

Project Part 3

Translate the logical data model for the Oracle Enterprise DBMS. (12/09/21)

- a) Develop SQL code to create the entire database schema, reflecting the constraints identified in previous steps.

```
CREATE TABLE Department (  
    dept_id varchar(5) NOT NULL,  
    department_name varchar(20) NOT NULL,  
    chair_first_name varchar(15),  
    chair_last_name varchar (15),  
    numb_of_faculty int,  
    PRIMARY KEY(dept_id)  
);  
  
CREATE TABLE Major (  
    major_code varchar(3) NOT NULL CHECK (Length(major_code) =3),  
    major_name varchar(20) NOT NULL,  
    dept_id varchar(5) NOT NULL,  
    PRIMARY KEY(major_code),  
    FOREIGN KEY(dept_id) REFERENCES Department  
);  
  
CREATE TABLE Event (  
    event_id varchar(5) NOT NULL,  
    event_name varchar(20) NOT NULL,  
    /* Setting current date to Nov 30 , 2021 */  
    startDate date NOT NULL CHECK (startDate>to_date('2021-10-10','yyyy-dd-mm')),  
    endDate date NOT NULL,  
    PRIMARY KEY(event_id)  
);  
  
ALTER TABLE Event ADD CONSTRAINT  
    dateCheck CHECK (endDate>startDate) ENABLE  
;  
  
CREATE TABLE Student (  
    stu_id INT NOT NULL CHECK(stu_id <1000000000 AND stu_id > 999999999),  
    first_name varchar(15) NOT NULL,  
    last_name varchar(15) NOT NULL,
```

```
initials varchar(3) NOT NULL CHECK (Length(initials)>1) ,  
PRIMARY KEY(stu_id)  
);
```

```
CREATE TABLE Hosting_event(  
dept_id varchar(5) NOT NULL,  
event_id varchar(5) NOT NULL,  
PRIMARY KEY(dept_id,event_id),  
FOREIGN KEY(dept_id) REFERENCES Department,  
FOREIGN KEY(event_id) REFERENCES Event  
);
```

```
CREATE TABLE Attending_event(  
stu_id INT NOT NULL  
CHECK(stu_id <1000000000 AND stu_id > 999999999),  
event_id varchar(5) NOT NULL,  
PRIMARY KEY(stu_id,event_id),  
FOREIGN KEY(stu_id) REFERENCES Student,  
FOREIGN KEY(event_id) REFERENCES Event  
);
```

```
CREATE TABLE Declaring_major(  
stu_id INT NOT NULL  
CHECK(stu_id <1000000000 AND stu_id > 999999999),  
major_code varchar(3) NOT NULL,  
PRIMARY KEY(stu_id,major_code),  
FOREIGN KEY(stu_id) REFERENCES Student,  
FOREIGN KEY(major_code) REFERENCES Major  
);
```

b) Create at least 5 tuples for each relation in your database.

```
INSERT INTO Department VALUES ('bio12','Molecular Biology','John','Doe','15');  
INSERT INTO Department VALUES ('mth11','Applied Mathematics','Issac','Newton','10');  
INSERT INTO Department VALUES ('arch1','Architechture','Frank','Wright','25');  
INSERT INTO Department VALUES ('eng01','English Literature','Walt','Whitman','35');  
INSERT INTO Department VALUES ('csc01','Computer Science','Odelia','Schwartz','27');
```

```
INSERT INTO Major VALUES ('bio','Biology','bio12');  
INSERT INTO Major VALUES ('mth','Mathematics','mth11');  
INSERT INTO Major VALUES ('csc','Computer Science','csc01');
```

INSERT INTO Major VALUES ('eng','Creative Writting','eng01');

INSERT INTO Major VALUES ('arc','Architecture','arch1');

INSERT INTO Event VALUES ('com22','Comencement 2022','08 AUG 2022', '09 AUG 2022');

INSERT INTO Event VALUES ('fai22','Expo Fair 2022','09 SEP 2022', '16 SEP 2022');

INSERT INTO Event VALUES ('ftr22','Food Trucks December','09 DEC 2021', '16 DEC 2021');

INSERT INTO Event VALUES ('art01','Art Basel UM','20 OCT 2021', '24 OCT 2021');

INSERT INTO Event VALUES ('bk003','Discount Books Sales','20 JAN 2022', '20 FEB 2022');

INSERT INTO Student VALUES ('123456789','Tom','Vega','TV');

INSERT INTO Student VALUES ('103456789','Jane','Smith','JS');

INSERT INTO Student VALUES ('100456789','John','Doe','JD');

INSERT INTO Student VALUES ('100056789','Rob','Garcia','RG');

INSERT INTO Student VALUES ('100006789','Lynn','Johnston','LJ');

INSERT INTO Hosting_event VALUES ('bio12','fai22');

INSERT INTO Hosting_event VALUES ('bio12','ftr22');

INSERT INTO Hosting_event VALUES ('arch1','art01');

INSERT INTO Hosting_event VALUES ('mth11','bk003');

INSERT INTO Hosting_event VALUES ('eng01','bk003');

INSERT INTO Attending_event VALUES ('123456789','fai22');

INSERT INTO Attending_event VALUES ('123456789','ftr22');

INSERT INTO Attending_event VALUES ('103456789','art01');

INSERT INTO Attending_event VALUES ('123456789','bk003');

INSERT INTO Attending_event VALUES ('100006789','bk003');

INSERT INTO Declaring_major VALUES ('123456789','csc');

INSERT INTO Declaring_major VALUES ('103456789','bio');

INSERT INTO Declaring_major VALUES ('100456789','mth');

INSERT INTO Declaring_major VALUES ('100056789','eng');

INSERT INTO Declaring_major VALUES ('100006789','csc');

c) Develop 5 SQL queries using embedded SQL (see Python tutorial).

*/*List the details of students that are attending a named event*/*

```
SELECT s.*  
FROM Student s, Event e, Attending_event a  
WHERE s.stu_id=a.stu_id  
AND a.event_id=e.event_id  
AND e.event_name='Discount Books Sales';
```

STU_ID	FIRST_NAME	LAST_NAME	INITIALS
123456789	Tom	Vega	TV
100006789	Lynn	Johnston	LJ

*/*Count the number of Majors offered by department. List by major count and department name*/*

```
SELECT count(major_code) AS Major_count, department_name  
FROM Major m, Department d  
WHERE d.dept_id=m.dept_id  
GROUP BY major_code, department_name  
ORDER BY count(major_code);
```

MAJOR_COUNT	DEPARTMENT_NAME
1	Molecular Biology
1	Applied Mathematics
1	Architechture
1	English Literature
1	Computer Science

*/*List events being hosted by named department. */*

```
SELECT event_name, department_name AS hosted_by  
FROM Department d, Event e, Hosting_event h  
WHERE e.event_id=h.event_id  
AND d.dept_id=h.dept_id  
AND d.department_name='English Literature';
```

EVENT_NAME	HOSTED_BY
Discount Books Sales	English Literature

/*Find the events being attended by a named student and also list the same student's major (or majors). */

```
SELECT first_name, last_name, event_name, major_name
FROM Student s, Event e, Attending_event a, Declaring_major d, Major m
WHERE s.stu_id=a.stu_id
AND e.event_id=a.event_id
AND s.stu_id=d.stu_id
AND d.major_code=m.major_code
AND s.first_name='Tom'
AND s.last_name='Vega';
```

FIRST_NAME	LAST_NAME	EVENT_NAME	MAJOR_NAME
Tom	Vega	Expo Fair 2022	Computer Science
Tom	Vega	Food Trucks December	Computer Science
Tom	Vega	Discount Books Sales	Computer Science

/*List the chair name for every department. */

```
SELECT chair_first_name, chair_last_name, department_name
FROM Department
```

CHAIR_FIRST_NAME	CHAIR_LAST_NAME	DEPARTMENT_NAME
John	Doe	Molecular Biology
Issac	Newton	Applied Mathematics
Frank	Wright	Architechture
Walt	Whitman	English Literature
Odelia	Schwartz	Computer Science

d) Upload all the code and documentation to GitHub

<https://github.com/tomv5001/CSC423>