

1

```
CREATE TABLE STUDENTS(  
STUDENTID CHAR(11) UNIQUE PRIMARY KEY,  
FIRSTNAME VARCHAR(20) NOT NULL,  
LASTNAME VARCHAR(20) NOT NULL,  
GENDER CHAR(1) NOT NULL,  
DATEOFBIRTH DATE NOT NULL  
);
```

```
CREATE TABLE COURSES(  
COURSECODE VARCHAR(6) UNIQUE PRIMARY KEY,  
COURSENAME VARCHAR(70) NOT NULL,  
LEVEL CHAR(2),  
CREDITS INT NOT NULL  
);
```

```
CREATE TABLE REGISTRATION(  
STUDENTID CHAR(11) NOT NULL,  
COURSECODE VARCHAR(6) NOT NULL,  
GRADE DECIMAL(2, 1) NOT NULL,  
PRIMARY KEY (STUDENTID, COURSECODE),  
FOREIGN KEY (STUDENTID) REFERENCES STUDENTS(STUDENTID) ON DELETE CASCADE ON UPDATE  
CASCADE,  
FOREIGN KEY (COURSECODE) REFERENCES COURSES(COURSECODE) ON DELETE CASCADE ON UPDATE  
CASCADE  
);
```

2

```
INSERT INTO STUDENTS VALUES ('861103-2438', 'Adam', 'Johnson', 'M', '1990-10-01'),  
( '911212-1746', 'Eva', 'Smith', 'F', '1991-08-20'),  
( '950829-1848', 'Anna', 'Washington', 'F', '1993-09-26'),  
( '123456-0980', 'Eric', 'Alonzo', 'M', '1990-05-26'),  
( '908023-2456', 'Bo', 'Ek', 'M', '1992-03-15'),  
( '098735-3456', 'Danny', 'Goss', 'M', '1992-02-01'),  
( '124345-3430', 'Mike', 'White', 'M', '1995-06-10'),  
( '124568-1345', 'Emily', 'Young', 'F', '1995-04-28'),  
( '908409-0010', 'Cathy', 'Lee', 'F', '1993-10-06'),  
( '124587-9088', 'Ben', 'Woo', 'M', '1992-11-30'),  
( '120953-0909', 'Anna', 'Washington', 'F', '1990-10-09'),  
( '120449-1008', 'John', 'Goss', 'M', '1995-10-26');
```

```
INSERT INTO COURSES VALUES ('CS056', 'Database Systems', 'G1', 5),  
( 'CS010', 'C++', 'U1', 5),  
( 'ENG111', 'English', 'U1', 3),  
( 'FIN052', 'Finance', 'G1', 5),  
( 'PHY210', 'Physics', 'U2', 5),  
( 'CHE350', 'Chemistry', 'U3', 5),  
( 'BI0001', 'Biology', 'U1', 3),  
( 'CS052', 'Operating Systems', 'G1', 5);
```

```
INSERT INTO REGISTRATION VALUES ('861103-2438', 'CS056', 4),  
( '861103-2438', 'CS010', 4),  
( '861103-2438', 'PHY210', 3.5),  
( '911212-1746', 'ENG111', 2),  
( '950829-1848', 'CHE350', 3),
```

```
('950829-1848', 'BI0001', 2.5),
('123456-0980', 'CS052', 3.5),
('123456-0980', 'CS056', 4),
('908023-2456', 'PHY210', 3.0),
('908023-2456', 'CS056', 1.0),
('908023-2456', 'CS010', 2.0),
('124345-3430', 'FIN052', 2.5),
('124345-3430', 'CHE350', 4),
('908409-0010', 'CS052', 2),
('124587-9088 ', 'BI0001', 4),
('124587-9088 ', 'CS052', 3.5);
```

3

```
SELECT FIRSTNAME, LASTNAME
FROM STUDENTS
ORDER BY LASTNAME, FIRSTNAME;
```

4

```
SELECT STUDENTID, FIRSTNAME, LASTNAME, DATEOFBIRTH
FROM STUDENTS
WHERE (GENDER = 'F' AND DATEOFBIRTH < '1992-12-31');
```

5

```
SELECT COUNT(*) FROM REGISTRATION
WHERE COURSECODE = 'CS052';
```

6

```
SELECT COUNT(COURSECODE) FROM COURSES
WHERE COURSECODE LIKE 'CS%';
```

7

```
SELECT COURSECODE, COURSENAME FROM COURSES
WHERE (LEVEL = 'G1' AND CREDITS = 5);
```

8

```
SELECT LEVEL, COUNT(*) FROM COURSES
GROUP BY LEVEL;
```

9

```
SELECT AVG(GRADE) FROM REGISTRATION
WHERE STUDENTID = '861103-2438';
```

10

```
SELECT STUDENTID FROM REGISTRATION
WHERE COURSECODE = 'CS052' AND GRADE = (SELECT MAX(GRADE) FROM REGISTRATION WHERE
COURSECODE = 'CS052');
```

11

```
SELECT COURSECODE FROM REGISTRATION
```

```
WHERE (STUDENTID = '123456-0980' AND '861103-2438');
```

```
# 12
```

```
SELECT STUDENTID, FIRSTNAME, LASTNAME FROM STUDENTS  
WHERE STUDENTID NOT IN (SELECT STUDENTID FROM REGISTRATION);
```

```
# 13
```

```
SELECT STUDENTID, SUM(GRADE), AVG(GRADE) FROM REGISTRATION  
GROUP BY STUDENTID  
HAVING AVG(GRADE) < 3;
```

```
# 14
```

```
SELECT STUDENTID, COUNT(*) AS NUM_COURSES FROM REGISTRATION  
GROUP BY STUDENTID  
ORDER BY NUM_COURSES DESC LIMIT 1;
```

```
# 15
```

```
SELECT STUDENTID FROM REGISTRATION  
WHERE COURSECODE = 'PHY210' OR COURSECODE = 'BI0001';
```

```
# 16
```

```
SELECT STUDENTID FROM STUDENTS  
WHERE DATEOFBIRTH = (SELECT MAX(DATEOFBIRTH) FROM STUDENTS);
```

```
# 17
```

```
SELECT COUNT(STUDENTID) FROM STUDENTS  
WHERE STUDENTID NOT IN (SELECT STUDENTID FROM REGISTRATION WHERE COURSECODE =  
'CS056');
```

```
SELECT STUDENTID FROM REGISTRATION WHERE NOT 'CS056';
```

```
# 18
```

```
UPDATE COURSES SET CREDITS = 6 WHERE (COURSECODE LIKE 'CS%%%' AND CREDITS = 5);
```

```
# 19
```

```
DELETE FROM STUDENTS WHERE STUDENTID = '908409-0010';
```