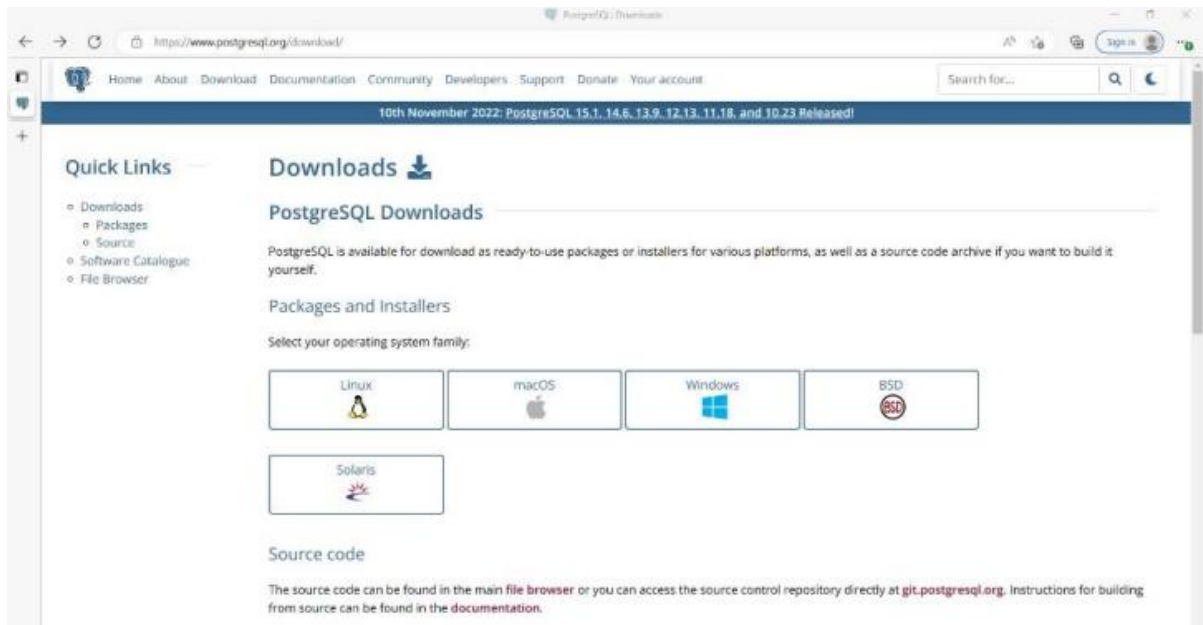


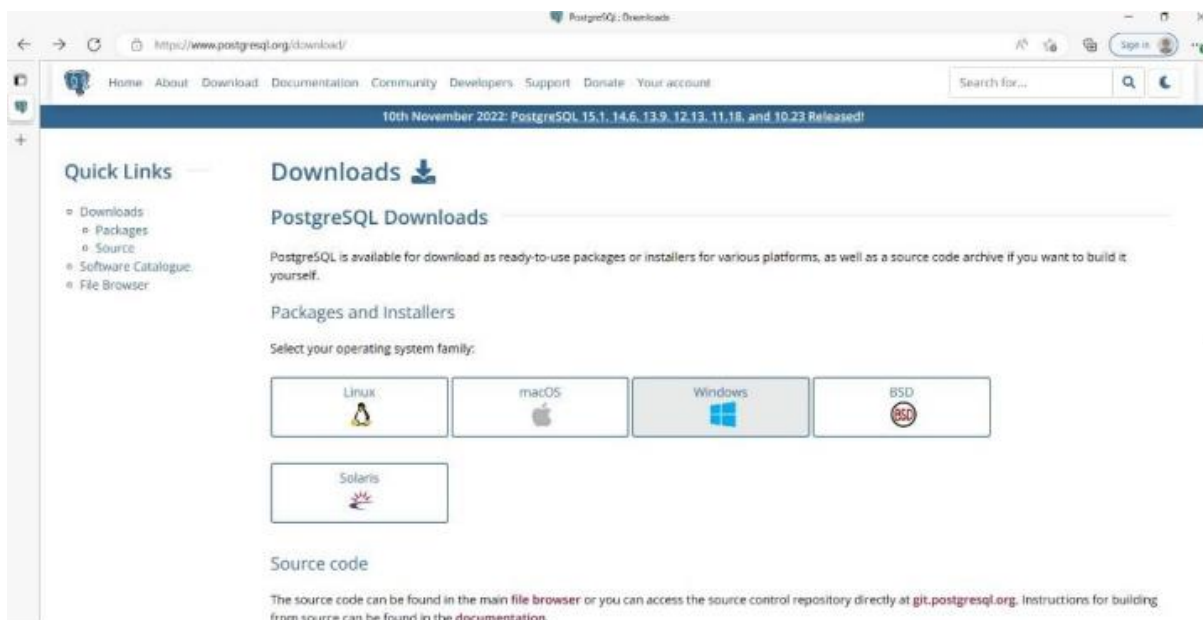
# Practical 1

**Aim:** Installing PostgreSQL in Windows 10

1. Go to: <https://www.postgresql.org/download/>



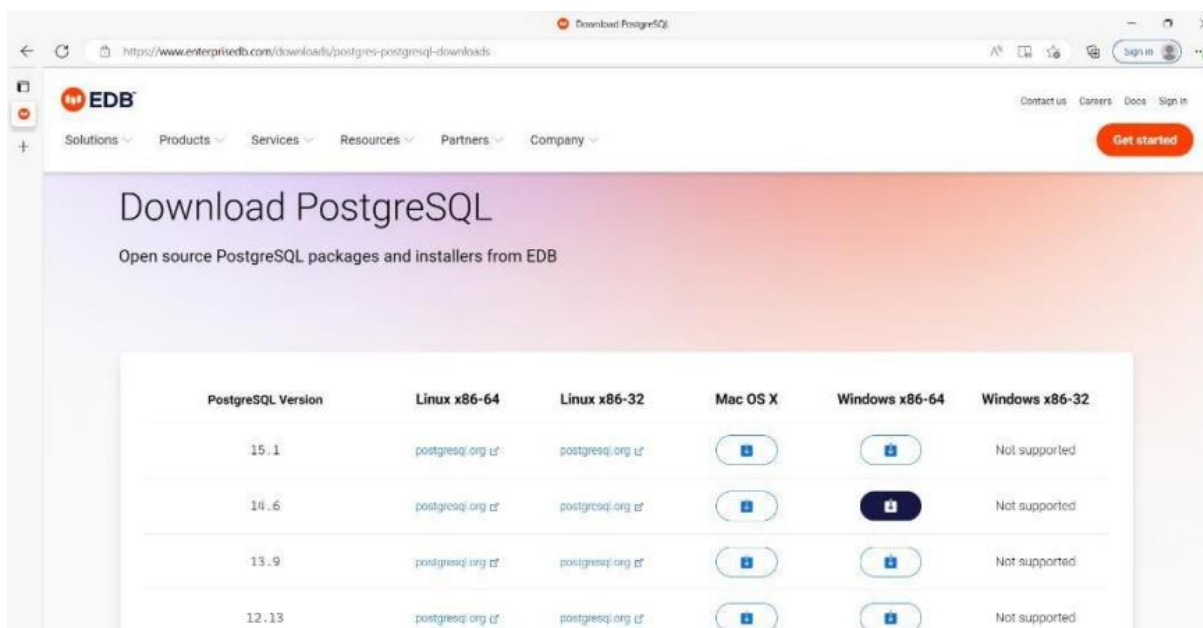
2. Click on Windows.



3. Then, you will be taken to the page as shown below:



4. Click on Download the installer, and you will see the page shown below:

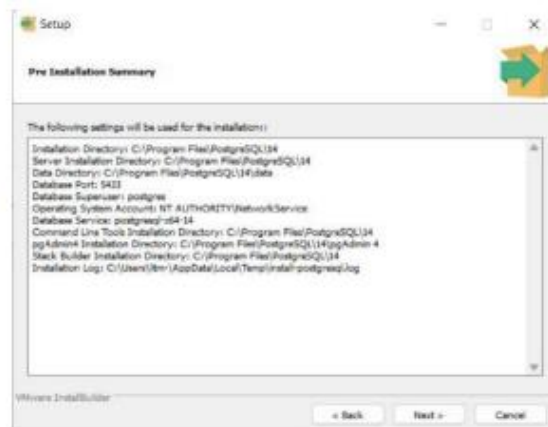
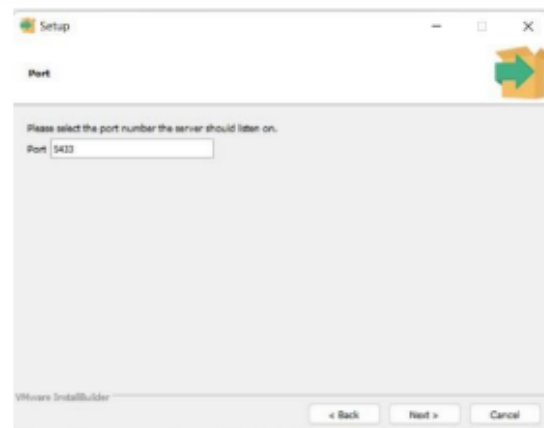
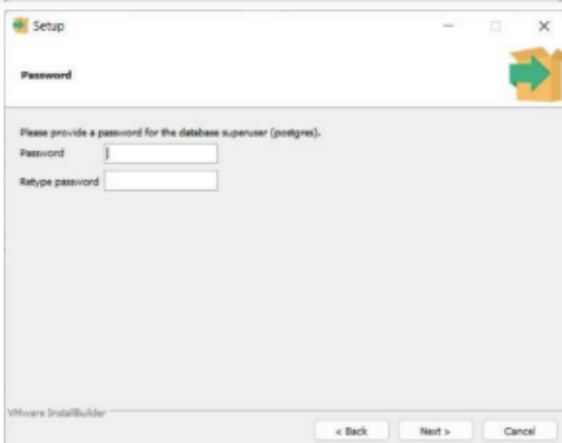


5. Click the download button for PostgreSQL 14.6, Windows x86-64 (or Windows x86-32, based on the architecture). Note: For demo, we will be installing PostgreSQL v14.6. You can install v14.

6. Save the postgresql-14.6-2-windows-x64.exe in a folder.

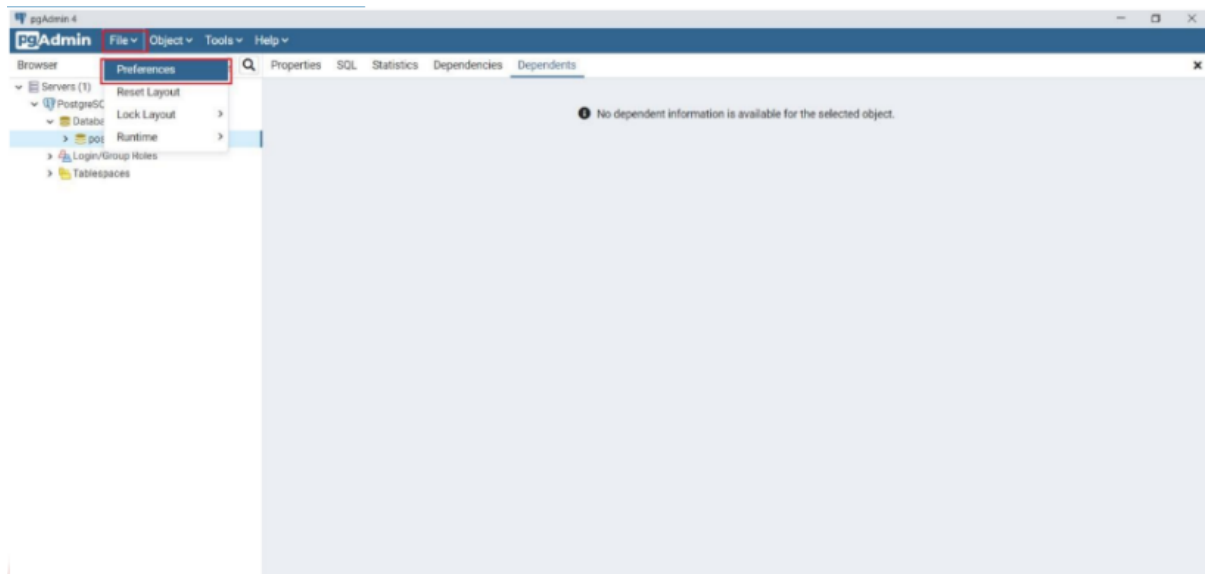
7. Double-click the .exe file to proceed with the installation.

8. Follow the instructions on the screen. The below screenshots provide a guideline.

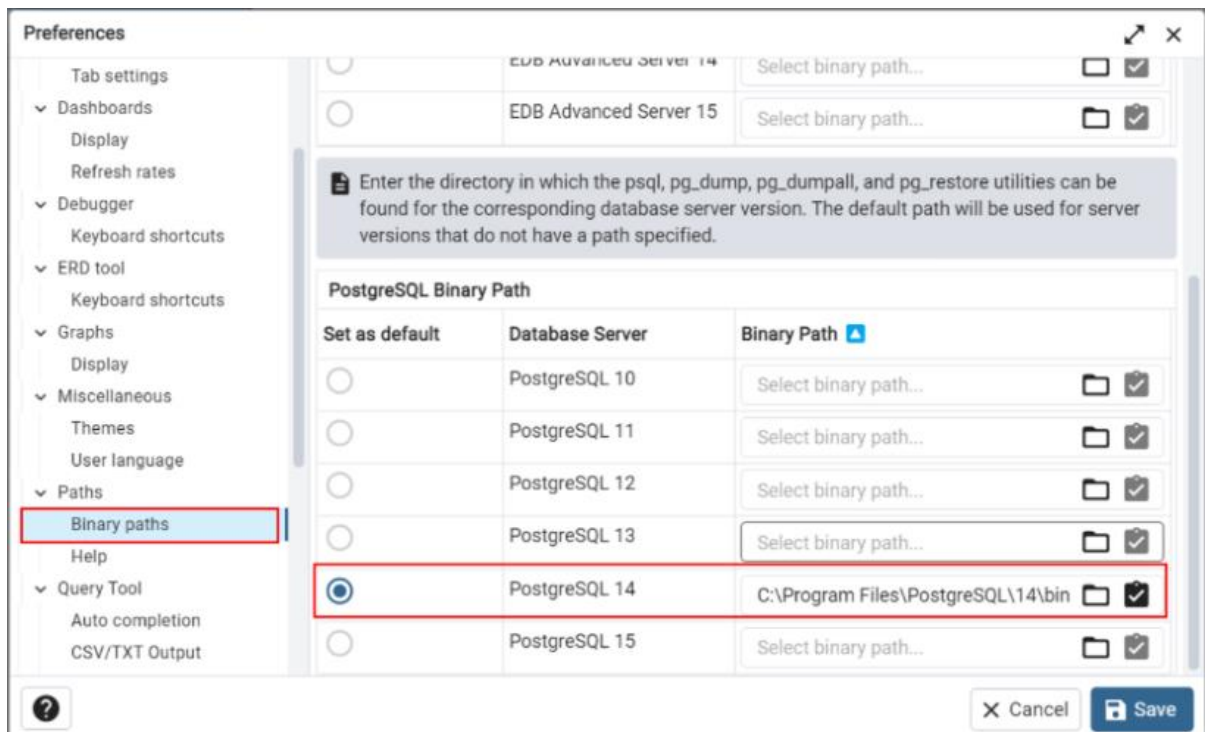


9. Initially, you need to configure the PostgreSQL Binary path in the Preferences dialog.  
(Please check the step below)

- File -> Click on Preferences



- Paths -> Binary paths -> (Copy the PostgreSQL bin location and paste it ) PostgreSQL Binary Path -> Save



**Results:** PostgreSQL was successfully installed in Windows 10

**Marking Scheme:**

CRITERIA	TOTAL MARKS	MARKS OBTAINED	COMMENTS
CONCEPT (A)	2		
IMPLEMENTATION (B)	2		
PERFORMANCE (C)	2		
TOTAL	6 (TO BE SCALED DOWN TO 1.5)		

## Practical 2

**Aim:** Based on the Library Information System Database, perform the following SQL queries related to SELECT, DISTINCT, WHERE, ORDER BY, AND, LIKE operations.

### 1. Display all the records of a table staff & quota.

SELECT \* FROM staff

	staff_fname character varying (80)	staff_lname character varying (80)	id [PK] character varying (20)	gender character varying (1)	mobile_no numeric (10)	doj date
1	Vikas	Kundu	S01	M	8967123456	2010-09-16
2	Ashish	Raval	S02	M	8967123446	2009-09-26
3	Dharmendra	Shaw	S03	M	8967123436	2010-09-06
4	Amar	Koli	S04	M	8967123426	2011-09-26
5	Rohit	Halder	S05	M	8967123256	2000-09-06
6	Manjula	Pathak	S06	F	8967123356	2010-09-26
7	Sushil	Tivari	S07	F	8967123756	2015-02-16
8	Anjali	Sen	S08	F	8967121456	2020-07-26
9	Rinku	Soni	S09	F	8967122456	2010-09-26
10	Lila	Das	S10	F	8967124456	2010-08-02

SELECT \* FROM quota

	member_type [PK] character varying (2)	max_books integer	max_duration integer
1	UG	10	20
2	PG	12	24
3	FC	15	30
4	RS	15	30

### 2. Display any two columns of table staff

SELECT staff\_fname, gender FROM staff

	staff_fname character varying (80)	gender character varying (1)
1	Vikas	M
2	Ashish	M
3	Dharmendra	M
4	Amar	M
5	Rohit	M
6	Manjula	F
7	Sushil	F
8	Anjali	F
9	Rinku	F
10	Lila	F

### 3. Display all unique First Names from table staff.

```
SELECT DISTINCT staff_fname FROM staff
```

	staff_fname character varying (80) 🔒
1	Anjali
2	Manjula
3	Rohit
4	Sushil
5	Ashish
6	Lila
7	Rinku
8	Dharmendra
9	Vikas
10	Amar

### 4. Return the number of distinct first names from table staff

```
SELECT COUNT(DISTINCT staff_fname) AS num_distinct_first_names FROM staff
```

	num_distinct_first_names bigint 🔒
1	10

### 5. Display records of all male staff

```
SELECT * FROM staff WHERE Gender = 'M'
```

	staff_fname character varying (80) ✎	staff_lname character varying (80) ✎	id [PK] character varying (20) ✎	gender character varying (1) ✎	mobile_no numeric (10) ✎	doj date ✎
1	Vikas	Kundu	S01	M	8967123456	2010-09-16
2	Ashish	Raval	S02	M	8967123446	2009-09-26
3	Dharmendra	Shaw	S03	M	8967123436	2010-09-06
4	Amar	Koli	S04	M	8967123426	2011-09-26
5	Rohit	Halder	S05	M	8967123256	2000-09-06

### 6. Find the first names and last names of the students whose birthday is in May 2002

```
SELECT student_fname, student_lname FROM students WHERE dob>='2002-05-01' and  
dob<='2002-05-31'
```

	student_fname character varying (80) 🔒	student_lname character varying (80) 🔒
1	Vikas	Das
2	Raju	Kumar

## 7. Display all records of table staff in ascending order of date of joining.

SELECT \* FROM staff ORDER BY doj ASC;

	staff_fname character varying (80)	staff_lname character varying (80)	id [PK] character varying (20)	gender character varying (1)	mobile_no numeric (10)	doj date
1	Rohit	Halder	S05	M	8967123256	2000-09-06
2	Ashish	Raval	S02	M	8967123446	2009-09-26
3	Lila	Das	S10	F	8967124456	2010-08-02
4	Dharmendra	Shaw	S03	M	8967123436	2010-09-06
5	Vikas	Kundu	S01	M	8967123456	2010-09-16
6	Manjula	Pathak	S06	F	8967123356	2010-09-26
7	Rinku	Soni	S09	F	8967122456	2010-09-26
8	Amar	Koli	S04	M	8967123426	2011-09-26
9	Sushil	Tivari	S07	F	8967123756	2015-02-16
10	Anjali	Sen	S08	F	8967121456	2020-07-26

## 8. Display all records of male staff with ID greater than 'S01'.

SELECT \* FROM staff WHERE gender = 'M' AND id > 'S01';

	staff_fname character varying (80)	staff_lname character varying (80)	id [PK] character varying (20)	gender character varying (1)	mobile_no numeric (10)	doj date
1	Ashish	Raval	S02	M	8967123446	2009-09-26
2	Dharmendra	Shaw	S03	M	8967123436	2010-09-06
3	Amar	Koli	S04	M	8967123426	2011-09-26
4	Rohit	Halder	S05	M	8967123256	2000-09-06

## 9. Display all records of staff where first name starts with letter 'R'.

SELECT \* FROM staff WHERE staff\_fname LIKE 'R%';

	staff_fname character varying (80)	staff_lname character varying (80)	id [PK] character varying (20)	gender character varying (1)	mobile_no numeric (10)	doj date
1	Rohit	Halder	S05	M	8967123256	2000-09-06
2	Rinku	Soni	S09	F	8967122456	2010-09-26

## 10. Display all records of staff where first name starts with letter 'R' and id is greater than S05.

SELECT \* FROM staff WHERE staff\_fname LIKE 'R%' AND id > 'S05';

	staff_fname character varying (80)	staff_lname character varying (80)	id [PK] character varying (20)	gender character varying (1)	mobile_no numeric (10)	doj date
1	Rinku	Soni	S09	F	8967122456	2010-09-26

**Results:** SQL queries related to SELECT, DISTINCT, WHERE, ORDER BY, AND, LIKE operations on the Library Information System Database were successfully performed.



**Marking Scheme:**

CRITERIA	TOTAL MARKS	MARKS OBTAINED	COMMENTS
CONCEPT (A)	2		
IMPLEMENTATION (B)	2		
PERFORMANCE (C)	2		
TOTAL	6 (TO BE SCALED DOWN TO 1.5)		

## Practical 3

**Aim:** Based on the Library Information System Database, perform the following SQL queries related to OR, NOT, INSERT INTO, UPDATE, DELETE operations.

### 1. Display records of students who belong to department 'CS' or 'ME'.

SELECT \* FROM students WHERE department\_code IN ('CS', 'ME');

	student_fname character varying (80)	student_lname character varying (80)	roll_no [PK] character varying (20)	department_code character varying (80)	gender character varying (1)	mobile_no numeric (10)	dob date
1	Vikas	Das	CS01	CS	M	9002000000	2002-05-09
2	Rajib	Das	CS02	CS	M	9002000001	2002-04-09
3	David	Rajak	CS03	CS	M	9002000002	2002-03-05
4	John	Chattarjee	CS04	CS	M	9002000003	2002-02-09
5	Robert	Junior	CS05	CS	M	9002000004	2002-01-07
6	Arup	Layek	CS06	CS	M	9002000005	2002-10-05
7	Susmita	Das	CS07	CS	F	9002000006	2002-10-04
8	Soma	Gorai	CS08	CS	F	9002000007	2002-10-03
9	Suman	Kumari	CS09	CS	F	9002000008	2002-10-02
10	Payel	Mandal	CS10	CS	F	9002000009	2002-10-01
11	Puja	Biswas	CS11	CS	F	9002000030	2003-06-28
12	Sataskhi	Mahato	CS12	CS	F	9002000031	2003-06-29
13	Sita	Nayak	CS13	CS	F	9002000032	2003-12-30
14	Laxmi	Sarkar	CS14	CS	F	9002000033	2002-06-01
15	Pushpa	Das	CS15	CS	F	9002000034	2003-05-02
16	Diptangsu	Ma	CS16	CS	M	9002000035	2003-06-03
17	Ramesh	Samant	ME01	ME	M	9002000010	2003-05-10
18	Anil	Pratap	ME02	ME	M	9002000011	2003-04-11
19	Vijay	Dubey	ME03	ME	M	9002000012	2003-03-12
20	Suresh	Singh	ME04	ME	M	9002000013	2003-02-13
21	Sanjay	Molliya	ME05	ME	M	9002000014	2003-01-14
22	Santash	Thorat	ME06	ME	M	9002000015	2003-06-15
23	Argha	Bee	ME07	ME	M	9002000016	2003-07-16
24	Dilip	Nayak	ME09	ME	M	9002000036	2002-06-03
25	Kiran	Das	ME10	ME	M	9002000037	2002-06-04
26	Ajay	Mahato	ME11	ME	M	9002000038	2002-11-05
27	Shankar	Rathod	ME12	ME	M	9002000039	2002-06-06
28	Sushila	Saha	ME13	ME	F	9002000040	2002-12-07
29	Rita	Thakur	ME14	ME	F	9002000041	2002-06-08
30	Sita	Mandal	ME15	ME	F	9002000042	2002-06-09

### 2. Display records of all students other than from department 'CS'.

SELECT \* FROM students WHERE department\_code != 'CS';

	student_fname character varying (80)	student_lname character varying (80)	roll_no [PK] character varying (20)	department_code character varying (80)	gender character varying (1)	mobile_no numeric (10)	dob date	d cl
1	Ramesh	Samant	ME01	ME	M	9002000010	2003-05-10	E
2	Anil	Pratap	ME02	ME	M	9002000011	2003-04-11	E
3	Vijay	Dubey	ME03	ME	M	9002000012	2003-03-12	E
4	Suresh	Singh	ME04	ME	M	9002000013	2003-02-13	E
5	Sanjay	Molliya	ME05	ME	M	9002000014	2003-01-14	E
6	Santash	Thorat	ME06	ME	M	9002000015	2003-06-15	E
7	Argha	Bee	ME07	ME	M	9002000016	2003-07-16	E
8	Dilip	Nayak	ME09	ME	M	9002000036	2002-06-03	E
9	Kiran	Das	ME10	ME	M	9002000037	2002-06-04	E
10	Ajay	Mahato	ME11	ME	M	9002000038	2002-11-05	E
11	Shankar	Rathod	ME12	ME	M	9002000039	2002-06-06	E
12	Sushila	Saha	ME13	ME	F	9002000040	2002-12-07	E
13	Rita	Thakur	ME14	ME	F	9002000041	2002-06-08	E
14	Sita	Mandal	ME15	ME	F	9002000042	2002-06-09	E
15	Raju	Kumar	EE01	EE	M	9002000017	2002-05-17	E
16	Suman	Lal	EE02	EE	M	9002000018	2003-01-18	E
17	Vinod	Mandal	EE03	EE	M	9002000019	2003-02-19	E

Total rows: 36 of 36 Query complete 00:00:02.833

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3. **Insert a record into the table students by providing values for all attributes.**

```
INSERT INTO students ( student_fname, student_lname, roll_no, department_code,
gender, mobile_no, dob, degree) VALUES ('John', 'Doe', 'CS17', 'CS', 'M',
'9090900990','2002-06-07','B.tech');
```

4. **Change the name of student having roll no 'CS02' in the table students.**

```
UPDATE students SET student_fname = 'Jane' WHERE roll_no = 'CS02';
```

5. **Delete the record added in Question iii. from table students**

```
DELETE FROM students WHERE roll_no = 'CS17';
```

	student_fname character varying (80)	student_lname character varying (80)	roll_no [PK] character varying (20)	department_code character varying (80)	gender character varying (1)	mobile_no numeric (10)	dob date
1	Vikas	Das	CS01	CS	M	9002000000	2002-05-09
2	David	Rajak	CS03	CS	M	9002000002	2002-03-05
3	John	Chattarjee	CS04	CS	M	9002000003	2002-02-09
4	Robert	Junior	CS05	CS	M	9002000004	2002-01-07
5	Arup	Layek	CS06	CS	M	9002000005	2002-10-05
6	Susmita	Das	CS07	CS	F	9002000006	2002-10-04
7	Soma	Gorai	CS08	CS	F	9002000007	2002-10-03
8	Suman	Kumari	CS09	CS	F	9002000008	2002-10-02
9	Payel	Mandal	CS10	CS	F	9002000009	2002-10-01
10	Puja	Biswas	CS11	CS	F	9002000030	2003-06-28
11	Sataskhi	Mahato	CS12	CS	F	9002000031	2003-06-29
12	Sita	Nayak	CS13	CS	F	9002000032	2003-12-30
13	Laxmi	Sarkar	CS14	CS	F	9002000033	2002-06-01
14	Pushpa	Das	CS15	CS	F	9002000034	2003-05-02
15	Diptangsu	Ma	CS16	CS	M	9002000035	2003-06-03
16	Ramesh	Samant	ME01	ME	M	9002000010	2003-05-10
17	Anil	Pratap	ME02	ME	M	9002000011	2003-04-11

6. **Select records of all faculty having surnames Jain, Kuiley, Das, Saha.**

```
SELECT * FROM faculty WHERE faculty_lname IN ('Jain', 'Kuiley', 'Das', 'Saha')
```

	faculty_fname character varying (80)	faculty_lname character varying (80)	id [PK] character varying (20)	department_code character varying (80)	gender character varying (1)	mobile_no numeric (10)	doj date
1	Sanchit	Jain	FCS01	CS	M	8972000000	2017-01-02
2	Sumanta	Kuiley	FCS02	CS	M	8972000001	2016-01-03
3	Shantanu	Kuiley	FCS03	CS	M	8972000002	2015-03-04
4	Arpita	Das	FCS04	CS	F	8972000003	2010-01-05
5	Subhash	Das	FME03	ME	M	8972000006	2016-04-08
6	Kavita	Saha	FEE04	EE	F	8972000011	2015-06-13

7. **Select records of all faculty not from department CS or ME.**

```
SELECT * FROM faculty WHERE department_code NOT IN ('CS', 'ME');
```

	faculty_fname character varying (80)	faculty_lname character varying (80)	id [PK] character varying (20)	department_code character varying (80)	gender character varying (1)	mobile_no numeric (10)	doj date
1	jitendra	raj	FEE01	EE	M	8972000008	2015-06-10
2	Prakash	Maji	FEE02	EE	M	8972000009	2015-06-11
3	Surendra	rana	FEE03	EE	M	8972000010	2015-06-12
4	Kavita	Saha	FEE04	EE	F	8972000011	2015-06-13
5	Vijaya	Bhoi	FMCA01	MCA	M	8159400000	2013-07-23
6	Sachin	Dey	FMCA02	MCA	M	8159400000	2013-06-23
7	Raja	Jahan	FMCA03	MCA	M	8159400001	2013-11-22
8	Lata	Saw	FMCA04	MCA	F	8159400002	2013-11-21
9	Pinki	Mandal	FMCA05	MCA	F	8159400003	2013-12-20

8. **Update the department of all female faculty to CS.**

UPDATE faculty SET department\_code = 'CS' WHERE gender = 'F';

SELECT \* FROM faculty where department\_code = 'CS';

	faculty_fname character varying (80)	faculty_lname character varying (80)	id [PK] character varying (20)	department_code character varying (80)	gender character varying (1)	mobile_no numeric (10)	doj date
1	Sanchit	Jain	FCS01	CS	M	8972000000	2017-01-02
2	Sumanta	Kuiley	FCS02	CS	M	8972000001	2016-01-03
3	Shantanu	Kuiley	FCS03	CS	M	8972000002	2015-03-04
4	Arpita	Das	FCS04	CS	F	8972000003	2010-01-05
5	Sanchita	saha	FME04	CS	F	8972000007	2016-05-09
6	Kavita	Saha	FEE04	CS	F	8972000011	2015-06-13
7	Lata	Saw	FMCA04	CS	F	8159400002	2013-11-21
8	Pinki	Mandal	FMCA05	CS	F	8159400003	2013-12-20

**Results:** SQL queries related to to OR, NOT, INSERT INTO, UPDATE, DELETE operations on the Library Information System Database were successfully performed.

**Marking Scheme:**

CRITERIA	TOTAL MARKS	MARKS OBTAINED	COMMENTS
CONCEPT (A)	2		
IMPLEMENTATION (B)	2		
PERFORMANCE (C)	2		
TOTAL	6 (TO BE SCALED DOWN TO 1.5)		