

Task2

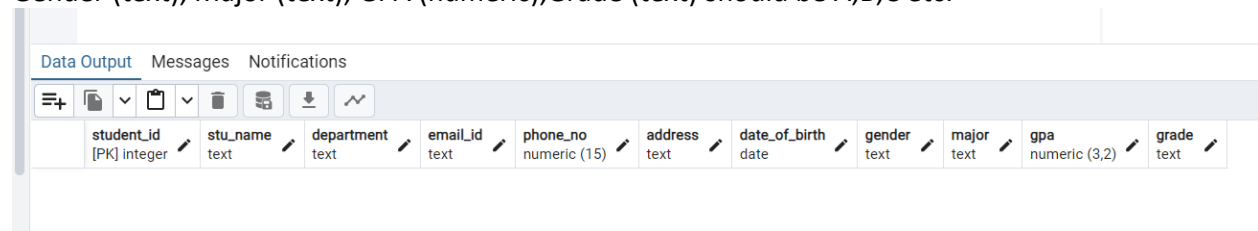
Project: Student Database Management System(PostgreSQL)

Objective: Design and implement a student database management system using PostgreSQL that allows storing and retrieving student information efficiently. The project will include the following tasks:

1. Database Setup

Create a database named "student_database."

Create a table called " student_table " with the following columns: Student_id (integer), Stu_name (text), Department (text), email_id (text),Phone_no (numeric), Address (text), Date_of_birth (date), Gender (text), Major (text), GPA (numeric),Grade (text) should be A,B,C etc.



The screenshot shows a database management interface with a table named 'student_table'. The table has the following columns and data types:

student_id	stu_name	department	email_id	phone_no	address	date_of_birth	gender	major	gpa	grade
[PK] integer	text	text	text	numeric (15)	text	date	text	text	numeric (3,2)	text

2. Data Entry

Insert 10 sample records into the "student_table" using INSERT command.

Data Output Messages Notifications												
	student_id [PK] integer	stu_name text	department text	email_id text	phone_no numeric (15)	address text	date_of_birth date	gender text	major text	gpa numeric (3,2)	grade text	
1	1	Karthick	Science	karthick@example.com	1234567890	123 Chennai	2000-01-01	Male	Physics	9.10	A	
2	2	Aishwarya	Engineering	aishwarya@example.com	9876543210	456 Adyar	1998-05-15	Female	Mechanical	7.20	B	
3	3	Athish Vikram	Arts	athish@example.com	1122334455	789 Perungudi	1999-03-12	Male	History	6.00	B	
4	4	Abdul	Engineering	abdul@example.com	5566778899	321 Kilpauk	1997-07-21	Male	Civil	5.80	C	
5	5	Shaji	Science	shaji@example.com	9988776655	654 Padur	2001-02-10	Female	Biology	8.50	A	
6	6	Rangaraj	Arts	rangaraj@example.com	4433221100	987 Anna Nagar	1996-11-05	Male	Literature	4.50	C	
7	7	Archana	Commerce	archana@example.com	7766554433	111 Mount Road	2002-06-18	Female	Finance	8.00	A	
8	8	Subash	Science	subash@example.com	2233445566	222 Parrys	1995-04-25	Male	Chemistry	5.00	B	
9	9	Sakthi	Commerce	sakthi@example.com	3344556677	333 Avadi	2000-09-14	Male	Economics	6.80	B	
10	10	Arun	Engineering	arun@example.com	6677889900	444 Ayanavaram	1997-03-25	Male	Computer Science	9.50	A	

3. Student Information Retrieval

Develop a query to retrieve all students' information from the "student_table" and sort them in descending order by their grade.

Data Output Messages Notifications												
	student_id [PK] integer	stu_name text	department text	email_id text	phone_no numeric (15)	address text	date_of_birth date	gender text	major text	gpa numeric (3,2)	grade text	
1	4	Abdul	Engineering	abdul@example.com	5566778899	321 Kilpauk	1997-07-21	Male	Civil	5.80	C	
2	6	Rangaraj	Arts	rangaraj@example.com	4433221100	987 Anna Nagar	1996-11-05	Male	Literature	4.50	C	
3	3	Athish Vikram	Arts	athish@example.com	1122334455	789 Perungudi	1999-03-12	Male	History	6.00	B	
4	8	Subash	Science	subash@example.com	2233445566	222 Parrys	1995-04-25	Male	Chemistry	5.00	B	
5	9	Sakthi	Commerce	sakthi@example.com	3344556677	333 Avadi	2000-09-14	Male	Economics	6.80	B	
6	2	Aishwarya	Engineering	aishwarya@example.com	9876543210	456 Adyar	1998-05-15	Female	Mechanical	7.20	B	
7	10	Arun	Engineering	arun@example.com	6677889900	444 Ayanavaram	1997-03-25	Male	Computer Science	9.50	A	
8	5	Shaji	Science	shaji@example.com	9988776655	654 Padur	2001-02-10	Female	Biology	8.50	A	
9	7	Archana	Commerce	archana@example.com	7766554433	111 Mount Road	2002-06-18	Female	Finance	8.00	A	
10	1	Karthick	Science	karthick@example.com	1234567890	123 Chennai	2000-01-01	Male	Physics	9.10	A	

4. Query for Male Students:

Implement a query to retrieve information about all male students from the "student_table."

Data Output Messages Notifications												
	student_id [PK] integer	stu_name text	department text	email_id text	phone_no numeric (15)	address text	date_of_birth date	gender text	major text	gpa numeric (3,2)	grade text	
1	1	Karthick	Science	karthick@example.com	1234567890	123 Chennai	2000-01-01	Male	Physics	9.10	A	
2	3	Athish Vikram	Arts	athish@example.com	1122334455	789 Perungudi	1999-03-12	Male	History	6.00	B	
3	4	Abdul	Engineering	abdul@example.com	5566778899	321 Kilpauk	1997-07-21	Male	Civil	5.80	C	
4	6	Rangaraj	Arts	rangaraj@example.com	4433221100	987 Anna Nagar	1996-11-05	Male	Literature	4.50	C	
5	8	Subash	Science	subash@example.com	2233445566	222 Parrys	1995-04-25	Male	Chemistry	5.00	B	
6	9	Sakthi	Commerce	sakthi@example.com	3344556677	333 Avadi	2000-09-14	Male	Economics	6.80	B	
7	10	Arun	Engineering	arun@example.com	6677889900	444 Ayanavaram	1997-03-25	Male	Computer Science	9.50	A	

5. Query for Students with GPA less than 5.0

Create a query to fetch the details of students who have a GPA less than 5.0 from the "student_table."

Data Output Messages Notifications											
	student_id [PK] integer	stu_name text	department text	email_id text	phone_no numeric (15)	address text	date_of_birth date	gender text	major text	gpa numeric (3,2)	grade text
1	6	Rangaraj	Arts	rangaraj@example.com	4433221100	987 Anna Nagar	1996-11-05	Male	Literature	4.50	C

6. Update Student Email and Grade

Write an update statement to modify the email and grade of a student with a specific ID in the "student_table."

Data Output Messages Notifications											
	student_id [PK] integer	stu_name text	department text	email_id text	phone_no numeric (15)	address text	date_of_birth date	gender text	major text	gpa numeric (3,2)	grade text
1	3	Athish Vikram	Arts	updated_athish@example.com	1122334455	789 Perungudi	1999-03-12	Male	History	9.10	A

7. Query for Students with Grade "B"

Develop a query to retrieve the names and ages of all students who have a grade of "B" from the "student_table."

Data Output Messages Notifications		
	stu_name text	age double precision
1	Aishwarya	26
2	Subash	29
3	Sakthi	24

8. Grouping and Calculation

Create a query to group the "student_table" by the "Department" and "Gender" columns and calculate the average GPA for each combination.

Data Output Messages Notifications

	department text	gender text	average_gpa numeric
1	Science	Male	7.0500000000000000
2	Commerce	Male	6.8000000000000000
3	Engineering	Male	7.6500000000000000
4	Science	Female	8.5000000000000000
5	Commerce	Female	8.0000000000000000
6	Engineering	Female	7.2000000000000000
7	Arts	Male	6.8000000000000000

9. Table Renaming

Rename the "student_table" to "student_info" using the appropriate SQL statement.


	student_id [PK] integer	stu_name text	department text	email_id text	phone_no numeric (15)	address text	date_of_birth date	gender text	major text	gpa numeric (3,2)	grade text
1	1	Karthick	Science	karthick@example.com	1234567890	123 Chennai	2000-01-01	Male	Physics	9.10	A
2	2	Aishwarya	Engineering	aishwarya@example.com	9876543210	456 Adyar	1998-05-15	Female	Mechanical	7.20	B
3	4	Abdul	Engineering	abdul@example.com	5566778899	321 Kilpauk	1997-07-21	Male	Civil	5.80	C
4	5	Shaji	Science	shaji@example.com	9988776655	654 Padur	2001-02-10	Female	Biology	8.50	A
5	6	Rangaraj	Arts	rangaraj@example.com	4433221100	987 Anna Nagar	1996-11-05	Male	Literature	4.50	C
6	7	Archana	Commerce	archana@example.com	7766554433	111 Mount Road	2002-06-18	Female	Finance	8.00	A
7	8	Subash	Science	subash@example.com	2233445566	222 Parrys	1995-04-25	Male	Chemistry	5.00	B
8	9	Sakthi	Commerce	sakthi@example.com	3344556677	333 Avadi	2000-09-14	Male	Economics	6.80	B
9	10	Arun	Engineering	arun@example.com	6677889900	444 Ayanavaram	1997-03-25	Male	Computer Science	9.50	A
10	3	Athish Vikram	Arts	updated_athish@example.com	1122334455	789 Perungudi	1999-03-12	Male	History	9.10	A

10. Retrieve Student with Highest GPA

Write a query to retrieve the name of the student with the highest GPA from the "student_info" table.

Data Output Messages Notifications



	stu_name text 
1	Arun