# Project: Student Database Management System (PostgreSQL)

**1) Database setup**

| a) Create student database: | b) Student table creation: |
|---|---|
| CREATE DATABASE student_database<br>  WITH<br>  OWNER = postgres<br>  ENCODING = 'UTF8'<br>  LC_COLLATE = 'English_United States.1252'<br>  LC_CTYPE = 'English_United States.1252'<br>  TABLESPACE = pg_default<br>  CONNECTION LIMIT = -1; | CREATE TABLE Student_table (<br>  Student_id INT,<br>  Stu_name VARCHAR(100),<br>  Department VARCHAR(50),<br>  Email_id VARCHAR(50),<br>  Phone_no NUMERIC,<br>  Address VARCHAR(250),<br>  Date_Of_Birth DATE,<br>  Gender VARCHAR(30),<br>  Major VARCHAR(50),<br>  GPA NUMERIC,<br>  Grade VARCHAR(10)<br>); |

**2) Data entry**

```
INSERT INTO Student_table (Student_id, Stu_name, Department, email_id, Phone_no, Address, Date_Of_Birth, Gender, Major, GPA, Grade)
VALUES
('1', 'Amalesh', 'Business', 'amal@gmail.com', '9999999991', 'Goa', '1994-11-25', 'Male', 'MBA', '8.8', 'A'),
('2', 'Nirmal Manoj', 'Arts and Sciences', 'nirmal@gmail.com', '9999999992', 'Bangalore', '1992-07-15', 'Male', 'Mathematics', '8.6', 'A'),
('3', 'Ram Kumar', 'Business', 'ram@gmail.com', '9999999993', 'Delhi', '1995-06-28', 'Male', 'MBA', '8.5', 'A'),
('4', 'Leo Raj', 'Arts and Sciences', 'raj@gmail.com', '9999999994', 'Dehradhun', '1997-01-12', 'Male', 'Physics', '7.6', 'B'),
('5', 'Reshma Shruthi', 'Arts and communication', 'reshma@gmail.com', '9999999995', 'Mumbai', '1995-10-26', 'Female', 'Communication', '6.9', 'B'),
('6', 'Sindhu Karan', 'Arts and Sciences', 'sindhu@gmail.com', '9999999996', 'Goa', '2000-01-03', 'Female', 'Computer Science', '5.5', 'C'),
('7', 'Harish Gupta', 'Human Development', 'harish@gmail.com', '9999999997', 'Indore', '2000-10-05', 'Male', 'Counseling', '7.0', 'B'),
('8', 'Ravent Yadav', 'Arts and communication', 'ravent@gmail.com', '9999999998', 'Pune', '1999-11-16', 'Male', 'Theatre', '9.2', 'A'),
('9', 'Sandeep Kumar', 'Business', 'sandeep@gmail.com', '9999999999', 'Udaipur', '2003-08-14', 'Male', 'Accounting', '7.9', 'B'),
('10', 'Keerthi Ravi', 'Arts and Sciences', 'keerthi@gmail.com', '9999999911', 'Mumbai', '1997-03-12', 'Female', 'Physics', '4.9', 'C');
```
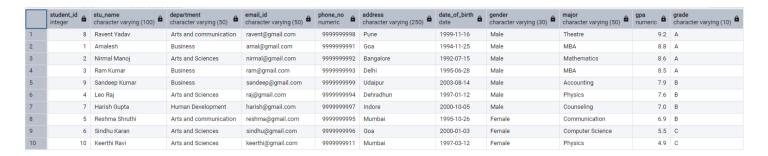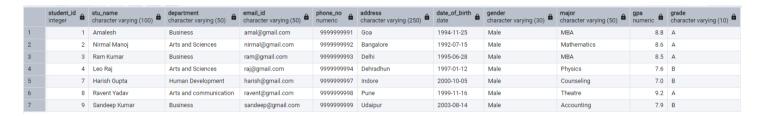
**3) Student information retrieval**

```
SELECT *
FROM Student_table
ORDER BY GPA DESC, Grade;
```

| | student_id<br>integer | stu_name<br>character varying (100) | department<br>character varying (50) | email_id<br>character varying (50) | phone_no<br>numeric | address<br>character varying (250) | date_of_birth<br>date | gender<br>character varying (30) | major<br>character varying (50) | gpa<br>numeric | grade<br>character varying (10) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8 | Ravent Yadav | Arts and communication | ravent@gmail.com | 9999999998 | Pune | 1999-11-16 | Male | Theatre | 9.2 | A |
| 2 | 1 | Amalesh | Business | amal@gmail.com | 9999999991 | Goa | 1994-11-25 | Male | MBA | 8.8 | A |
| 3 | 2 | Nirmal Manoj | Arts and Sciences | nirmal@gmail.com | 9999999992 | Bangalore | 1992-07-15 | Male | Mathematics | 8.6 | A |
| 4 | 3 | Ram Kumar | Business | ram@gmail.com | 9999999993 | Delhi | 1995-06-28 | Male | MBA | 8.5 | A |
| 5 | 9 | Sandeep Kumar | Business | sandeep@gmail.com | 9999999999 | Udaipur | 2003-08-14 | Male | Accounting | 7.9 | B |
| 6 | 4 | Leo Raj | Arts and Sciences | raj@gmail.com | 9999999994 | Dehradhun | 1997-01-12 | Male | Physics | 7.6 | B |
| 7 | 7 | Harish Gupta | Human Development | harish@gmail.com | 9999999997 | Indore | 2000-10-05 | Male | Counseling | 7.0 | B |
| 8 | 5 | Reshma Shruthi | Arts and communication | reshma@gmail.com | 9999999995 | Mumbai | 1995-10-26 | Female | Communication | 6.9 | B |
| 9 | 6 | Sindhu Karan | Arts and Sciences | sindhu@gmail.com | 9999999996 | Goa | 2000-01-03 | Female | Computer Science | 5.5 | C |
| 10 | 10 | Keerthi Ravi | Arts and Sciences | keerthi@gmail.com | 9999999911 | Mumbai | 1997-03-12 | Female | Physics | 4.9 | C |

## 4) Query for Male students

Select * from Student_table
where Gender = 'Male';

| | student_id<br>integer | stu_name<br>character varying (100) | department<br>character varying (50) | email_id<br>character varying (50) | phone_no<br>numeric | address<br>character varying (250) | date_of_birth<br>date | gender<br>character varying (30) | major<br>character varying (50) | gpa<br>numeric | grade<br>character varying (10) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | Amalesh | Business | amal@gmail.com | 9999999991 | Goa | 1994-11-25 | Male | MBA | 8.8 | A |
| 2 | 2 | Nirmal Manoj | Arts and Sciences | nirmal@gmail.com | 9999999992 | Bangalore | 1992-07-15 | Male | Mathematics | 8.6 | A |
| 3 | 3 | Ram Kumar | Business | ram@gmail.com | 9999999993 | Delhi | 1995-06-28 | Male | MBA | 8.5 | A |
| 4 | 4 | Leo Raj | Arts and Sciences | raj@gmail.com | 9999999994 | Dehradhun | 1997-01-12 | Male | Physics | 7.6 | B |
| 5 | 7 | Harish Gupta | Human Development | harish@gmail.com | 9999999997 | Indore | 2000-10-05 | Male | Counseling | 7.0 | B |
| 6 | 8 | Ravent Yadav | Arts and communication | ravent@gmail.com | 9999999998 | Pune | 1999-11-16 | Male | Theatre | 9.2 | A |
| 7 | 9 | Sandeep Kumar | Business | sandeep@gmail.com | 9999999999 | Udaipur | 2003-08-14 | Male | Accounting | 7.9 | B |

## 5) Query for Students with GPA less than 5.0

SELECT * FROM Student_table
WHERE GPA <5.0;

| | student_id<br>integer | stu_name<br>character varying (100) | department<br>character varying (50) | email_id<br>character varying (50) | phone_no<br>numeric | address<br>character varying (250) | date_of_birth<br>date | gender<br>character varying (30) | major<br>character varying (50) | gpa<br>numeric | grade<br>character varying (10) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | Keerthi Ravi | Arts and Sciences | keerthi@gmail.com | 9999999911 | Mumbai | 1997-03-12 | Female | Physics | 4.9 | C |

## 6) Update Student Email and Grade

UPDATE Student_table
SET email_id = 'Sanyaa@gmail.com', Grade = 'D'
WHERE Student_id = '10';

```
UPDATE 1

Query returned successfully in 76 msec.
```
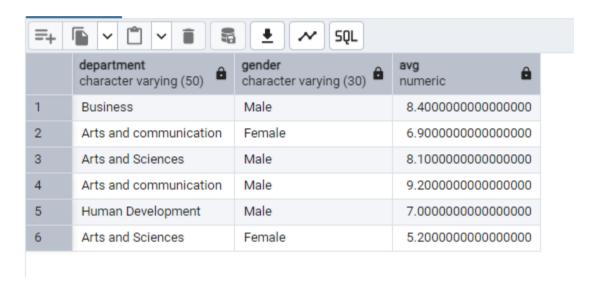
## 7) Query for Students with Grade "B"

SELECT Stu_name, date_part('year',age(Date_Of_Birth)) as Age
FROM Student_table
Where Grade = 'B';

| | stu_name character varying (100) | age double precision |
|---|---|---|
| 1 | Leo Raj | 27 |
| 2 | Reshma Shruthi | 29 |
| 3 | Harish Gupta | 24 |
| 4 | Sandeep Kumar | 21 |

## 8) Grouping and calculation

SELECT Department, Gender, Avg(GPA)
FROM Student_table
GROUP BY 1,2;

| | department character varying (50) | gender character varying (30) | avg numeric |
|---|---|---|---|
| 1 | Business | Male | 8.4000000000000000 |
| 2 | Arts and communication | Female | 6.9000000000000000 |
| 3 | Arts and Sciences | Male | 8.1000000000000000 |
| 4 | Arts and communication | Male | 9.2000000000000000 |
| 5 | Human Development | Male | 7.0000000000000000 |
| 6 | Arts and Sciences | Female | 5.2000000000000000 |

## 9) Table Renaming

ALTER TABLE Student_table
RENAME TO Student_info;
SELECT * FROM Student_info;

| | student_id integer | stu_name character varying (100) | department character varying (50) | email_id character varying (50) | phone_no numeric | address character varying (250) | date_of_birth date | gender character varying (30) | major character varying (50) | gpa numeric | grade character varying (10) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | Amalesh | Business | amal@gmail.com | 9999999991 | Goa | 1994-11-25 | Male | MBA | 8.8 | A |
| 2 | 2 | Nirmal Manoj | Arts and Sciences | nirmal@gmail.com | 9999999992 | Bangalore | 1992-07-15 | Male | Mathematics | 8.6 | A |
| 3 | 3 | Ram Kumar | Business | ram@gmail.com | 9999999993 | Delhi | 1995-06-28 | Male | MBA | 8.5 | A |
| 4 | 4 | Leo Raj | Arts and Sciences | raj@gmail.com | 9999999994 | Dehradhun | 1997-01-12 | Male | Physics | 7.6 | B |
| 5 | 5 | Reshma Shruthi | Arts and communication | reshma@gmail.com | 9999999995 | Mumbai | 1995-10-26 | Female | Communication | 6.9 | B |
| 6 | 6 | Sindhu Karan | Arts and Sciences | sindhu@gmail.com | 9999999996 | Goa | 2000-01-03 | Female | Computer Science | 5.5 | C |
| 7 | 7 | Harish Gupta | Human Development | harish@gmail.com | 9999999997 | Indore | 2000-10-05 | Male | Counseling | 7.0 | B |
| 8 | 8 | Ravent Yadav | Arts and communication | ravent@gmail.com | 9999999998 | Pune | 1999-11-16 | Male | Theatre | 9.2 | A |
| 9 | 9 | Sandeep Kumar | Business | sandeep@gmail.com | 9999999999 | Udaipur | 2003-08-14 | Male | Accounting | 7.9 | B |
| 10 | 10 | Keerthi Ravi | Arts and Sciences | kerthi@gmail.com | 9999999911 | Mumbai | 1997-03-12 | Female | Physics | 4.9 | D |

## 10) Retrieve Student with Highest GPA

SELECT Stu_name, GPA
FROM Student_info WHERE GPA = (Select Max(GPA) From Student_info);

| | stu_name character varying (100) 🔒 | gpa numeric 🔒 |
|---|---|---|
| 1 | Ravent Yadav | 9.2 |