMBER(3), ID NUMBER(10));
- Create table games(ID number(10),Game varchar(20));

Code to rename the school column to department in staff table

- Alter table staff rename column school to department

Code to Delete the Name attribute from the attendance table

- Alter table attandance drop column name

Code for constraints:

- alter table students add constraint stud_id_pk primary key(ID);
- alter table midterm add constraint mid_pk primary key(ID);
- alter table students add constraint school_check check(school in ('RA', 'Mech', 'EEE', 'Civil', 'BT', 'ECE', 'CSE'));

DML:

Code to insert values into Tables:

- insert into students values('Aaron Chase',2726,988568595,'CSE');
- Insert into staff values('Aileen Prince', 4924, 9127554993 ,'teacher', 400000);
- Insert into attandance values(1782, 1, 0, 1, 0, 1, 1);
- Insert into CA values(1189, 24, 22, 20, 28, 20, 27);
- Insert into midterm values(23, 26, 20, 1189);
- Insert into games values(1189,'Cricket');

Increase the salary of all the maintenance staff by 20000:

- Update staff set salary =salary+20000 where department=' maintenance';

Update salary of staff whose name starts with an A

- Update staff set salary =salary+1000 where name LIKE 'A%' ;

Decrease ₹1000 salary from staff whose id is even

- Update staff set salary=salary-1000 where mod(id)=0;

Delete the record of teacher with id 7533

- Delete from staff where id='7533';

Delete the record of student whose phone number is 9206152176

- Delete from students where phone=' 9206152176';

Delete the record of student who scored zero in any of the midterms:

- Delete from students where ID=(select ID from midterm where R=0 or DSA=0 or DBMS=0);

Tables:

NAME	ID	PHONE	SCHOOL
Aaron Chase	2726	9822991757	CSE
Anne Duke	7123	9380540388	Mech
Armando Byers	4177	9969152788	EEE
Ashton Holt	4845	9190742114	RA
Autumn Rice	8259	8501132988	Mech
Brent Koch	6557	8060712540	RA
Brett Mckinney	5257	9536425109	EEE
Brody Bartlett	7362	9749920832	EEE
Bruno Velazquez	3229	8010616898	EEE
Caleb Richard	8535	9517032880	CSE

NAME	ID	PHONE	DEPARTMENT	SALARY
Aileen Prince	4924	9127554993	teacher	400000
Akeem Bennett	8110	8840065267	teacher	400000
Azalia Larson	9570	8670100262	teacher	400000
Azalia Rasmussen	4550	9127899377	teacher	400000
Camille Fleming	9065	9636993723	teacher	400000
Cyrus Kim	3470	8622486322	Lab tech	250000
Damian Snow	3863	8935883897	management	300000
Galvin Acevedo	7834	8507830132	PE	200000
Gemma Wiggins	6053	9421440200	teacher	400000
Hedda Mcdaniel	7533	9676043791	teacher	400000

ID	M	T	W	T	F	S
1189	1	1	1	1	1	1
1234	1	1	1	1	0	1
1561	1	1	1	1	1	1
1569	0	1	0	1	0	1
1782	1	0	1	0	1	1
2382	1	1	0	1	1	1
2595	0	1	1	0	0	1
2726	1	1	1	1	0	1
2913	1	1	1	1	1	0
2937	1	1	1	1	0	1

ID	GAME
1189	Cricket
1234	Cricket
1561	football
1569	NULL
2382	football
2595	Cricket
2913	Cricket
2937	Cricket
3229	Chess
3244	football

DBMS	DSA	R	ID
23	26	20	1189
20	11	16	1234
15	14	30	1561
11	12	18	1569
20	24	25	1782
26	13	23	2382
11	19	21	2595
11	25	26	2726
28	26	23	2937
11	28	17	3061

ID	DBMS_CA_1	DBMS_CA_2	DSA_CA_1	DSA_CA_2	R_CA_1	R_CA_2
1189	24	22	20	28	20	27
1234	16	11	22	20	19	27
1561	17	22	29	17	12	23
1569	26	19	26	11	28	26
1782	14	22	17	10	17	10
2382	23	23	11	10	14	24
2595	10	30	17	16	26	14
2726	11	25	10	29	11	20
2937	28	12	11	15	14	20
3061	16	22	10	26	10	11

PL/SQL:

Find the total number of students in ECE:

```
1  declare num number:=0;
2  begin
3  select COUNT(ID) into num from students where school='EEE';
4  dbms_output.put_line('The total number of students in EEE '||num);
5* end;
```

Find the total marks of the student with ID:

```
1  declare total_marks number:=0;
2  begin
3  select R+DBMS+DSA into total_marks from midterm where id=3229;
4  dbms_output.put_line('The total marks obtained= '||total_marks);
5* end;
```

Write a function that will return the total number people present on that day:

```
1  create or replace function find_att(day number)
2  return number is
3  a number:=day;
4  cnt number:=-1;
5  begin
6      case a
7      when 1 then select COUNT(ID) into cnt from attandance where Monday='1';
8      when 2 then select COUNT(ID) into cnt from attandance where Tuesday='1';
9      when 3 then select COUNT(ID) into cnt from attandance where Wednesday='1';
10      when 4 then select COUNT(ID) into cnt from attandance where Thursday='1';
11      when 5 then select COUNT(ID) into cnt from attandance where Friday='1';
12      when 6 then select COUNT(ID) into cnt from attandance where Saturday='1';
13      else dbms_output.put_line('Wrong output');
14      end case;
15    return cnt;          16  end find_att;
```

Write a function which returns the total marks obtained in all the six CA's, the function must take the ID of the student as the input:

```
 1  create or replace function total_marks(a number(10))
 2  return number is
 3  cnt number:=0;
 4  roll number(10):=a;
 5  begin
 6  select DBMS_CA_1 + DBMS_CA_2 + DSA_CA_1 + DSA_CA_2 + R_CA_1 + R_CA_2
 7  into cnt from midterm where Id=roll;
 8  dbms_output.put_line('Total is '||cnt);
 9  return cnt;
10* end total_marks;
```

Count the number of students who failed in any midterm(pass mark:12):

```
 1  declare cnt number;
 2  begin
 3  select COUNT(ID) into cnt from midterm where (R<12 or DSA<12 or DBMS<12);
 4  dbms_output.put_line('The number of students who failed :'||cnt);
 5* end;
```