DBMS ASSIGNMENT – 6

Roll Number: U19CS012

Name: BHAGYA VINOD RANA

1.) Create the Following Table

A.) Employee

Attribute	Information
Empno	Identifies the Employee's
Emp_name	Employee name & Cannot be blank
Emp_Join_Date	Date of Join of employee & Default is the system date
Emp_Status	Employee status & Can be either P, C or R

B.) Project

Attribute	Information
Project_Code	Identifies the projects
Project_Description	Name of the project. Cannot be blank and have to be unique
Project_Start_Date	Start date of the project. Cannot be blank
Project_End_Date	End date of the project

C.) Project Allocation

Attribute	Information
Project Code	Project Code
Empno	Employee number
Emp_Proj_Alloc_Date	Employee project allocation date
Emp_Proj_Release_Date	Employee project release date

Insert the Given Data into the Database.

Initial Table:

EMPLOYEE TABLE

emp_no	emp_name	emp_join_date	emp_status
101	Jhonny	2005-07-01	C
116	Nayak	2005-08-16	C
202	Meera	2006-01-30	C
205	Ravi	2006-02-11	C
304	Hari	2006-11-25	P
307	Nancy	2007-01-15	P
403	Nick	2007-01-21	P

PROJECT TABLE

proj_code	proj_name	proj_start_date	proj_end_date
P001	Environment Pollution	2005-08-02	2006-12-11
P002	Learning Curve	2006-02-01	2006-03-15
P003	Effects of IT	2007-01-03	NULL

PROJECT_ALLOCATION TABLE

rproj_code	remp_no	emp_proj_alloc_date	emp_proj_release_date
P001	101	2005-08-01	2006-12-11
P001	116	2005-08-16	2006-12-11
P002	202	2006-02-01	2007-01-14
P002	307	2007-01-15	NULL
P002	205	2006-02-11	NULL
P003	403	2005-01-21	NULL
P003	304	2006-01-03	NULL
P003	101	2007-01-03	NULL
P003	116	2006-01-03	NULL
P003	202	2007-01-15	NULL

SQL-Code [SQLite 3.29.0]:

```sql
BEGIN TRANSACTION;

CREATE TABLE EMPLOYEE(
    emp_no INTEGER PRIMARY KEY,
    emp_name TEXT NOT NULL,
    -- YEAR MONTH DAY [Important Mistake]
    emp_join_date DATE DEFAULT CURRENT_DATE,
    emp_status VARCHAR(1)
    -- No Semicolon at End of Last Attribute
);

CREATE TABLE PROJECT(
    proj_code TEXT PRIMARY KEY,
    proj_name TEXT NOT NULL UNIQUE,
    -- YEAR MONTH DAY [Important Mistake]
    proj_start_date DATE NOT NULL,
    proj_end_date DATE
    -- No Semicolon at End of Last Attribute
);

CREATE TABLE PROJ_ALLOC(
    rproj_code TEXT,
    remp_no  INTEGER,
    -- YEAR MONTH DAY [Important Mistake]
    emp_proj_alloc_date DATE,
    emp_proj_release_date DATE
    -- No Semicolon at End of Last Attribute
);

INSERT INTO EMPLOYEE VALUES(101, 'Jhonny', '2005-07-01', 'C');
INSERT INTO EMPLOYEE VALUES(116, 'Nayak', '2005-08-16', 'C');
INSERT INTO EMPLOYEE VALUES(202, 'Meera', '2006-01-30', 'C');
INSERT INTO EMPLOYEE VALUES(205, 'Ravi', '2006-02-11', 'C');
INSERT INTO EMPLOYEE VALUES(304, 'Hari', '2006-11-25', 'P');
INSERT INTO EMPLOYEE VALUES(307, 'Nancy', '2007-01-15', 'P');
INSERT INTO EMPLOYEE VALUES(403, 'Nick', '2007-01-21', 'P');

INSERT INTO PROJECT VALUES('P001', 'Environment Pollution', '2005-08-02', '2006-12-11');
INSERT INTO PROJECT VALUES('P002', 'Learning Curve', '2006-02-01', '2006-03-15');
INSERT INTO PROJECT VALUES('P003', 'Effects of IT', '2007-01-03', NULL);

INSERT INTO PROJ_ALLOC VALUES('P001', 101, '2005-08-01', '2006-12-11');
INSERT INTO PROJ_ALLOC VALUES('P001', 116, '2005-08-16', '2006-12-11');
INSERT INTO PROJ_ALLOC VALUES('P002', 202, '2006-02-01', '2007-01-14');
INSERT INTO PROJ_ALLOC VALUES('P002', 307, '2007-01-15', NULL);
INSERT INTO PROJ_ALLOC VALUES('P002', 205, '2006-02-11', NULL);
INSERT INTO PROJ_ALLOC VALUES('P003', 403, '2005-01-21', NULL);
INSERT INTO PROJ_ALLOC VALUES('P003', 304, '2006-01-03', NULL);
```

```sql
INSERT INTO PROJ_ALLOC VALUES('P003', 101, '2007-01-03', NULL);
INSERT INTO PROJ_ALLOC VALUES('P003', 116, '2006-01-03', NULL);
INSERT INTO PROJ_ALLOC VALUES('P003', 202, '2007-01-15', NULL);

-- Saving the Work
COMMIT;

-----------------------------------------------------------------------

-- For Output Formatting [Human Understandable Form] in SQLite

.mode column
.headers on
.separator ROW "\n"
.nullvalue NULL

-----------------------------------------------------------------------

-- SELECT * FROM EMPLOYEE;
-- SELECT * FROM PROJECT;
-- SELECT * FROM PROJ_ALLOC;

-
- 1. List all the project names along with the employee names to whom the project is assigned
.
SELECT DISTINCT P.proj_name AS PROJECT_NAME,E.emp_name AS EMPLOYEE_NAME
FROM EMPLOYEE E, PROJECT P, PROJ_ALLOC R
WHERE (E.emp_no = R.remp_no) AND (P.proj_code = R.rproj_code)
ORDER BY P.proj_code;

-- 2. Display the name of employees whose status is confirmed.
SELECT emp_name AS EMPLOYEE_NAME
FROM EMPLOYEE
WHERE emp_status='C';

-- For Checking
SELECT emp_name AS EMPLOYEE_NAME,emp_status AS EMPLOYEE_STATUS
FROM EMPLOYEE
WHERE emp_status='C';

-- 3. List the employees who have joined in the month of November.
SELECT *
FROM EMPLOYEE
WHERE strftime('%m',emp_join_date) = '11';

-- 4. List the projects which have started after 1st Jan 2006.
SELECT *
FROM PROJECT
WHERE proj_start_date>'2006-01-01';
```

```sql
-- 5. List all the employees who are working for the project entitled 'Effects of IT'.
SELECT E.emp_no AS EMPLOYEE_NO, E.emp_name AS EMPLOYEE_NAME
FROM EMPLOYEE E, PROJECT P,PROJ_ALLOC R
WHERE (P.proj_name = 'Effects of IT') AND (P.proj_code = R.rproj_code) AND (R.remp_no = E.emp
_no);

-- 6. List all the projects that are not yet completed.
SELECT *
FROM PROJECT
WHERE proj_end_date IS NULL;

-- 7. Display the Employees who are released from project having code P002.
SELECT E.emp_no AS EMPLOYEE_NO, E.emp_name AS EMPLOYEE_NAME
FROM EMPLOYEE E, PROJECT P, PROJ_ALLOC R
WHERE (P.proj_code = 'P002') AND (R.emp_proj_release_date IS NOT NULL) AND (P.proj_code = R.r
proj_code) AND (R.remp_no = E.emp_no);

-- 8. Count and display the number of days it took for the completion of project P002.
SELECT (julianday(proj_end_date)-julianday(proj_start_date)) AS DAYS_TAKEN_P002
FROM PROJECT
WHERE proj_code='P002';

-
- 9. List the name of employees along with the number of days they have worked for projects a
llocated to them.
SELECT E.emp_no,E.emp_name,P.proj_name,(CASE
    WHEN  R.emp_proj_release_date IS NOT NULL
        THEN (julianday(R.emp_proj_release_date)-julianday(R.emp_proj_alloc_date))
    -- Any Reference Date can be Chosen, Here 1st Jan, 2009
    ELSE (julianday('2009-01-01')-julianday(R.emp_proj_alloc_date))
        END) AS DAYS_TAKEN
FROM EMPLOYEE E, PROJECT P, PROJ_ALLOC R
WHERE (P.proj_code = R.rproj_code) AND (R.remp_no = E.emp_no);

-- 10. Add a column Manager_id in the Projects table.
-- <NOT TO BE COMMENTED>
ALTER TABLE PROJECT ADD manager_id;
-- SELECT * FROM PROJECT;

-- 11. Update the Projects table with the following data:
-- Don't Forget to Uncomment the Query 10 to add manager_id to Table [Online Editor]
-- <NOT TO BE COMMENTED>
UPDATE PROJECT SET manager_id = 101 WHERE proj_code = 'P001';
UPDATE PROJECT SET manager_id = 202 WHERE proj_code = 'P002';
UPDATE PROJECT SET manager_id = 116 WHERE proj_code = 'P003';
-- SELECT * FROM PROJECT;

-
- 12. A new project entitled "Election Rage" which will be starting on 1st March 2007 has bee
n received.
```

```sql
--  Add these details in Projects table.
-- <NOT TO BE COMMENTED>
INSERT INTO PROJECT (proj_code, proj_name, proj_start_date) VALUES('P004','Election Rage','20
07-03-01');
-- SELECT * FROM PROJECT;


-
- 13. Project named “Effects of IT” is cancelled. Remove its details from the Projects table.

-- DELETE FROM PROJECT WHERE proj_name='Effects of IT';
-- SELECT * FROM PROJECT;


-
- 14. List the projects with a time duration of more than 13 months [1yr + 1 month = 365 + 30
 days = 395 days].
SELECT P.proj_code, P.proj_name, Q.DAYS_TAKEN/30 AS 'AVERAGE MONTHS'
FROM PROJECT AS P, (
    SELECT P1.proj_code,( CASE
    WHEN P1.proj_end_date IS NOT NULL
        THEN (julianday(P1.proj_end_date)-julianday(P1.proj_start_date))
    ELSE
        (julianday('2009-01-01')-julianday(P1.proj_start_date))
    END) AS DAYS_TAKEN
    FROM PROJECT AS P1
) AS Q
WHERE (DAYS_TAKEN>(394)) AND (Q.proj_code = P.proj_code);


-
- 15. List the number of employees, project wise who have worked on the project in Feb – 2007
.
SELECT P.proj_code, P.proj_name, COUNT(FEB_WORK.remp_no) AS NUMBER_OF_EMPLOYEES
FROM (
    SELECT remp_no, rproj_code
    FROM PROJ_ALLOC
    WHERE (emp_proj_alloc_date <= '2007-02-
01') AND ((emp_proj_release_date IS NULL) OR (emp_proj_release_date>='2007-02-28'))
) AS FEB_WORK, PROJECT AS P
WHERE (FEB_WORK.rproj_code = P.proj_code) GROUP BY FEB_WORK.rproj_code;
```

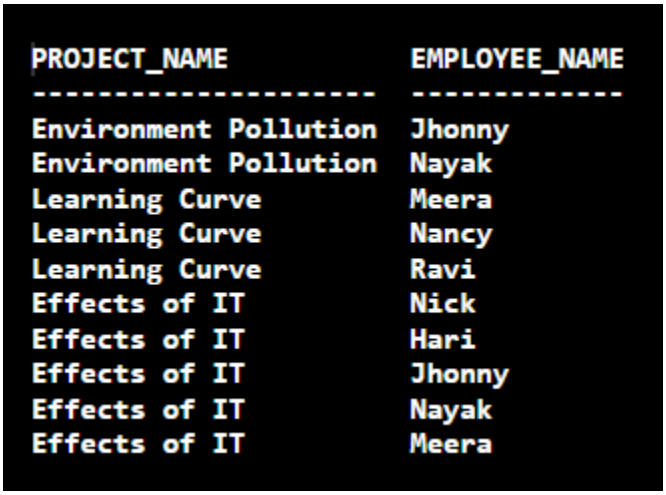
Q. Write queries for the following:

1. List all the project names along with the employee names to whom the project is assigned.

Query:

```
SELECT DISTINCT P.proj_name AS PROJECT_NAME,E.emp_name AS EMPLOYEE_NAME
FROM EMPLOYEE E, PROJECT P, PROJ_ALLOC R
WHERE (E.emp_no = R.remp_no) AND (P.proj_code = R.rproj_code)
ORDER BY P.proj_code;
```

Output:



PROJECT_NAME	EMPLOYEE_NAME
Environment Pollution	Jhonny
Environment Pollution	Nayak
Learning Curve	Meera
Learning Curve	Nancy
Learning Curve	Ravi
Effects of IT	Nick
Effects of IT	Hari
Effects of IT	Jhonny
Effects of IT	Nayak
Effects of IT	Meera

2. Display the name of employees whose status is confirmed.

Query:

```
SELECT emp_name AS EMPLOYEE_NAME
FROM EMPLOYEE
WHERE emp_status='C';
```

For Checking:

```
SELECT emp_name AS EMPLOYEE_NAME,emp_status AS EMPLOYEE_STATUS
FROM EMPLOYEE
WHERE emp_status='C';
```

Output:

EMPLOYEE_NAME
Jhonny
Nayak
Meera
Ravi

EMPLOYEE_NAME	EMPLOYEE_STATUS
Jhonny	C
Nayak	C
Meera	C
Ravi	C

3. List the employees who have joined in the month of November.

Query:

```
SELECT *
FROM EMPLOYEE
WHERE strftime('%m',emp_join_date) = '11';
```

Output:

emp_no	emp_name	emp_join_date	emp_status
304	Hari	2006-11-25	P

4. List the projects which have started after 1st Jan 2006.

Query:

```
SELECT *
FROM PROJECT
WHERE proj_start_date>'2006-01-01';
```

Output:

proj_code	proj_name	proj_start_date	proj_end_date
P002	Learning Curve	2006-02-01	2006-03-15
P003	Effects of IT	2007-01-03	NULL

5. List all the employees who are working for the project entitled 'Effects of IT'.

Query:

```
SELECT E.emp_no AS EMPLOYEE_NO, E.emp_name AS EMPLOYEE_NAME
FROM EMPLOYEE E, PROJECT P,PROJ_ALLOC R
WHERE (P.proj_name = 'Effects of IT') AND (P.proj_code = R.rproj_code) AND (R.remp_no = E.emp
_no);
```

Output:

EMPLOYEE_NO	EMPLOYEE_NAME
403	Nick
304	Hari
101	Jhonny
116	Nayak
202	Meera

6. List all the projects that are not yet completed.

Query:

```
SELECT * FROM PROJECT WHERE proj_end_date IS NULL;
```

Output:

proj_code	proj_name	proj_start_date	proj_end_date
P003	Effects of IT	2007-01-03	NULL

7. Display the Employees who are released from project having code P002.

Query:

```
SELECT E.emp_no AS EMPLOYEE_NO, E.emp_name AS EMPLOYEE_NAME
FROM EMPLOYEE E, PROJECT P, PROJ_ALLOC R
WHERE (P.proj_code = 'P002') AND (R.emp_proj_release_date IS NOT NULL) AND (P.proj_code = R.r
proj_code) AND (R.remp_no = E.emp_no);
```

Output:

EMPLOYEE_NO	EMPLOYEE_NAME
202	Meera

8. Count and display the number of days it took for the completion of project P002.

Query:

```
SELECT (julianday(proj_end_date)-julianday(proj_start_date)) AS DAYS_TAKEN_P002
FROM PROJECT
WHERE proj_code='P002';
```

Output:

```
DAYS_TAKEN_P002
---------------
42.0
```

9. List the name of employees along with the number of days they have worked for projects allocated to them.

Query:

```
SELECT E.emp_no,E.emp_name,P.proj_name,(CASE
    WHEN  R.emp_proj_release_date IS NOT NULL
        THEN (julianday(R.emp_proj_release_date)-julianday(R.emp_proj_alloc_date))
    -- Any Reference Date can be Chosen, Here 1st Jan, 2009
    ELSE (julianday('2009-01-01')-julianday(R.emp_proj_alloc_date))
        END) AS DAYS_TAKEN
FROM EMPLOYEE E, PROJECT P, PROJ_ALLOC R
WHERE (P.proj_code = R.rproj_code) AND (R.remp_no = E.emp_no);
```

Output:

```
emp_no      emp_name    proj_name             DAYS_TAKEN
----------  ----------  --------------------  ----------
101         Jhonny      Environment Pollution  497.0
116         Nayak       Environment Pollution  482.0
202         Meera       Learning Curve         347.0
307         Nancy       Learning Curve         717.0
205         Ravi        Learning Curve         1055.0
403         Nick        Effects of IT          1441.0
304         Hari        Effects of IT          1094.0
101         Jhonny      Effects of IT          729.0
116         Nayak       Effects of IT          1094.0
202         Meera       Effects of IT          717.0
```

10. Add a column Manager_id in the Projects table.

Query:

```
ALTER TABLE PROJECT ADD manager_id;
SELECT * FROM PROJECT;
```

Output:

proj_code	proj_name	proj_start_date	proj_end_date	manager_id
P001	Environment Pollution	2005-08-02	2006-12-11	NULL
P002	Learning Curve	2006-02-01	2006-03-15	NULL
P003	Effects of IT	2007-01-03	NULL	NULL

11. Update the Projects table with the following data:

Project_Code	Manager_ID
P001	101
P002	202
P003	116

Query:

```
UPDATE PROJECT SET manager_id = 101 WHERE proj_code = 'P001';
UPDATE PROJECT SET manager_id = 202 WHERE proj_code = 'P002';
UPDATE PROJECT SET manager_id = 116 WHERE proj_code = 'P003';
SELECT * FROM PROJECT;
```

Output:

proj_code	proj_name	proj_start_date	proj_end_date	manager_id
P001	Environment Pollution	2005-08-02	2006-12-11	101
P002	Learning Curve	2006-02-01	2006-03-15	202
P003	Effects of IT	2007-01-03	NULL	116

12. A new project entitled "Election Rage" which will be starting on 1st March 2007 has been received. Add these details in Projects table.

Query:

```
INSERT INTO PROJECT (proj_code, proj_name, proj_start_date) VALUES('P004','Election Rage','20
07-03-01');
SELECT * FROM PROJECT;
```

Output:

proj_code	proj_name	proj_start_date	proj_end_date
P001	Environment Pollution	2005-08-02	2006-12-11
P002	Learning Curve	2006-02-01	2006-03-15
P003	Effects of IT	2007-01-03	NULL
P004	Election Rage	2007-03-01	NULL

13. Project named "Effects of IT" is cancelled. Remove its details from the Projects table.

Query:

```
DELETE FROM PROJECT WHERE proj_name='Effects of IT';
SELECT * FROM PROJECT;
```

Output:

proj_code	proj_name	proj_start_date	proj_end_date
P001	Environment Pollution	2005-08-02	2006-12-11
P002	Learning Curve	2006-02-01	2006-03-15
P004	Election Rage	2007-03-01	NULL

14. List the projects with a time duration of more than 13 months.

Query:

```
SELECT P.proj_code, P.proj_name, Q.DAYS_TAKEN/30 AS 'AVERAGE MONTHS'
FROM PROJECT AS P, (
    SELECT P1.proj_code,( CASE
    WHEN P1.proj_end_date IS NOT NULL
        THEN (julianday(P1.proj_end_date)-julianday(P1.proj_start_date))
    ELSE
        (julianday('2009-01-01')-julianday(P1.proj_start_date))
    END) AS DAYS_TAKEN
    FROM PROJECT AS P1
) AS Q
WHERE (DAYS_TAKEN>(394)) AND (Q.proj_code = P.proj_code);
```

Output:

proj_code	proj_name	AVERAGE MONTHS
P001	Environment Pollution	16.5333333333333
P003	Effects of IT	24.3
P004	Election Rage	22.4

15. List the number of employees, project wise who have worked on the project in Feb – 2007. [Question 13 Query Commented]

Query:

```
SELECT P.proj_code, P.proj_name, COUNT(FEB_WORK.remp_no) AS NUMBER_OF_EMPLOYEES
FROM (
    SELECT remp_no, rproj_code
    FROM PROJ_ALLOC
    WHERE (emp_proj_alloc_date <= '2007-02-
01') AND ((emp_proj_release_date IS NULL) OR (emp_proj_release_date>='2007-02-28'))
) AS FEB_WORK, PROJECT AS P
WHERE (FEB_WORK.rproj_code = P.proj_code) GROUP BY FEB_WORK.rproj_code;
```

Output:

proj_code	proj_name	NUMBER_OF_EMPLOYEES
P002	Learning Curve	2
P003	Effects of IT	5

Submitted By:

BHAGYA VINOD RANA

U19CS012