Database Systems Cycle Sheet 1

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Table Creation

```
DROP TABLE PROFESSOR_DEPARTMENT;

DROP TABLE PROGRAMME;

DROP TABLE STUDENT_VISA;

DROP TABLE ENROLL;

DROP TABLE STUDENT;

DROP TABLE CLASS;

DROP TABLE SEMESTER;

DROP TABLE COURSE;

DROP TABLE DEPARTMENT;

DROP TABLE SCHOOL;

DROP TABLE PROFESSOR;

CREATE TABLE PROFESSOR(
    PROF_ID VARCHAR(10),
    PROF_NAME VARCHAR(50),
    EMAIL VARCHAR(50),
    MOBILE NUMBER,
    SPECIALITY VARCHAR(50),
    CONSTRAINT PROFESSOR_PROF_ID_PK PRIMARY KEY(PROF_ID),
    CONSTRAINT PROFESSOR_PROF_ID_LEN_5 CHECK(LENGTH(PROF_ID) = 5),
```

```
        CONSTRAINT PROFESSOR_MOBILE_NO_UNIQUE UNIQUE(MOBILE),
        CONSTRAINT PROFESSOR_EMAIL_UNIQUE UNIQUE(EMAIL),
        CONSTRAINT PROFESSOR_EMAIL_AT CHECK(EMAIL LIKE '%@%'),
        CONSTRAINT PROFESSOR_MOBILE_TEN CHECK(LENGTH(MOBILE) = 10)
);

CREATE TABLE SCHOOL(
    SCODE VARCHAR(10),
    SCL_NAME VARCHAR(50),
    PROF_ID VARCHAR(10),
    LOCATION VARCHAR(50),
    CONSTRAINT SCHOOL_SCODE_PK PRIMARY KEY(SCODE),
    CONSTRAINT SCHOOL_PROF_ID_FK FOREIGN KEY(PROF_ID) REFERENCES PROFESSOR(PROF_ID) ON DELETE CASCADE
);

CREATE TABLE DEPARTMENT(
    DEPT_ID VARCHAR(10),
    DNAME VARCHAR(50),
    SCODE VARCHAR(10),
    CONSTRAINT DEPARTMENT_DEPT_ID_PK PRIMARY KEY(DEPT_ID),
    CONSTRAINT DEPARTMENT_SCODE_FK FOREIGN KEY(SCODE) REFERENCES SCHOOL(SCODE) ON DELETE CASCADE
);

CREATE TABLE COURSE(
    CRS_CODE VARCHAR(10),
    CRS_NAME VARCHAR(50),
    DESCRIPTION VARCHAR(255),
    CREDITS NUMBER,
    HOURS NUMBER,
    CONSTRAINT COURSE_CRS_CODE_PK PRIMARY KEY(CRS_CODE)
);

CREATE TABLE SEMESTER(
    SEM_CODE VARCHAR(20),
    TERM VARCHAR(20),
    YEAR NUMBER,
    SDATE DATE,
    EDATE DATE,
    CONSTRAINT SEMESTER_SEM_CODE PRIMARY KEY(SEM_CODE),
    CONSTRAINT SEMESTER_SEM_CODE_START CHECK(SEM_CODE LIKE 'WIN%' OR SEM_CODE LIKE 'FALL%'),
    CONSTRAINT SEMESTER_TERM_ONLY CHECK(TERM LIKE 'Winter' OR TERM LIKE 'Fall')
);

CREATE TABLE CLASS(
    CLS_CODE VARCHAR(10),
    SLOT VARCHAR(10),
    STIME TIMESTAMP,
    ETIME TIMESTAMP,
    CRS_CODE VARCHAR(10),
    PROF_ID VARCHAR(10),
    ROOM_NO NUMBER,
    SEM_CODE VARCHAR(20),
    DAY_OF_WEEK VARCHAR(20),
    CONSTRAINT CLASS_CLS_CODE_PK PRIMARY KEY(CLS_CODE),
    CONSTRAINT CLASS_CRS_CODE_FK FOREIGN KEY(CRS_CODE) REFERENCES COURSE(CRS_CODE) ON DELETE CASCADE,
    CONSTRAINT CLASS_PROF_ID_FK FOREIGN KEY(PROF_ID) REFERENCES PROFESSOR(PROF_ID) ON DELETE CASCADE,
    CONSTRAINT CLASS_SEM_CODE_FK FOREIGN KEY(SEM_CODE) REFERENCES SEMESTER(SEM_CODE) ON DELETE CASCADE
);

CREATE TABLE STUDENT(
    REG_NO VARCHAR(10),
    SNAME VARCHAR(50),
    ADDRESS VARCHAR(100),
    DOB DATE,
    EMAIL VARCHAR(50),
    MOBILE NUMBER,
```

```
        DEPT_ID VARCHAR(10),
        PROF_ID VARCHAR(10),
        CONSTRAINT STUDENT_REG_NO_PK PRIMARY KEY(REG_NO),
        CONSTRAINT STUDENT_MOBILE_NO_UNIQUE UNIQUE(MOBILE),
        CONSTRAINT STUDENT_EMAIL_UNIQUE UNIQUE(EMAIL),
        CONSTRAINT STUDENT_EMAIL_AT CHECK(EMAIL LIKE '%@%'),
        CONSTRAINT STUDENT_MOBILE_TEN CHECK(LENGTH(MOBILE) = 10),
        CONSTRAINT STUDENT_DEPT_ID_FK FOREIGN KEY(DEPT_ID) REFERENCES DEPARTMENT(DEPT_ID) ON DELETE CASCADE,
        CONSTRAINT STUDENT_PROF_ID_FK FOREIGN KEY(PROF_ID) REFERENCES PROFESSOR(PROF_ID) ON DELETE CASCADE
);

CREATE TABLE ENROLL(
        CLS_CODE VARCHAR(10),
        REG_NO VARCHAR(10),
        ENROLL_TIME TIMESTAMP,
        GRADE VARCHAR(1),
        CONSTRAINT ENROLL_PK PRIMARY KEY(CLS_CODE, REG_NO),
        CONSTRAINT GRADE_IN CHECK (GRADE IN ('S', 'A', 'B', 'C', 'D', 'E', 'F')),
        CONSTRAINT ENROLL_CLS_CODE_FK FOREIGN KEY(CLS_CODE) REFERENCES CLASS(CLS_CODE) ON DELETE CASCADE,
        CONSTRAINT ENROLL_REG_NO_FK FOREIGN KEY(REG_NO) REFERENCES STUDENT(REG_NO) ON DELETE CASCADE
);

CREATE TABLE STUDENT_VISA(
        REG_NO VARCHAR(10),
        VISA_STATUS VARCHAR(10),
        CONSTRAINT STUDENT_VISA PRIMARY KEY(REG_NO),
        CONSTRAINT STUDENT_VISA_STATUS CHECK (VISA_STATUS IN ('ACCEPTED', 'REJECTED')),
        CONSTRAINT STUDENT_VISA_REG_NO_FK FOREIGN KEY(REG_NO) REFERENCES STUDENT(REG_NO) ON DELETE CASCADE
);

CREATE TABLE PROGRAMME(
        PROG_CODE VARCHAR(10),
        PROG_NAME VARCHAR(50),
        PROG_PREAMBLE VARCHAR(100),
        SCODE VARCHAR(10),
        DEPT_ID VARCHAR(10),
        CONSTRAINT PROGRAMME_PK PRIMARY KEY(PROG_CODE),
        CONSTRAINT PROGRAMME_SCODE_FK FOREIGN KEY(SCODE) REFERENCES SCHOOL(SCODE) ON DELETE CASCADE,
        CONSTRAINT PROGRAMME_DEPT_ID_FK FOREIGN KEY(DEPT_ID) REFERENCES DEPARTMENT(DEPT_ID) ON DELETE CASCADE
);
```

Value Insertion

```
INSERT INTO PROFESSOR VALUES(
    '&PROF_ID',
    '&PROF_NAME',
    '&EMAIL ',
    &MOBILE,
    '&SPECIALITY'
);

INSERT INTO SCHOOL VALUES(
    '&SCODE',
    '&SCL_NAME',
    '&PROF_ID ',
    '&LOCATION'
);
INSERT INTO DEPARTMENT VALUES(
    '&DEPT_ID',
```

```
        '&DNAME',
        '&SCODE '
);
INSERT INTO COURSE VALUES(
        '&CRS_CODE',
        '&CRS_NAME',
        '&DSECRIPTION ',
        &CREDITS,
        &HOURS
);
INSERT INTO SEMESTER VALUES(
        '&SEM_CODE',
        '&TERM',
        &YEAR,
        &SDATE,
        &EDATE
);
INSERT INTO CLASS VALUES(
        '&CLS_CODE',
        '&SLOT',
      '&STIME',
        '&ETIME',
        '&CRS_CODE ',
        '&PROF_ID ',
        &ROOM_NO,
        '&SEM_CODE ',
        '&DAY_OF_WEEK '
);
INSERT INTO STUDENT VALUES(
        '&REG_NO',
        '&SNAME',
        '&ADDRESS',
        '&DOB',
        '&EMAIL',
        &MOBILE,
        '&DEPT_ID',
        '&PROF_ID'
);
INSERT INTO ENROLL VALUES(
        '&CLS_CODE',
        '&REG_NO',
        '&GRADE'
);
INSERT INTO STUDENT_VISA VALUES(
        '&REG_NO,
        '&VISA_STATUS'
);
INSERT INTO PROGRAMME VALUES(
        '&PROG_CODE,
        '&PROG_NAME',
        '&PROG_PREAMBLE,
        '&SCODE',
        '&DEPT_ID',
);
```

Table View

```
SELECT * FROM PROGRAMME;
```

PROG_CODE	PROG_NAME	PROG_PREAMBLE	SCODE	DEPT_ID
MCA	Masters of Computer Application	We are Masters of Computer Application	SCH002	DEPT002

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```
SELECT * FROM PROFESSOR;
```

PROF_ID	PROF_NAME	EMAIL	MOBILE	SPECIALITY
PR001	John	prof_1@email.com	2228332282	Statistical Methods
PR002	Joseph	prof_2@email.com	2345187509	Magnet Networks
PR003	Rita	prof_3@email.com	1321115090	Neurosurgery
PR004	Nandini	prof_4@email.com	1245120566	Oncology
PR005	Christopher	prof_5@email.com	2353415125	Computer Science
PR006	O'Brien	obrien@email.com	6782392334	Lobotomy

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6 rows selected.

```
SELECT * FROM SCHOOL;
```

SCODE	SCL_NAME	PROF_ID	LOCATION
SCH001	School of Statistics	PR001	SJT
SCH002	School of Computer Science	PR002	TT
SCH003	School of Medicine	PR003	SMV

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3 rows selected.

```
SELECT * FROM DEPARTMENT;
```

DEPT_ID	DNAME	SCODE
DEPT001	STATISTICS	SCH001
DEPT002	NETWORKS	SCH002
DEPT003	BURN	SCH003

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3 rows selected.

```
SELECT * FROM COURSE;
```

CRS_CODE	CRS_NAME	DESCRIPTION	CREDITS	HOURS
CRS002	COURSE_2	THIS IS THE COURSE 2	4	60
CRS003	COURSE_3	THIS IS THE COURSE 3	5	150
CRS001	COURSE_1	THIS IS THE COURSE 1	2	40
DBMS	Database Systems	This is database systems	8	60
JP	Java Programming	This is programming in Java	10	100

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5 rows selected.

```
SELECT * FROM SEMESTER;
```

SEM_CODE	TERM	YEAR	SDATE	EDATE
WIN23	Winter	2023	01-NOV-23	01-MAR-24
FALL22	Fall	2022	01-APR-22	20-SEP-22
FALL23	Fall	2023	01-APR-23	20-SEP-23
FALL24	Fall	2024	01-APR-24	20-SEP-24
WIN24	Winter	2024	01-NOV-24	01-MAR-25

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5 rows selected.

```
SELECT * FROM CLASS;
```

CLS_CODE	SLOT	STIME	ETIME	CRS_CODE	PROF_ID	ROOM_NO	SEM_CODE	DAY_OF_WEEK
CLS002	C2/G1	10:00:00	12:00:00	CRS002	PR002	104	FALL22	Wednesday
CLS001	A1/B1	14:00:00	17:00:00	CRS001	PR001	101	WIN23	Wednesday
CLS003	T1/A1	08:00:00	10:00:00	CRS003	PR004	105	FALL22	Friday
CLS004	B1/A1	12:00:00	14:00:00	DBMS	PR005	113	FALL23	Tuesday
CLS006	E2/A1	13:00:00	14:00:00	DBMS	PR006	124	WIN24	Tuesday

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5 rows selected.

```
SELECT * FROM STUDENT;
```

REG_NO	SNAME	ADDRESS	DOB	EMAIL	MOBILE	DEPT_ID	PROF_ID
22001	Srijan Dutta	VIT University, Katpadi, Vellore, Tamil Nadu	18-APR-02	srijan@email.com	9988776655	DEPT001	PR001
22002	Aman Pandey	Sukhi Nagar, Kanpur, Uttar Pradesh	02-FEB-01	aman@email.com	6289657566	DEPT001	PR001
22003	Soumi Kar	221B, Baker Street, London	31-JAN-01	soumi@email.com	9235908490	DEPT002	PR002
22004	Sayandeep Dey	Vidhigaon, Nainital, Uttarakhand	04-FEB-02	sdey@email.com	9355345829	DEPT003	PR004
22005	Sayantan Das	Mallikpara	25-MAY-02	sdas@email.com	7895634587	DEPT003	PR004

Download CSV

5 rows selected.

```
SELECT * FROM ENROLL;
```

CLS_CODE	REG_NO	ENROLL_TIME	GRADE
CLS001	22002	10:31:50	C
CLS002	22001	14:31:25	A
CLS003	22002	06:35:00	D
CLS004	22003	07:35:00	F
CLS006	22004	12:00:37	B

Download CSV

5 rows selected.

```
SELECT * FROM STUDENT_VISA;
```

REG_NO	VISA_STATUS
22003	ACCEPTED

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Questions and Answers

1 Display name, email address and address for those students who live in Katpadi area .

```
SELECT
    SNAME,
    EMAIL,
    ADDRESS
FROM
    STUDENT
WHERE
    ADDRESS LIKE '%Katpadi%';
```

SNAME	EMAIL	ADDRESS
Srijan Dutta	srijan@email.com	VIT University, Katpadi, Vellore, Tamil Nadu

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2 Display name, email address and address for those students who are not from Tamil Nadu.

```
SELECT
    SNAME,
    EMAIL,
    ADDRESS
FROM
    STUDENT
WHERE
    ADDRESS NOT LIKE '%Tamil Nadu%';
```

SNAME	EMAIL	ADDRESS
Aman Pandey	aman@email.com	Sukhi Nagar, Kanpur, Uttar Pradesh
Soumi Kar	soumi@email.com	Astit Colony, Shantipur, West Bengal
Sayandeep Dey	sdey@email.com	Vidhigaon, Nainital, Uttarakhand
Sayantan Das	sdas@email.com	Mallikpara

Download CSV

4 rows selected.

3 Display name, email address and address of foreign students only.
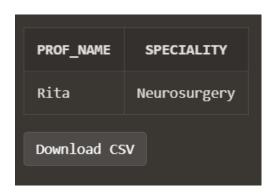
```
SELECT
    STUDENT.SNAME,
    STUDENT.EMAIL,
    STUDENT.ADDRESS
FROM
    STUDENT
    INNER JOIN STUDENT_VISA
    ON STUDENT.REG_NO = STUDENT_VISA.REG_NO;
```

SNAME	EMAIL	ADDRESS
Soumi Kar	soumi@email.com	221B, Baker Street, London

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4 List the name of professors along with their specialty who belong to the School of Medicine.

```
SELECT
    PROFESSOR.PROF_NAME,
    PROFESSOR.SPECIALITY
FROM
    PROFESSOR
```

```
    INNER JOIN SCHOOL
    ON SCHOOL.SCL_NAME = 'School of Medicine'
    AND SCHOOL.PROF_ID = PROFESSOR.PROF_ID;
```

PROF_NAME	SPECIALITY
Rita	Neurosurgery

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5 Display name of the school and name of professor who chairs the school.

```
SELECT
    SCHOOL.SCL_NAME,
    PROFESSOR.PROF_NAME
FROM
    PROFESSOR
    INNER JOIN SCHOOL
    ON SCHOOL.PROF_ID = PROFESSOR.PROF_ID;
```

SCL_NAME	PROF_NAME
School of Statistics	John
School of Computer Science	Joseph
School of Medicine	Rita

Download CSV

3 rows selected.