CREATING TABLES

Database Design for a University Organization

1. The university is organized into departments. Each department is identified by a unique name (*dept name*), is located in a particular *building*, and has a *budget*.

INPUT:

```sql
1  CREATE TABLE department (
2     dept_name VARCHAR(20) NOT NULL,
3     builidng VARCHAR(20) NOT NULL,
4     budget VARCHAR(20) NOT NULL
5  );
6  INSERT INTO department VALUES('Maths', 'Theory', 230000);
7  INSERT INTO department VALUES('Business', 'Big', 120000);
8  INSERT INTO department VALUES('Computer science', 'Network', 150000);
9  INSERT INTO department VALUES('Music', 'Sound', 9800);
10 SELECT * FROM department
```

OUTPUT:

DEPT_NAME	BUILIDNG	BUDGET
Maths	Theory	230000
Business	Big	120000
Computer science	Network	150000
Music	Sound	9800

2. Each department has a list of courses it offers. Each course has associated with it a *course id*, *title*, *dept name*, and *credits*, and may also have associated *prerequisites*.

INPUT:

```sql
1  CREATE TABLE courses (
2     course_id VARCHAR2(5),
3     title VARCHAR2(30),
4     dept_name VARCHAR2(30),
5     credits NUMBER(3),
6     prerequisites VARCHAR2(100)
7  );
8  INSERT INTO courses VALUES('MA01', 'Calculus', 'Mathematics', '16', 'None');
9  INSERT INTO courses VALUES('MA02', 'Algebra', 'Mathematics', '12', 'None');
10 INSERT INTO courses VALUES('MA03', 'Riemann Integral', 'Mathematics', '12', 'None');
11 INSERT INTO courses VALUES('MA04', 'Linear Programming Problem', 'Mathematics', '16', 'None');
12 SELECT * FROM courses
```

OUTPUT:

COURSE_ID	TITLE	DEPT_NAME	CREDITS	PREREQUISITES
MA01	Calculus	Mathematics	16	None
MA02	Algebra	Mathematics	12	None
MA03	Riemann Integral	Mathematics	12	None
MA04	Linear Programming Problem	Mathematics	16	None

3. Instructors are identified by their unique *ID*. Each instructor has *name,* associated department (*dept name*), and *salary.*

INPUT:

```
1   CREATE TABLE instructor (
2     name VARCHAR2(30),
3     salary NUMBER(13),
4     dept_name VARCHAR(50)
5   );
6   INSERT INTO instructor VALUES('Dipti', '30000', 'Mathematics');
7   INSERT INTO instructor VALUES('Mansimran', '40000', 'Mathematics');
8   INSERT INTO instructor VALUES('Priyanka', '35000', 'Mathematics');
9   INSERT INTO instructor VALUES('Prakriti', '44000', 'Mathematics');
10  SELECT * FROM instructor
```

OUTPUT:

NAME	SALARY	DEPT_NAME
Dipti	30000	Mathematics
Mansimran	40000	Mathematics
Priyanka	35000	Mathematics
Prakriti	44000	Mathematics

4. Students are identified by their unique *ID*. Each student has a *name,* an associated major department (*dept name*), and *tot cred* (total credit hours the student earned thus far).

INPUT:

```
1   CREATE TABLE students(
2       unique_id NUMBER(10) UNIQUE,
3       student_name VARCHAR2(30),
4       total_credit NUMBER(3),
5       dept_name VARCHAR2(50)
6   );
7   INSERT INTO students VALUES ('01', 'Jaanvi', '12', 'Mathematics');
8   INSERT INTO students VALUES ('02', 'Sharad', '09', 'Mathematics');
9   INSERT INTO students VALUES ('03', 'Pranjal', '11', 'Mathematics');
10  INSERT INTO students VALUES ('04', 'Anisha', '10', 'Mathematics');
11  SELECT * FROM students
```

OUTPUT:

UNIQUE_ID	STUDENT_NAME	TOTAL_CREDIT	DEPT_NAME
1	Jaanvi	12	Mathematics
2	Sharad	9	Mathematics
3	Pranjal	11	Mathematics
4	Anisha	10	Mathematics

5. The university maintains a list of classrooms, specifying the name of the *building, room number*, and room *capacity*.

INPUT:

```
1   CREATE TABLE classrooms(
2       building VARCHAR(20),
3       room_no NUMBER(3),
4       room_capacity NUMBER(3)
5   );
6   INSERT INTO classrooms VALUES('theory', '101', '90');
7   INSERT INTO classrooms VALUES('theory', '102', '90');
8   INSERT INTO classrooms VALUES('theory', '103', '90');
9   INSERT INTO classrooms VALUES('theory', '104', '90');
10  SELECT * FROM classrooms
```

OUTPUT:

BUILDING	ROOM_NO	ROOM_CAPACITY
theory	101	90
theory	102	90
theory	103	90
theory	104	90

6. The university maintains a list of all classes (sections) taught. Each section is identified by a *course id, sec id, year*, and *semester*.

INPUT:

```
1   CREATE TABLE sections(
2       course_ID VARCHAR2(20),
3       sec_ID VARCHAR2(20),
4       year NUMBER(4),
5       semester NUMBER(2)
6   );
7   INSERT INTO sections VALUES ('MA01','102','2018','1');
8   INSERT INTO sections VALUES ('MA02','202','2019','4');
9   INSERT INTO sections VALUES ('MA03','302','2020','3');
10  INSERT INTO sections VALUES ('MA04','402','2021','6');
11  SELECT * FROM sections
```

OUTPUT:

COURSE_ID	SEC_ID	YEAR	SEMESTER
MA01	102	2018	1
MA02	202	2019	4
MA03	302	2020	3
MA04	402	2021	6