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 CHECK (department name LIKE 'Department%'),
  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 > 99999999),
  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 > 99999999),
  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 > 99999999),
  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','Department of Molecular Biology','John','Doe','15');
INSERT INTO Department VALUES ('mth11','Department of Applied Mathematics','Issac','Newton','10');
INSERT INTO Department VALUES ('arch1','Department of Architechture','Frank','Wright','25');
INSERT INTO Department VALUES ('eng01','Department of English Literature','Walt','Whitman','35');
INSERT INTO Department VALUES ('csc01','Department of Computer Science','Odelia','Schwartz','27');
        select * from Department
      dept_id
                    department_name
                                            chair_first_name
                                                             chair_last_name
                                                                             numb_of_faculty
   1 bio12
             Department of Molecular Biology
                                           John
                                                            Doe
                                                                                          15
   2 mth11
             Department of Applied Mathematics Issac
                                                            Newton
                                                                                          10
   3 arch1
             Department of Architechture
                                           Frank
                                                            Wright
                                                                                          25
             Department of English Literature
                                           Walt
                                                            Whitman
                                                                                          35
   4 eng01
             Department of Computer Science
```

Odelia

Schwartz

27

5 csc01

```
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');
```

select * from Major			
	major_code	major_name	dept_id
L	bio	Biology	bio12
2	mth	Mathematics	mth11
3	CSC	Computer Science	csc01
1	eng	Creative Writting	eng01
	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');

1	selec	t * from Event	from Event		
	event_id	event_name	startDate	endDate	
1	com22	Comencement 2022	08-08-2022	09-08-2022	
2	fai22	Expo Fair 2022	09-09-2022	16-09-2022	
3	ftr22	Food Trucks December	09-12-2021	16-12-2021	
4	art01	Art Basel UM	20-10-2021	24-10-2021	
5	bk003	Discount Books Sales	20-01-2022	20-02-2022	

```
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');
```

1 select * from Student

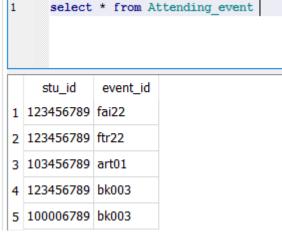
	stu_id	first_name	last_name	initials
1	123456789	Tom	Vega	TV
2	103456789	Jane	Smith	JS
3	100456789	John	Doe	JD
4	100056789	Rob	Garcia	RG
5	100006789	Lynn	Johnston	ט

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');

1 select * from Hosting_event

	dept_id	event_id
1	bio12	fai22
2	bio12	ftr22
3	arch1	art01
4	mth11	bk003
5	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');

1	select	* from Decl	aring_major
	stu_id	major_code	
1	123456789	CSC	
2	103456789	bio	
3	100456789	mth	
4	100056789	eng	
5	100006789	CSC	

- c) Develop 5 SQL queries using embedded SQL (see Python tutorial).
 - 1. List the details of students that are attending a named event

```
SELECT s.*
2
     FROM Student s, Event e, Attending event a
3
     WHERE s.stu_id=a.stu_id
     AND a.event id=e.event id
5
     AND e.event_name='Discount Books Sales';
    stu_id
             first_name
                         last_name
                                    initials
1 123456789 Tom
                        Vega
                                   TV
2 100006789 Lynn
                        Johnston
                                   U
```

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

```
1
      SELECT count(major_code) AS Major_count, department_name
2
      FROM Major m, Department d
3
      WHERE d.dept id=m.dept id
      GROUP BY major code, department name
      ORDER BY count(major_code);
5
6
   Major_count
                        department_name
              1 Department of Architechture
1
2
              1 Department of Molecular Biology
              1 Department of Computer Science
3
              1 Department of English Literature
4
5
              1 Department of Applied Mathematics
```

3. List events being hosted by named department.

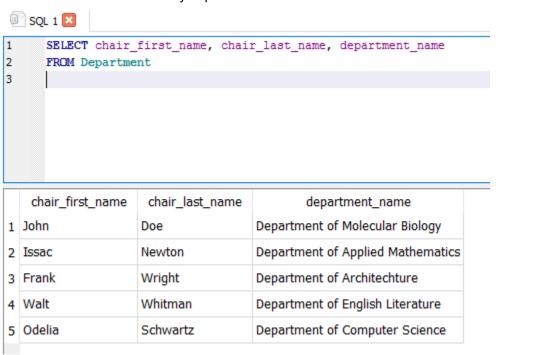
```
SELECT event_name, department_name AS hosted_by
FROM Department d, Event e, Hosting_event h
WHERE e.event_id=h.event_id
AND d.dept_id=h.dept_id
AND d.department_name='Department of English Literature';

event_name hosted_by
Discount Books Sales Department of English Literature
```

4. 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
2
      FROM Student s, Event e, Attending event a, Declaring major d, Major m
3
      WHERE s.stu id=a.stu id
      AND e.event id=a.event id
5
      AND s.stu id=d.stu id
6
      AND d.major code=m.major code
7
      AND s.first_name='Tom'
8
      AND s.last name='Vega';
   first_name
               last_name
                              event_name
                                                major_name
1 Tom
              Vega
                         Expo Fair 2022
                                              Computer Science
                         Food Trucks December | Computer Science
2 Tom
              Vega
              Vega
                         Discount Books Sales
                                              Computer Science
3 Tom
```

5. List the chair name for every department.



 d) Upload all the code and documentation to GitHub https://github.com/tomv5001/CSC423