

INVENTION MANAGEMENT SYSTEM

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ABSTRACT

Invention Management system, basically it keeps a note of all the inventions and it acts like a dictionary to anyone who wants to track information about any invention, inventor. And also other details like Awards and Patents achieved for a particular work, classifying the inventions into different fields so that user can access all inventions related to a field by searching a keyword.

The Logical level or the Conceptual level contains all the Database queries.

The main entities in the logical level:

- **Inventions:** This contains all the details that are related to inventions like invention id, invention name, year in which it is invented.
- **Inventor:** This contains the inventor id, inventor name, nationality and date of birth.
- **Awards:** This contains the details of the award like award name, award id and the prize money
- **Patents:** All the patents are listed with patent id, patent name.
- **Fields:** This is used to classify inventions into different fields, and the Field name.

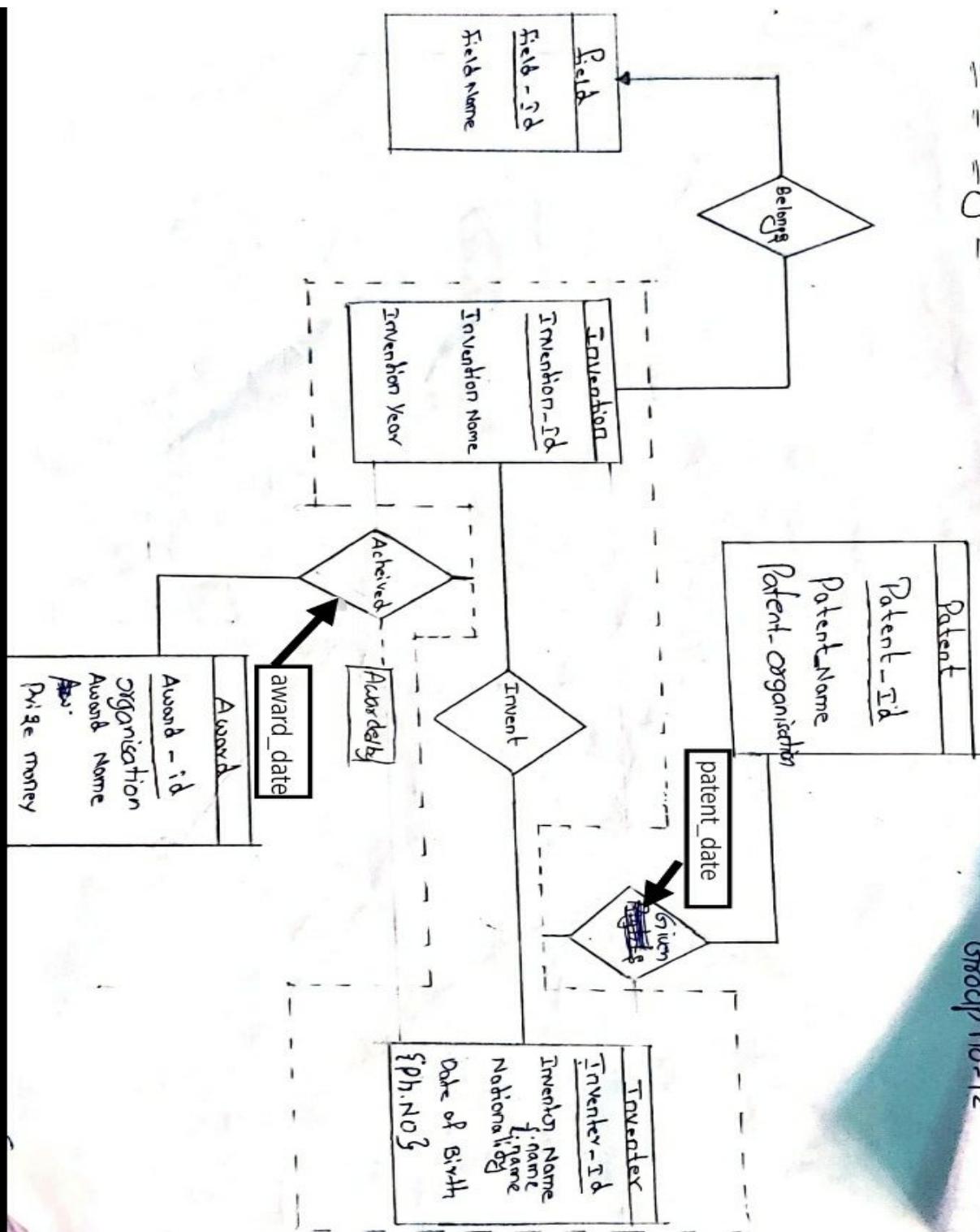
The relation between inventions and the Inventor is many to many. There is an aggregate relationship between inventions, inventor and awards, named achieved. There is an aggregate relationship between Inventor, inventions and patent, named as given. There is a many to one relationship between inventions and fields.

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E-R Diagram

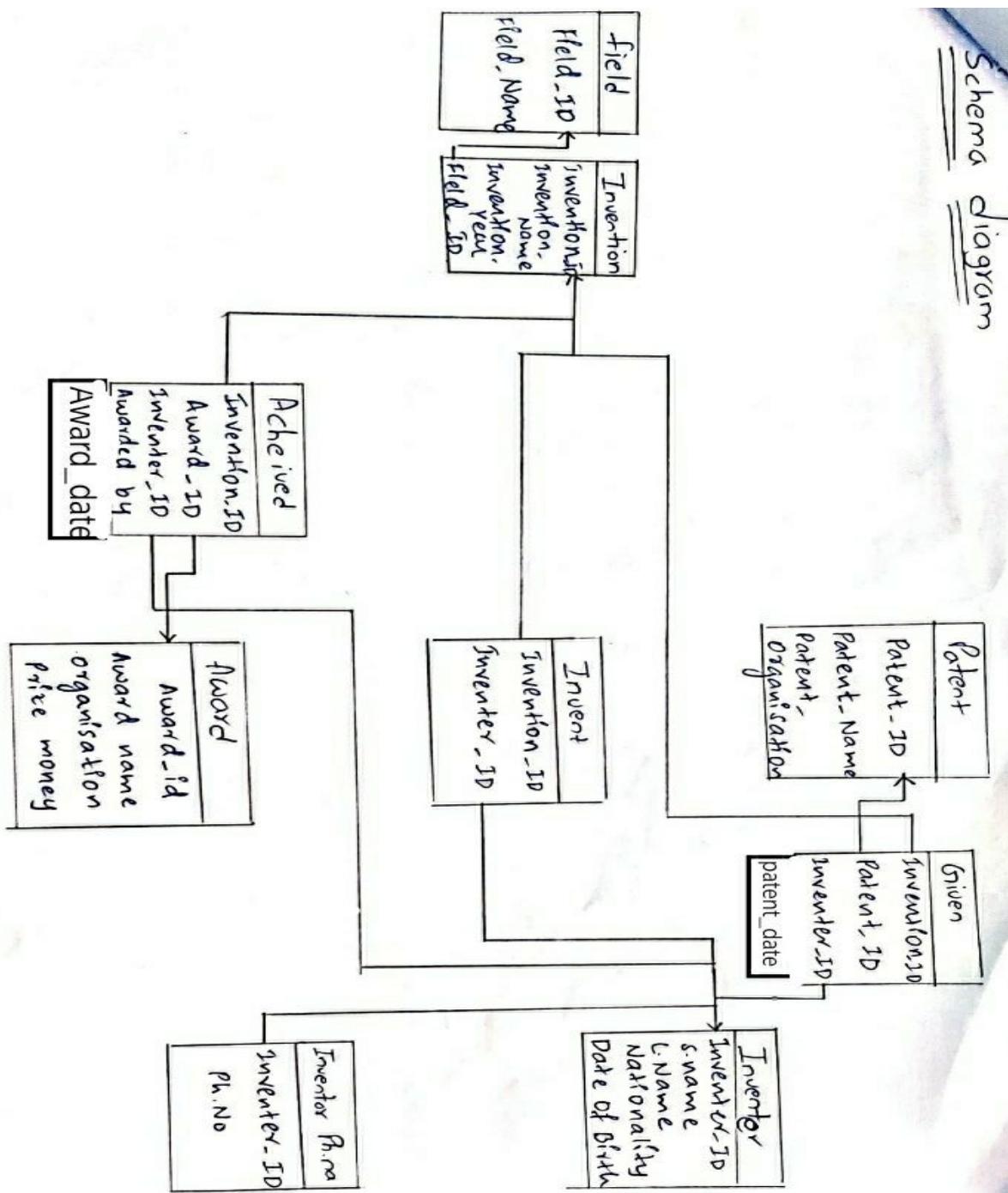
E-R-diagram

Group no-12



Schema Diagram

Schema diagram



Relational Schema

Field(field_id , field_name)

Invention(invention_id , invention_name , invention_year ,
field_id)

Invent(invention_id , inventer_id)

Inventor(inventor_id , fname, Iname , nationality ,
date_of_birth)

Given(patent_id , invention_id , inventer_id , patent_date)

Acheived(invention_id , award_id , inventer_id ,
awarded_by , award_date)

Patent(patent_id , patent_name , patent_organization)

Award(award_id , award_name , organization ,
prize_money)

InventorPhoneNo(Inventor_Id,
Phone_no)

Normalisation

Observations

Field_id	Unique identifier i.e primary key that is assigned to each Field, it can't be null
Field_Name	Name of The field
Invention_id	Unique identifier i.e primary key that is assigned to each Invention, it can't be null
Invention_Name	Name of the Invention

Invention_Year	Year in which the invention is made
Inventor_id	Unique identifier i.e primary key that is assigned to each Inventor, it can't be null
F.Name	First Name of the Inventor
L.Name	Last Name of the Inventor
Nationality	Country to which the Inventor belongs to

Date_Of_Birth	Date of Birth of the Inventor
Phone_No	Phone No of the Inventor
Patent_Id	Unique identifier i.e primary key that is assigned to each Patent, it can't be null
Patent_Name	Name of the patent
Award_id	Unique identifier i.e primary key that is assigned to each Field, it can't be null

Award_Name	Name of the award
Organisation	Organisation that gave this award
Prize_Money	Prize Money that is being awarded along with the Award
Awarded_By	By whom the award was Awarded by

Justification

1NF :-

1. columns with multivalues are eliminated by adding the equivalent rows.
2. By the end it is made sure that every value in the table is atomic
3. Functional dependencies are identified

2NF :-

- 1) After making sure that the table is in 1NF
- 2) new tables are created so that in the tables created each non key attribute is dependent on key attribute so that partial dependencies are eliminated
- 3) New tables are formed for multivalued attributes

3NF:-

1. Transitive dependencies are identified
2. Created separate tables wherever there was transitive dependency

Comparison with old ER diagram

The tables after the Normalisation are Similar to ER Diagram along with some relations taken as tables, Normalisation and ER Diagrams are two Different

Queries

DDL Statements:

```
Create table Award(Award_Id varchar(10), Award_Name  
varchar (20), Organization varchar(10), Prize_Money  
numeric (11,2), primary key(Award_id) );
```

```
Create table Inventor(Inventor_Id varchar (10), Fname  
varchar (25), Lname varchar (25), Nationality varchar(15),  
Date_Of_Birth date, primary key(Inventor_Id));
```

```
create table Field(Field_Id varchar(5), Field_Name  
varchar(15), primary key(Field_Id));
```

```
create table Invention(Invention_Id varchar(5),  
Invention_Name varchar(20),Invention_year  
numeric(4,0),field_id varchar(10), primary  
key(Invention_Id), foreign key(field_id) references field);
```

```
create table inventorPhoneNo(Inventor_id  
varchar(10),Phone_No numeric(10,0), foreign  
key(Inventor_id) references Inventor);
```

```
create table patent(Patent_id varchar(5), patent_Name  
varchar(20), Patent_organisation varchar(20), primary  
key(Patent_id));
```

```
create table Invent(Invention_Id varchar(5) not  
null,Inventor_Id varchar(10) not null,foreign  
key(Invention_Id) references Invention,primary key  
(Invention_Id,Inventor_Id),foreign key(Inventor_Id)  
references Inventor);
```

```
create table given (Invention_Id varchar(5), Inventor_Id  
varchar(10),Patent_id varchar(5),foreign  
key(Invention_Id,Inventor_Id) references Invent,foreign  
key(patent_id) references patent);
```

```
create table Acheived(Invention_Id varchar(5), Inventor_Id  
varchar(10),Award_Id varchar(10),Awarded_By  
varchar(20),foreign key(Invention_Id,Inventor_Id)  
references Invent,foreign key(Award_Id) references  
Award);
```

```
Alter table Acheived add column award_date date;
```

```
Alter table given add column patent_date date;
```

DML statements:

insert into field values('f1','Physics');

insert into field values('f2','Maths');

Insert into field values('f3', 'Biology');

insert into field values('f4','computers');

Insert into field values('f5', 'Chemistry');

select * from field;

The screenshot shows the pgAdmin III interface. The SQL Editor pane contains DDL and DML statements for creating tables and inserting data into the 'field' table. The Output pane shows the resulting table structure and data.

```
Create table Award(Award_Id varchar(10), Award_Name varchar (20), Organization varchar(10), Prize_Money numeric (11,2), primary key(Award_id) );
Create table Inventor(Inventor_Id varchar (10), Fname varchar (25), Lname varchar (25), Nationality varchar(15), Date_of_Birth date, primary key(Inventor_Id));
create table Field(Field_Id varchar(5), Field_Name varchar(15), primary key(Field_Id));
create table Invention(Invention_Id varchar(5), Invention_Name varchar(20), Invention_Year numeric(4,0), Field_Id varchar(10), primary key(Invention_Id), foreign key(Field_Id) references Field);
create table InventorPhoneNo(Inventor_Id varchar(10), Phone_No numeric(10,0), foreign key(Inventor_Id) references Inventor);
create table Patent(Patent_Id varchar(5), Patent_Name varchar(20), Patent_Organisation varchar(20), primary key(Patent_Id));
create table Invent(Invention_Id varchar(5), Inventor_Id varchar(10), Patent_Id varchar(5), foreign key(Invention_Id, Inventor_Id) references Invent, foreign key(Patent_Id) references Patent);
create table Achieved(Achieved_Invention_Id varchar(5), Inventor_Id varchar(10), Award_Id varchar(10), Awarded_By varchar(20), foreign key(Achieved_Invention_Id, Inventor_Id) references Invent, foreign key(Award_Id) references Award);

Alter table achieved add column award_date date;
Alter table given add column patent_date date;

insert into field values('f1','Physics');
insert into field values('f2','Maths');
Insert into field values('f3', 'Biology');
insert into field values('f4','computers');
Insert into field values('f5', 'Chemistry');

select * from field;

Insert into invention values('ID1', 'Motor', 1999,'f1');
Insert into invention values('ID2', 'Algebra', 1860,'f2');
Insert into invention values('ID3', 'Flower pollination', 1895,'f3');
Insert into invention values('ID4', 'Quantum Theory', 1870,'f1');
Insert into invention values('ID5', 'Chemical Bonding', 1890,'f5');
Insert into invention values('ID6', 'R.B.C.', 1896,'f3');


```

Field_Id	Field_Name
1	Physics
2	Maths
3	Biology
4	computers
5	Chemistry

Insert into invention values('ID1', 'Motor', 1999,'f1');

Insert into invention values('ID2', 'Algebra', 1860,'f2');

```
Insert into invention values('ID3','Flower pollination',  
1895,'f3');
```

```
Insert into invention values('ID4', 'Quantum Theory',  
1870,'f1');
```

```
Insert into invention values('ID5', 'Chemical Bonding',  
1990,'f5');
```

```
Insert into invention values('ID6', 'R.B.C', 1850,'f3');
```

```
Insert into invention values('ID7', 'Computer', 1810,'f4');
```

```
Insert into invention values('ID8', 'Ac', 1903,'f1');
```

```
select * from invention
```

The screenshot shows the pgAdmin III interface. The title bar indicates the connection is to 'postgres on postgres@localhost:5432 - [/home/bote/]'. The main window has tabs for 'SQL Editor' (selected) and 'Graphical Query Builder'. The 'SQL Editor' tab contains a 'Previous queries' section with several CREATE TABLE statements for 'inventorPhoneNo', 'patent', 'Invent', 'Achieved', and 'Awarded'. Below these are two ALTER TABLE statements: 'Alter table achieved add column award.date date;' and 'Alter table given add column patent.date date;'. The body of the SQL Editor contains an INSERT INTO statement with 18 rows of data for the 'invention' table, followed by a SELECT * FROM invention statement. The 'Output pane' at the bottom shows the results of the last query, displaying 8 rows of invention details.

	invention_id	invention_name	invention_year	field_id
1	ID1	Motor	1899	f1
2	ID2	Algebra	1860	f2
3	ID3	Flower pollination	1895	f3
4	ID4	Quantum Theory	1876	f1
5	ID5	Chemical Bonding	1990	f5
6	ID6	R.B.C	1850	f3
7	ID7	Computer	1810	f4
8	ID8	Ac	1903	f1

```
Insert into inventor values('IR1', 'Thomas', 'Miller', 'Russia',  
'17dec1960');
```

Insert into inventor values('IR2', 'Baskara', 'Charya', 'India', '16jul1800');

Insert into inventor values('IR3', 'Benstokes', 'Alfred', 'Chinerse', '21aug1820');

Insert into inventor values('IR4', 'Cris', 'Evans', 'Russian', '19aug1840');

Insert into inventor values('IR5', 'Camy', 'John', 'American', '19dec1910');

Insert into inventor values('IR6', 'Charles', 'Willey', 'Russian', '9may1800');

Insert into inventor values('IR7', 'Bruce Lee', 'Edison', 'USA', '20may1810');

Insert into inventor values('IR8', 'Venkatesh', 'Pavan', 'Japan', '9nov1904');

select * from inventor;

```

Activities Places pgAdmin III
Wed 9:05 AM 87.8 °F 10.113.9.65 23.9 ms
File Edit Query Favourites Macros View Help
File Output | Favorites | Macros | View | Help | pgAdmin III - [home/bote/] *
Query - postgres on postgres@localhost:5432 - [/home/bote/] *
Scratch pad
SQL Editor Graphical Query Builder
Previous queries
Insert into invention values('ID4', 'Quantum Theory', 1870, 'f1');
Insert into invention values('ID5', 'Critical Bonding', 1990, 'f5');
Insert into invention values('ID6', 'R.B.C', 1050, 'f3');
Insert into invention values('ID7', 'Computer', 1880, 'f4');
Insert into invention values('ID8', 'Ac', 1993, 'f1');
select * from invention;
Insert into inventor values('IR1', 'Thomas', 'Miller', 'Russia', '17dec1960');
Insert into inventor values('IR2', 'Baskara', 'Charya', 'India', '16jul1900');
Insert into inventor values('IR3', 'Benstokes', 'Alfred', 'Chinese', '21aug1820');
Insert into inventor values('IR4', 'Cris', 'Evans', 'Russian', '19aug1840');
Insert into inventor values('IR5', 'Cany', 'John', 'American', '19dec1910');
Insert into inventor values('IR6', 'Charles', 'Willie', 'Russian', '9may1800');
Insert into inventor values('IR7', 'Bruce Lee', 'Edison', 'USA', '20may1810');
Insert into inventor values('IR8', 'Venkatesh', 'Pavan', 'Japan', '9nov1904');
select * from inventor;
Insert into inventorPhoneno values('IR1', 9131618797);
Insert into inventorPhoneno values('IR1', 8180543210);
Insert into inventorPhoneno values('IR2', 8654321234);
Insert into inventorPhoneno values('IR2', 9790002742);
Insert into inventorPhoneno values('IR3', 9552201199);
Insert into inventorPhoneno values('IR4', 7896543679);
Insert into inventorPhoneno values('IR5', 7689590435);
Insert into inventorPhoneno values('IR6', 9875468905);
Insert into inventor values('IR1', 'Thomas', 'Miller', 'Russia', '17dec1960');
Insert into inventor values('IR2', 'Baskara', 'Charya', 'India', '16jul1900');
Insert into inventor values('IR3', 'Benstokes', 'Alfred', 'Chinese', '21aug1820');
Insert into inventor values('IR4', 'Cris', 'Evans', 'Russian', '19aug1840');
Insert into inventor values('IR5', 'Cany', 'John', 'American', '19dec1910');
Insert into inventor values('IR6', 'Charles', 'Willie', 'Russian', '9may1800');
Insert into inventor values('IR7', 'Bruce Lee', 'Edison', 'USA', '20may1810');
Insert into inventor values('IR8', 'Venkatesh', 'Pavan', 'Japan', '9nov1904');

Insert into invent values('ID1', 'TR1');

Output pane
Data Output Explain Messages History
inventor_id fname lname nationality date_of_birth
character varying(10) character varying(25) character varying(25) character varying(15) date
1 IR1 Thomas Miller Russia 1960-12-17
2 IR2 Baskara Charya India 1800-07-16
3 IR3 Benstokes Alfred Chinese 1820-08-21
4 IR4 Cris Evans Russian 1840-08-19
5 IR5 Cany John American 1910-12-19
6 IR6 Charles Willie Russian 1800-05-09
7 IR7 Bruce Lee Edison USA 1810-05-20
8 IR8 Venkatesh Pavan Japan 1984-11-09

```

OK. Unix Ln 49, Col 1, Ch 3223 24 chars 8 rows. 12 msec

Insert into inventorPhoneno values('IR1', 9131618797);

Insert into inventorPhoneno values('IR1', 8180543210);

Insert into inventorPhoneno values('IR2', 8654321234);

Insert into inventorPhoneno values('IR2', 9790002742);

Insert into inventorPhoneno values('IR3', 9552201199);

Insert into inventorPhoneno values('IR4', 7896543679);

Insert into inventorPhoneno values('IR5', 7689590435);

Insert into inventorPhoneno values('IR6', 9875468905);

Insert into inventorPhoneno values('IR6', 9023457890);

select * from inventorPhoneno

```

Activities Places pgAdmin III
Wed 9:06 AM 87.8 °F
10.113.9.65 26.6 ms
File Edit Query Favourites Macros View Help
File Edit Query Favourites Macros View Help
SQL Editor Graphical Query Builder
Query - postgres on postgres@localhost:5432 - [/home/bote/] *
Delete Delete All
Scratch pad
Previous queries
Insert into invent values('ID4', 'Quantum Theory', 1870, 'f1');
Insert into invent values('ID5', 'Critical Bonding', 1990, 'f5');
Insert into invent values('ID6', 'R.B.C.', 1050, 'f3');
Insert into invent values('ID7', 'Computer', 1810, 'f4');
Insert into invent values('ID8', 'Ac', 1993, 'f1');
select * from invention;
Insert into inventor values('IR1', 'Thomas', 'Miller', 'Russia', '17dec1960');
Insert into inventor values('IR2', 'Baskara', 'Charya', 'India', '16jul1900');
Insert into inventor values('IR3', 'Benstokes', 'Alfred', 'Chinerse', '21aug1820');
Insert into inventor values('IR4', 'Cris', 'Evans', 'Russian', '19aug1840');
Insert into inventor values('IR5', 'Camy', 'John', 'American', '19dec1910');
Insert into inventor values('IR6', 'Charles', 'Willsey', 'Russian', '9may1800');
Insert into inventor values('IR7', 'Bruce Lee', 'Edison', 'USA', '20may1810');
Insert into inventor values('IR8', 'Venkatesh', 'Pavan', 'Japan', '9nov1904');
select * from inventor;
select * from inventorPhoneno;
Insert into inventorPhoneno values('IR1', 9131618797);
Insert into inventorPhoneno values('IR1', 8100543210);
Insert into inventorPhoneno values('IR2', 0654321234);
Insert into inventorPhoneno values('IR2', 9790082743);
Insert into inventorPhoneno values('IR3', 9552201199);
Insert into inventorPhoneno values('IR4', 7696543679);
Insert into inventorPhoneno values('IR5', 7689598435);
Insert into inventorPhoneno values('IR5', 9875468985);
Insert into inventorPhoneno values('IR6', 9023457890);
select * from inventorPhoneno;
Insert into invent values('ID1', 'IR1');

Output pane
Data Output Explain Messages History
inventor_id phone_no
character varying(10) numeric(10,0)
1 IR1 9131618797
2 IR1 8100543210
3 IR2 0654321234
4 IR2 9790082743
5 IR3 9552201199
6 IR4 7696543679
7 IR5 7689598435
8 IR5 9875468985
9 IR6 9023457890
OK.

```

Unix Ln 58, Col 30, Ch 3747 29 chars 9 rows. 5 msec

Insert into invent values('ID1', 'IR1');

Insert into invent values('ID2', 'IR2');

Insert into invent values('ID3', 'IR3');

Insert into invent values('ID4', 'IR1');

Insert into invent values('ID5', 'IR5');

Insert into invent values('ID6', 'IR6');

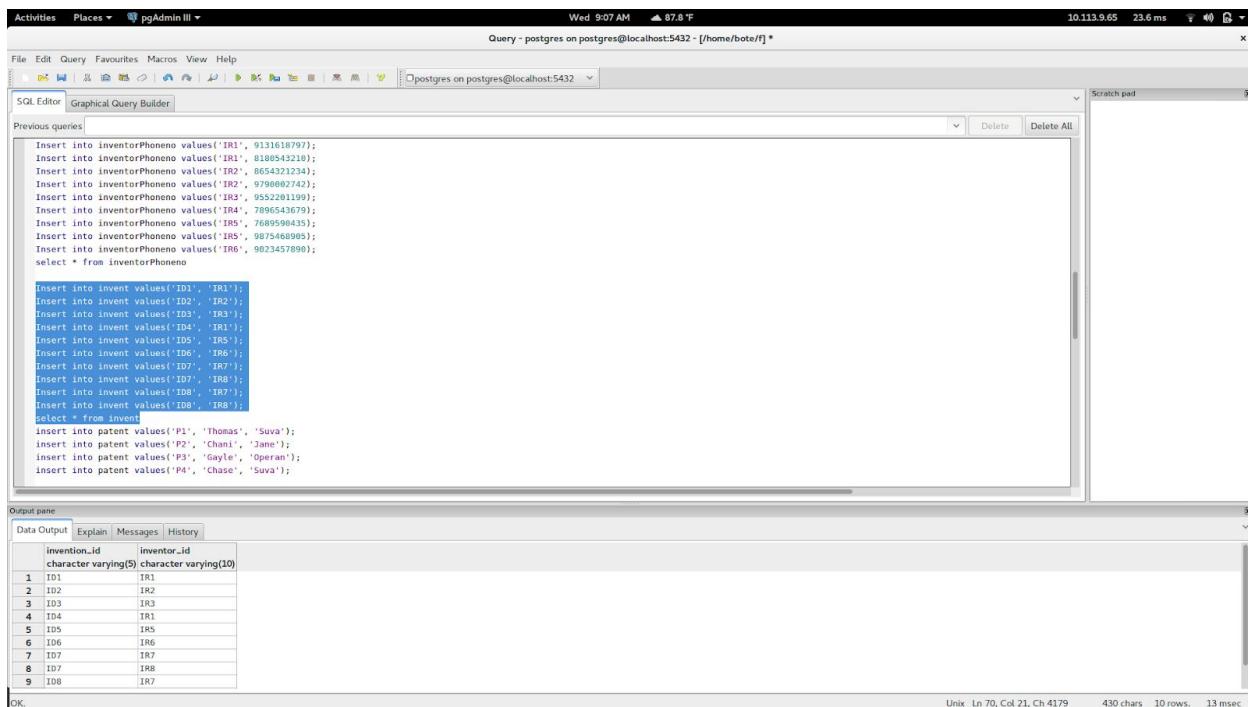
Insert into invent values('ID7', 'IR7');

Insert into invent values('ID7', 'IR8');

Insert into invent values('ID8', 'IR7');

Insert into invent values('ID8', 'IR8');

`select * from invent`



The screenshot shows the pgAdmin III interface. The SQL Editor tab is active, displaying the following SQL code:

```
Insert into inventorPhoneno values('IR1', 9131618797);
Insert into inventorPhoneno values('IR1', 8388543210);
Insert into inventorPhoneno values('IR2', 8654321234);
Insert into inventorPhoneno values('IR2', 979808742);
Insert into inventorPhoneno values('IR3', 9552201199);
Insert into inventorPhoneno values('IR4', 7896543679);
Insert into inventorPhoneno values('IR5', 7689598435);
Insert into inventorPhoneno values('IR5', 9875468905);
Insert into inventorPhoneno values('IR6', 9823457890);
select * from inventorPhone;

Insert into invent values('ID1', 'IR1');
Insert into invent values('ID2', 'IR2');
Insert into invent values('ID3', 'IR3');
Insert into invent values('ID4', 'IR1');
Insert into invent values('ID5', 'IR5');
Insert into invent values('ID6', 'IR6');
Insert into invent values('ID7', 'IR7');
Insert into invent values('ID7', 'IR8');
Insert into invent values('ID8', 'IR7');
Insert into invent values('ID8', 'IR8');
select * from invent;

insert into patent values('P1', 'Thomas', 'Suva');
insert into patent values('P2', 'Chani', 'Jane');
insert into patent values('P3', 'Gayle', 'Operan');
insert into patent values('P4', 'Chase', 'Suva');
```

The Output pane shows the results of the last query:

	invention_id	inventor_id
1	ID1	IR1
2	ID2	IR2
3	ID3	IR3
4	ID4	IR1
5	ID5	IR5
6	ID6	IR6
7	ID7	IR7
8	ID7	IR8
9	ID8	IR7

`insert into patent values('P1', 'Thomas', 'Suva');`

`insert into patent values('P2', 'Chani', 'Jane');`

`insert into patent values('P3', 'Gayle', 'Operan');`

`insert into patent values('P4', 'Chase', 'Suva');`

`select * from patent`

```

Activities Places pgAdmin III
Wed 9:08 AM 87.8 °F 10.113.9.65 22.1 ms
File Edit Query Favourites Macros View Help
File Edit Query Favourites Macros View Help
Query - postgres on postgres@localhost:5432 - [/home/bote/] *
SQL Editor Graphical Query Builder
Previous queries
Insert into inventorPhoneno values('IR5', 7689596435);
Insert into inventorPhoneno values('IR5', 9875468905);
Insert into inventorPhoneno values('IR6', 9823457890);
select * from inventorPhoneno;

Insert into invent values('ID1', 'IR1');
Insert into invent values('ID2', 'IR2');
Insert into invent values('ID3', 'IR3');
Insert into invent values('ID4', 'IR1');
Insert into invent values('ID5', 'IR5');
Insert into invent values('ID6', 'IR6');
Insert into invent values('ID7', 'IR7');
Insert into invent values('ID8', 'IR8');
Insert into invent values('ID9', 'IR7');
Insert into invent values('ID9', 'IR8');
select * from invent;

Insert into patent values('P1', 'Thomas', 'Suva');
Insert into patent values('P1', 'Chani', 'Jane');
Insert into patent values('P3', 'Gayle', 'Operan');
Insert into patent values('P4', 'Chase', 'Suva');
select * from patent;

insert into award values('A101', 'Bailey', 'Ussr' , 100000);
insert into award values('A102', 'Ashoka', 'Ninner' , 150000);
insert into award values('A103', 'Noble', 'Noble' , 200000);
insert into award values('A104', 'Acharya', 'Kane' , 700000);
insert into award values('A105', 'Carry', 'Usa' , 5000000);
insert into award values('A106', 'Oscar', 'India' , 400000);

Output pane
Data Output Explain Messages History
patent_id patent_name patent_organisation
character varying(5) character varying(20) character varying(20)
1 P1 Thomas Suva
2 P2 Chani Jane
3 P3 Gayle Operan
4 P4 Chase Suva

```

OK. Unix Ln 75, Col 21, Ch 4403 223 chars 4 rows. 15 msec

`insert into award values('A101', 'Bailey', 'Ussr' , 100000);`

`insert into award values('A102', 'Ashoka', 'Ninner', 150000);`

`insert into award values('A103', 'Noble', 'Noble' , 200000);`

`insert into award values('A104', 'Acharya', 'Kane' , 700000);`

`insert into award values('A105', 'Carry', 'Usa' , 5000000);`

`insert into award values('A106', 'Oscar', 'India' , 400000);`

`select * from award`

Activities Places pgAdmin III • Wed 9:08 AM 87.8 °F 10.113.9.65 24.4 ms

Query - postgres on postgres@localhost:5432 - [/home/bote/] *

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

```

Insert into invent values('ID7', 'IR8');
Insert into invent values('ID8', 'IR7');
Insert into invent values('ID9', 'IR9');
select * from invent;
insert into patent values('P1', 'Thomas', 'Sava');
insert into patent values('P2', 'Chani', 'Jane');
insert into patent values('P3', 'Gayle', 'Operan');
insert into patent values('P4', 'Chase', 'Sava');
select * from patent;
insert into award values('A101', 'Bailey', 'Usrt', 100000);
insert into award values('A102', 'Ashoka', 'Ninor', 150000);
insert into award values('A103', 'Noble', 'Noble', 200000);
insert into award values('A104', 'Acharya', 'Kane', 700000);
insert into award values('A105', 'Carry', 'Usa', 500000);
insert into award values('A106', 'Oscar', 'India', 400000);
select * from given;
Insert into given values('ID1', 'IR1', 'P1', '21jan1991');
Insert into given values('ID2', 'IR2', 'P2', '7jul1860');
Insert into given values('ID3', 'IR3', 'P3', '19dec1895');
Insert into given values('ID6', 'IR6', 'P1', '21jan1991');

insert into achieved values('ID1', 'IR1', 'A101', 'President of Russia', '25jun2002');
insert into achieved values('ID2', 'IR2', 'A102', 'East India Company', '15jun1884');
insert into achieved values('ID4', 'IR1', 'A103', 'Charles', '3may1900');
insert into achieved values('ID4', 'IR1', 'A104', 'Krish', '25jun1874');
insert into achieved values('ID5', 'IR5', 'A103', 'Obama', '25jun1992');
insert into achieved values('ID6', 'IR6', 'A101', 'Donald Trump', '25jun1859');

```

Output pane

award_id	award_name	organization	prize_money
1	A101	Bailey	100000.00
2	A102	Ashoka	150000.00
3	A103	Noble	200000.00
4	A104	Acharya	700000.00
5	A105	Carry	500000.00
6	A106	India	400000.00

OK. Unix Ln 82, Col 1, Ch 4770 19 chars 6 rows 13 msec

Insert into given values('ID1', 'IR1', 'P1' , '21jan1991');

Insert into given values('ID2', 'IR2', 'P2', '7jul1860');

Insert into given values('ID3', 'IR3', 'P3', '19dec1895');

Insert into given values('ID6', 'IR6', 'P1', '21jan1991');

select * from given

```

Activities Places pgAdmin III
Wed 9:09 AM 87.8 °F 10.113.9.65 23.9 ms
Query - postgres on postgres@localhost:5432 - [/home/bote/] *
File Edit Query Favourites Macros View Help
SQL Editor Graphical Query Builder
Previous queries
select * from invent
insert into patent values('P1', 'Thomas', 'Sava');
insert into patent values('P2', 'Chant', 'Jane');
insert into patent values('P3', 'Gayle', 'Operan');
insert into patent values('P4', 'Chase', 'Sava');
select * from patent
insert into award values('A101', 'Bailey', 'User', 100000);
insert into award values('A102', 'Ashoka', 'Ninner', 150000);
insert into award values('A103', 'Noble', 'Noble', 200000);
insert into award values('A104', 'Acharya', 'Kane', 700000);
insert into award values('A105', 'Carry', 'Usa', 500000);
insert into award values('A106', 'Oscar', 'India', 400000);
select * from award
Insert into given values('ID1', 'IR1', 'P1', '21jan1991');
Insert into given values('ID2', 'IR2', 'P2', '7Jul1860');
Insert into given values('ID3', 'IR3', 'P3', '19dec1895');
Insert into given values('ID6', 'IR6', 'P1', '21Jan1991');
Select * from achieved
insert into achieved values('ID1', 'IR1', 'A101', 'President of Russia', '25jun2002');
insert into achieved values('ID2', 'IR2', 'A102', 'East India Company', '15jun1864');
insert into achieved values('ID4', 'IR1', 'A103', 'Charles', '3may1900');
insert into achieved values('ID4', 'IR1', 'A104', 'Krish', '25jun1874');
insert into achieved values('ID5', 'IR5', 'A103', 'Obama', '25jun1992');
insert into achieved values('ID6', 'IR6', 'A101', 'Donald Trump', '25jun1859');
insert into achieved values('ID7', 'IR7', 'A101', 'K A Paul', '15Jul1812');
insert into achieved values('ID7', 'IR8', 'A101', 'Modi', '25Jun1812');
insert into achieved values('ID8', 'IR7', 'A106', 'Ambani', '3Nov1905');

```

Output pane

	Data	Output	Explain	Messages	History
invention_id	inventor_id	patent_id	patent_date		
character varying(5)	character varying(10)	character varying(5)	date		
1 ID1	IR1	P1	1991-01-21		
2 ID2	IR2	P2	1868-07-07		
3 ID3	IR3	P3	1895-12-19		
4 ID6	IR6	P1	1991-01-21		

OK.

Unix Ln 88, Col 1, Ch 5046 20 chars 4 rows 18 msec

insert into acheived values('ID1', 'IR1', 'A101', 'President of Russia', '25jun2002');

insert intoacheived values('ID2', 'IR2', 'A102', 'East India Company', '15jun1864');

insert intoacheived values('ID4', 'IR1', 'A103', 'Charles', '3may1900');

insert intoacheived values('ID4', 'IR1', 'A104', 'Krish', '25jun1874');

insert intoacheived values('ID5', 'IR5', 'A103', 'Obama', '25jun1992');

insert intoacheived values('ID6', 'IR6', 'A101', 'Donald Trump', '25jun1859');

```
insert into acheived values('ID7', 'IR7', 'A101', 'K A Paul',  
'15Jul1812');
```

```
insert into achieved values('ID7', 'IR8', 'A101', 'Modi',  
'25jun1812');
```

```
insert into achieved values('ID8', 'IR7', 'A106', 'Ambani',  
'5nov1905');
```

```
insert into achieved values('ID8', 'IR8', 'A106', 'Bill Gates',  
'5dec1905');
```

```
insert into acheived values('ID8', 'IR8', 'A101', 'president of  
Russia', '5dec1905');
```

select * from acheived

Activities Places pgAdmin III ▾ Wed 9:10 AM 87.8 °F 10.113.9.65 23.2 ms

Query - postgres on postgres@localhost:5432 - [/home/bote/] *

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

```
select * from patent
insert into award values('A101', 'Babu', 'User', 100000);
insert into award values('A102', 'Shubha', 'Nimra', 150000);
insert into award values('A103', 'Noble', 'Noble', 200000);
insert into award values('A104', 'Acharya', 'Kane', 700000);
insert into award values('A105', 'Carry', 'USA', 5000000);
insert into award values('A106', 'Oscar', 'India', 400000);
select * from award
Insert into given values('ID1', 'IR1', 'P1', '21jan1991');
Insert into given values('ID2', 'IR2', 'P2', '21jan1986');
Insert into given values('ID3', 'IR3', 'P3', '19dec1989');
Insert into given values('ID4', 'IR4', 'P4', '21jan1991');
select * from given
insert into achieved values('ID1', 'IR1', 'A101', 'President of Russia', '25jun2002');
insert into achieved values('ID2', 'IR2', 'A107', 'East India Company', '15jun1864');
insert into achieved values('ID3', 'IR1', 'A101', 'Gandhi', '30jan1900');
insert into achieved values('ID4', 'IR1', 'A104', 'Krish', '25jun1874');
insert into achieved values('ID5', 'IR5', 'A103', 'Obama', '25jun1992');
insert into achieved values('ID6', 'IR6', 'A101', 'Donald Trump', '25jun1859');
insert into achieved values('ID7', 'IR7', 'A101', 'K A Paul', '15Jul1812');
insert into achieved values('ID7', 'IR8', 'A101', 'Modi', '25Jun1812');
insert into achieved values('ID8', 'IR7', 'A106', 'Abani', '3Nov1985');
insert into achieved values('ID8', 'IR8', 'A106', 'Bill Gates', '5Dec1985');
insert into achieved values('ID8', 'IR8', 'A101', 'President of Russia', '5Dec1905');
select * from achieved
select Invention_Id, count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1
select Inventor_Id, sum(prize_money) from achieved natural join award group by (Inventor_Id)
```

Output pane

Data Output Explain Messages History

invention_id	inventor_id	award_id	awarded_by	award_date
1	ID1	A101	President of Russia	2802-06-25
2	ID2	A102	East India Company	1864-06-15
3	ID4	A101	Charles	1900-05-03
4	ID4	A104	Krish	1874-06-25
5	ID5	A105	Obama	1992-06-25
6	ID6	A101	Donald Trump	1859-06-25
7	ID7	A101	K A Paul	1812-07-15
8	ID8	A101	Modi	1813-06-25
9	ID8	A106	Abani	1905-11-05

OK.

1.)

1.1 Query purpose :

To select all the inventions that have more than one inventor and the count of inventors

1.2 Query :

```
select Invention_Id,count(Invention_Id) from Invent group by  
(Invention_Id) having count(Invention_Id)>1
```

1.3 Screenshot :

The screenshot shows a PostgreSQL query editor window titled "Query - postgres on postgres@localhost:5432". The main area displays the following SQL code:

```
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1  
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id)  
select * from invention order by Invention_year  
select * from Inventor order by Date_of_birth  
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'  
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Achieved;  
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from achieved)  
select Invention_id,Invention_Name from Invention where Inventionn_Id not in (select Invention_id from given);  
select Inventor_id,sum(prize_money) from achieved natural join award group by (Inventor_Id) having (sum(prize money) >= all  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_Id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_Id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_Id=Invention.Invention_id w  
select Invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;  
select Invention_name from invention where Invention_year between 1850 and 1900  
select Invention_name from invention where Invention_year Not between 1850 and 1900  
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_O  
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_cha
```

The "Output pane" below the code shows the results of the query:

Invention_Id	count	
1	ID8	2
2	ID7	2

At the bottom right of the window, status information is displayed: Unix Ln 102, Col 1, Ch 5751, 105 chars, 2 rows, 14 msec.

2.)

2.1 Query purpose :

To find total prize money he got from all the Awards

2.2 Query :

```
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id)
```

2.3 Screenshot :

The screenshot shows a PostgreSQL client window titled "Query - postgres on postgres@localhost:5432". The SQL Editor pane contains the following query:

```
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1
select Inventor_Id,sum(prize money) from achieved natural join award group by (Inventor_Id)
select * from invention order by Invention_year
select * from Inventor order by Date_of_birth
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'
select Inventor_id,Inventor_id from given intersect select Inventor_id from Achieved;
select Inventor_id,Invention_Name from Invention where Inventionn_Id not in (select Invention_id from given);
select Inventor_id,sum(prize_money) from achieved natural join award group by (Inventor_Id) having (sum(prize_money)) >= all
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_Id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;
select Invention_name from invention where Invention_year between 1850 and 1900
select Invention_name from invention where Invention_year Not between 1850 and 1900
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_O
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_cha
```

The Output pane displays the results of the query:

Inventor_Id	sum numeric
1 IR6	100000.00
2 IR7	500000.00
3 IR2	150000.00
4 IR1	1000000.00
5 IR8	500000.00
6 IRS5	200000.00

At the bottom right of the output pane, the statistics are shown: Unix Ln 103, Col 1, Ch 5844, 93 chars, 6 rows, 14 msec.

3.)

3.1 Query purpose :

Order the inventions in ascending order by invention Year

3.2 Query :

select * from invention order by Invention_year

3.3 Screenshot :

The screenshot shows a PostgreSQL query editor window titled "Query - postgres on postgres@localhost:5432". The main area contains a complex SQL query with numerous joins and conditions. Below the query, the "Output pane" displays the results in a table format. The table has four columns: Invention_id, Invention_name, invention_year, and field_id. The data is as follows:

Invention_id	Invention_name	invention_year	field_id
1	Computer	1810	f4
2	R.B.C	1850	f3
3	Algebra	1860	f2
4	Quantum Theory	1870	f1
5	Flower pollination	1895	f3
6	Ac	1903	f1
7	Chemical Bonding	1990	f5
8	Motor	1999	f1

The status bar at the bottom right indicates: Unix Ln 104, Col 1, Ch 5892, 48 chars, 8 rows, 13 msec.

```
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1
select Inventor_Id,sum(prize money) from achieved natural join award group by (Inventor_Id)
select * from invention order by Invention year
select * from Inventor order by Date_of_birth
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Achieved;
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from achieved)
select Invention_id,Invention.Name from Invention where Invention.Id not in (select Invention_id from given);
select Inventor_id,sum(prize money) from achieved natural join award group by (Inventor_Id) having (sum(prize money)) >= all
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;
select Invention_name from invention where Invention_year between 1850 and 1900
select Invention_name from invention where Invention_year Not between 1850 and 1900
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_O
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_cha
```

4.)

4.1 Query purpose :

Order the inventors in ascending order by their Date of birth

4.2 Query :

```
select * from Inventor order by Date_of_birth
```

4.3 Screenshot :

The screenshot shows the pgAdmin III interface. The top bar displays the title "Query - postgres on postgres@localhost:5432 *". The main window has two panes: "SQL Editor" and "Graphical Query Builder". The SQL Editor pane contains a large, complex multi-line SQL query. The Graphical Query Builder pane is visible below it. The bottom pane is the "Output pane" which shows the results of the query. The results are presented in a table with the following columns: Inventor_Id, fname, lname, nationality, and date_of_birth. The data is as follows:

Inventor_Id	fname	lname	nationality	date_of_birth
1	IR6	Charles	Willey	1800-05-09
2	IR2	Baskara	Charya	1800-07-16
3	IR7	Bruce Lee	Edison	1810-05-20
4	IR3	Benstokes	Alfred	1820-08-21
5	IR4	Cris	Evans	1840-08-19
6	IR8	Venkatesh	Pavan	1904-11-09
7	IR5	Camy	John	1910-12-19
8	IR1	Thomas	Miller	1960-12-17

5.)

5.1 Query purpose :

To find total prize money he got from all the Awards in sorted order

5.2 Query :

```
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id) order by sum(prize_money);
```

5.3 Screenshot :

The screenshot shows the pgAdmin III interface with the following details:

- File Bar:** Activities, Places, pgAdmin III, File, Edit, Query, Favourites, Macros, View, Help.
- Toolbar:** Standard icons for file operations like Open, Save, Print, etc.
- Query Editor:** A large text area containing the SQL code. The code includes several INSERT statements into the 'award' table and a complex SELECT statement that counts inventions, joins them with awards, groups by inventor ID, and then sums the prize money for each inventor, finally ordering the results.
- Output pane:** Shows the results of the query in a tabular format. The table has columns 'inventor_id' and 'sum'. The data is as follows:

inventor_id	sum
I16	1000000.00
I182	1500000.00
I185	2000000.00
I187	500000.00
I188	600000.00
I181	1000000.00

6.)

6.1 Query purpose :

To select all the inventors who are from India and Inventors from Russia

6.2 Query :

```
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'
```

6.3 Screenshot :

The screenshot shows a PostgreSQL query editor interface. The main window displays a complex SQL query involving multiple tables and joins, including 'Invent', 'Achieved', 'Award', 'Invention', 'Inventionn', 'Field', and 'Invention'. The query uses various clauses like GROUP BY, HAVING, and UNION. The results pane shows a table with three rows of data:

Inventor_id	name	lname	nationality	date_of_birth
1	Cris	Evans	Russian	1840-08-19
2	Charles	Willey	Russian	1800-05-09
3	Baskara	Charya	India	1800-07-16

At the bottom of the interface, status information is displayed: Unix Ln 106, Col 1, Ch 6044, 106 chars, 3 rows, 15 msec.

7.)

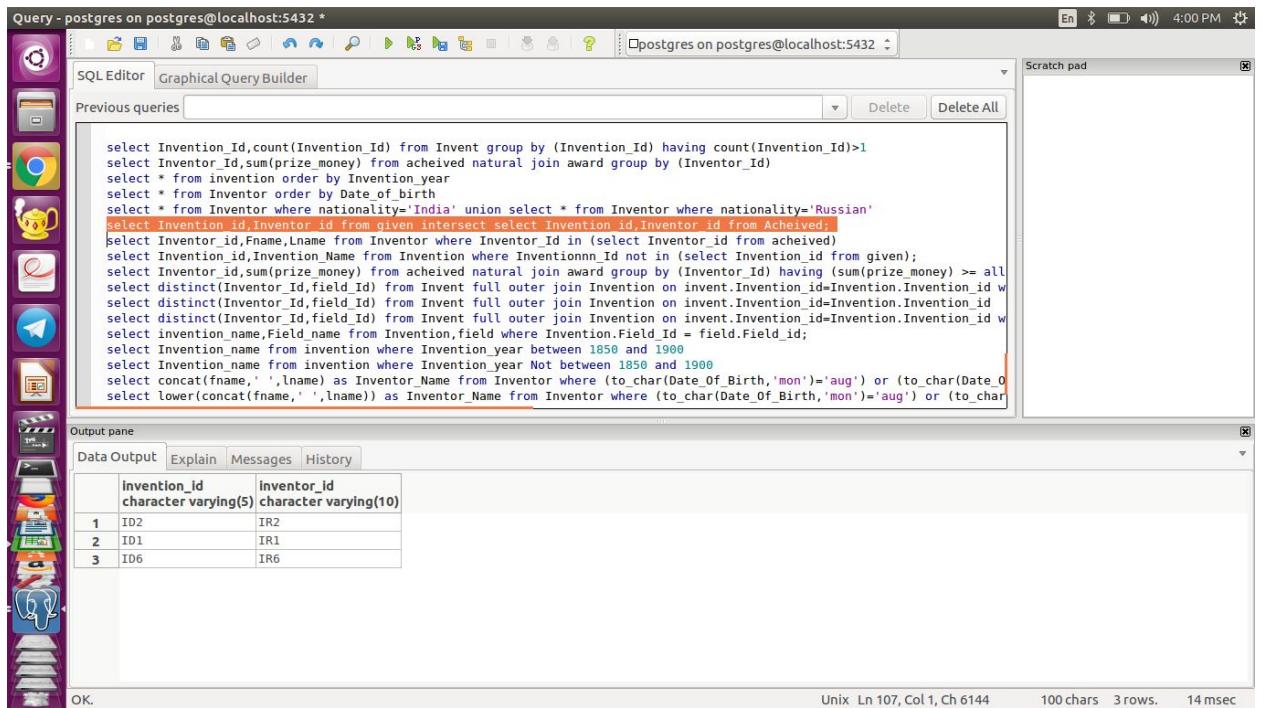
7.1 Query purpose :

To select inventions that got both an award and a patent

7.2 Query :

```
select Invention_id,Inventor_id from given intersect select  
Invention_id,Inventor_id from Acheived;
```

7.3 Screenshot :



The screenshot shows a PostgreSQL client window titled "Query - postgres on postgres@localhost:5432". The SQL Editor tab is active, displaying a complex multi-step query. The output pane below shows the results of the query, which is a table with two columns: "Invention_id" and "Inventor_id". The data is as follows:

Invention_id	Inventor_id
ID2	IR2
ID1	IR1
ID6	IR6

The status bar at the bottom right indicates: Unix Ln 107, Col 1, Ch 6144, 100 chars, 3 rows, 14 msec.

```
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1  
select Inventor_Id,sum(prize money) from achieved natural join award group by (Inventor_Id)  
select * from invention order by Invention_year  
select * from Inventor order by Date_of_birth  
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'  
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Acheived;  
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from achieved)  
select Invention_id,Invention_Name from Invention where Inventionn_Id not in (select Invention_id from given);  
select Inventor_id,sum(prize money) from achieved natural join award group by (Inventor_Id) having (sum(prize money)) >= all  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;  
select Invention_name from invention where Invention_year between 1850 and 1900  
select Invention_name from invention where Invention_year Not between 1850 and 1900  
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_O  
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char
```

8.)

8.1 Query purpose :

To select all the inventors who got an Award

8.2 Query :

```
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in  
(select Inventor_id from acheived)
```

8.3 Screenshot :

The screenshot shows a PostgreSQL query editor window titled "Query - postgres on localhost:5432". The main pane displays the following SQL query:

```
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1  
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id)  
select * from invention order by Invention_year  
select * from Inventor order by Date_of_birth  
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'  
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Acheived;  
select Inventor_id,Fname,Lname from Inventor where Inventor_id in (select Inventor_id fromacheived);  
select Invention_id,Invention_Name from Invention where Inventionn_Id not in (select Invention_id from given);  
select Inventor_id,sum(prize_money) from achieved natural join award group by (Inventor_Id) having (sum(prize_money)) >= all  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;  
select Invention_name from invention where Invention_year between 1850 and 1900  
select Invention_name from invention where Invention_year Not between 1850 and 1900  
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_o  
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_cha
```

The "Data Output" pane below the query shows the results of the query:

Inventor_Id	fname	lname
1	IR1	Thomas
2	IR2	Baskara
3	IR5	Camy
4	IR6	Charles
5	IR7	Bruce Lee
6	IR8	Venkatesh

At the bottom of the interface, there are status indicators: Unix Ln 108, Col 1, Ch 6245, 101 chars, 6 rows, 14 msec.

9.)

9.1 Query purpose :

To select all the inventions that doesn't have a patent

9.2 Query :

```
select Invention_id,Invention_Name from Invention where  
Invention_Id not in (select Invention_id from given);
```

9.3 Screenshot :

The screenshot shows the pgAdmin III interface. The left sidebar contains icons for various databases and objects. The main window has two tabs: 'SQL Editor' and 'Graphical Query Builder'. The 'SQL Editor' tab is active, displaying the following SQL query:

```
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1  
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id)  
select * from invention order by Invention_year  
select * from Inventor order by Date_of_birth  
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'  
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Achieved;  
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from achieved)  
select Invention_id,invention_Name from invention where Invention_Id not in (select Invention_id from given);  
select Inventor_id,sum(prize_money) from achieved natural join award group by (Inventor_Id) having (sum(prize_money) >= all  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;  
select Invention_name from invention where Invention_year between 1850 and 1900  
select Invention_name from invention where Invention_year Not between 1850 and 1900  
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_O  
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char
```

The 'Output pane' below the SQL editor shows the results of the query:

Invention_id	Invention_name
1 ID4	Quantum Theory
2 ID5	Chemical Bonding
3 ID7	Computer
4 ID8	Ac

At the bottom right of the output pane, the status bar displays: Unix Ln 109, Col 1, Ch 6356 111 chars 4 rows. 11 msec.

10.)

10.1 Query purpose :

To select inventor that got the highest prize money

10.2 Query :

```
select Inventor_id,sum(prize_money) from achieved natural join
award group by (Inventor_Id) having (sum(prize_money) >= all
(select sum(prize_money) from achieved natural join award group by
(Inventor_Id)))
```

10.3 Screenshot :

The screenshot shows a PostgreSQL client window titled "Query - postgres on postgres@localhost:5432 *". The SQL Editor tab is active, displaying the following SQL query:

```
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id)
select * from invention order by Invention_year
select * from Inventor order by Date_of_birth
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Achieved;
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from achieved)
select Invention_id,Invention_Name from Invention where Invention_Id not in (select Invention_id from given);
select Inventor_id,sum(prize money) from achieved natural join award group by (Inventor_Id) having (sum(prize money) >= all
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select invention_name,Field.name from Invention,field where Invention.Field_Id = field.Field_id;
select Invention_name from invention where Invention_year between 1850 and 1900
select Invention_name from invention where Invention_year Not between 1850 and 1900
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_O
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char
```

The Output pane shows the results of the query:

Inventor_id	sum
IR1	1000000.00

At the bottom of the interface, status information is displayed: Unix Ln 110, Col 1, Ch 6563, 207 chars, 1 row., 14 msec.

11.)

11.1 Query purpose :

To select all the fields to which IR1 has contributed to

11.2 Query :

```
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention  
on invent.Invention_id=Invention.Invention_id where  
Inventor_id='IR1';
```

11.3 Screenshot :

The screenshot shows the pgAdmin III application window. The SQL Editor pane contains the following SQL query:

```
insert into achieved values('ID7', 'IR7', 'A101', 'K A Paul', '15Jul1812');  
insert into achieved values('ID7', 'IR8', 'A101', 'Modi', '25Jun1812');  
insert into achieved values('ID8', 'IR7', 'A106', 'Ambani', '5Nov1995');  
insert into achieved values('ID8', 'IR8', 'A106', 'Bill Gates', '5Dec1995');  
  
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1  
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id)  
select * from invention order by Invention_year  
select * from Inventor order by Date_of_birth  
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russia'  
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Achieved;  
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from achieved)  
select Invention_id,Invention_Name from Invention where Invention_Id not in (select Invention_id from given);  
select Inventor_id,sum(prize money) from achieved natural join award group by (Inventor_Id) having (sum(prize money)) >= all  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id
```

The Data Output pane shows the results of the query:

row record
1 (IR1,f1)

Details at the bottom of the interface:

Unix Ln 111, Col 1, Ch 6710 147 chars 1 row. 3 msec

12.)

12.1 Query purpose :

To select all the fields to which Inventors contributed has contributed

12.2 Query :

select distinct(Inventory_Id,field_Id) from Invent full outer join Invention
on invent.Invention_id=Invention.Invention_id

12.3 Screenshot :

The screenshot shows the pgAdmin III interface. The SQL Editor tab contains the following SQL code:

```
insert into achieved values('ID7', 'IR7', 'A101', 'K A Paul', '15jul1812');
insert into achieved values('ID7', 'IR8', 'A101', 'Modi', '25jun1812');
insert into achieved values('ID8', 'IR7', 'A106', 'Ambani', '5nov1905');
insert into achieved values('ID8', 'IR8', 'A106', 'Bill Gates', '5dec1905');

select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id)
select * from invention order by Invention_year
select * from Inventor order by Date_of_birth
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Achieved;
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from achieved)
select Invention_id,Invention_Name from Invention where Invention_Id not in (select Invention_Id from given);
select Inventor_id,sum(prize_money) from achieved natural join award group by (Inventor_Id) having (sum(prize_money) >= all
select distinct(Inventory_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventory_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventory_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
```

The Data Output tab shows the results of the last query:

row	record
1	(IR1,f1)
2	(IR2,f2)
3	(IR3,f3)
4	(IR5,f5)
5	(IR6,f3)
6	(IR7,f1)
7	(IR7,f4)
8	(IR8,f1)
9	(IR8,f4)

Below the table, the status bar indicates: Unix Ln 112, Col 1, Ch 6832 122 chars 9 rows. 14 msec.

13.)

13.1 Query purpose :

To select all the inventors that work in a field 'f2'

13.2 Query :

```
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention  
on invent.Invention_id=Invention.Invention_id where field_id='f2';
```

13.3 Screenshot :

The screenshot shows a PostgreSQL query editor window titled "Query - postgres on localhost:5432". The main pane displays the following SQL query:

```
select Invention_Id,count(Invention_Id) from Invent group by (Invention_Id) having count(Invention_Id)>1  
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id)  
select * from invention order by Invention_year  
select * from Inventor order by Date_of_birth  
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russian'  
select Inventor_id,Inventor_id from given intersect select Inventor_id,Inventor_id from Achieved;  
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from achieved)  
select Inventor_id,Invention_Name from Invention where Invention_Id not in (select Invention_id from given);  
select Inventor_id,sum(prize_money) from achieved natural join award group by (Inventor_Id) having (sum(prize_money) >= all  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w  
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;  
select Invention_name from invention where Invention_year between 1850 and 1900  
select Invention_name from invention where Invention_year Not between 1850 and 1900  
select concat(fname, ' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_O  
select lower(concat(fname, ' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_cha  
select fname from Inventor where fname like 'C%'
```

The output pane shows the results of the query:

row record
1 (IR2, f2)

At the bottom of the window, status information is displayed: Unix Ln 113, Col 1, Ch 6975, 143 chars, 1 row, 14 msec.

14.)

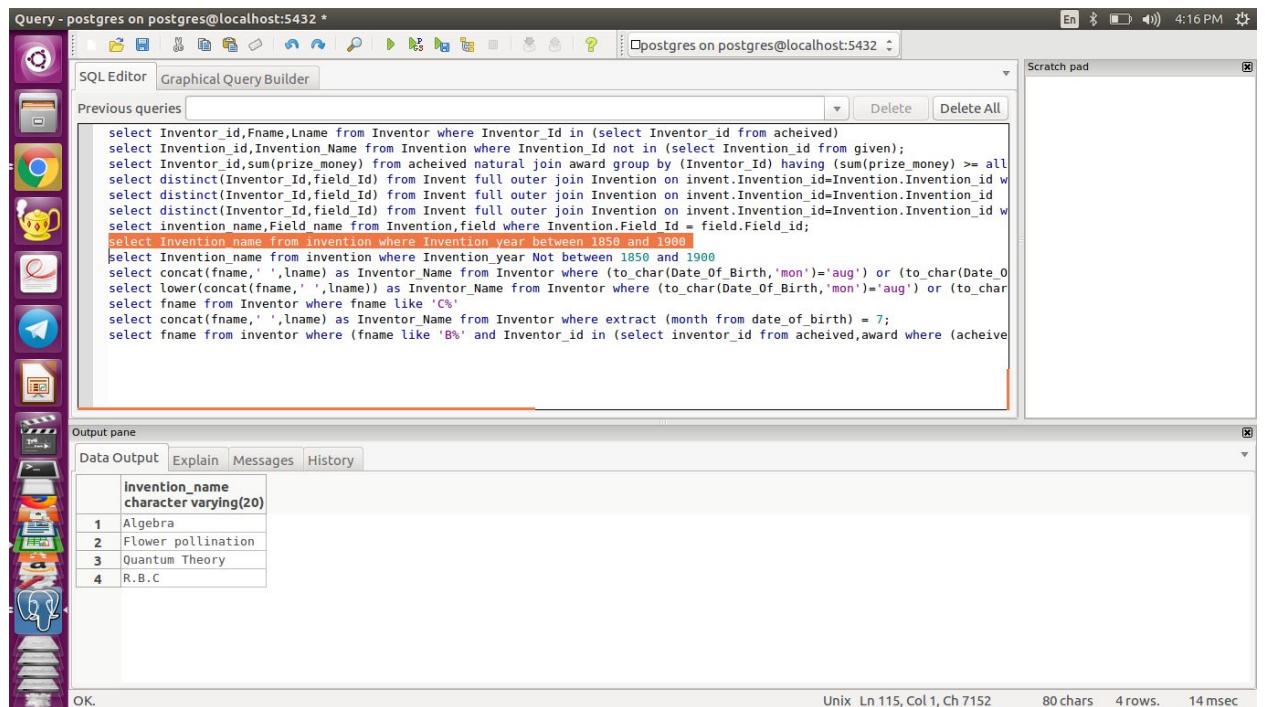
14.1 Query purpose :

To select inventions that are b/w 1850 and 1900

14.2 Query :

select Invention_name from invention where Invention_year between 1850 and 1900

14.3 Screenshot :



The screenshot shows a PostgreSQL client window titled "Query - postgres on postgres@localhost:5432 *". The main area is the SQL Editor tab, which contains a large block of SQL code. A portion of the code is highlighted in red, specifically the line: "select Invention_name from invention where Invention_year between 1850 and 1900". Below the editor is the Output pane, which displays the results of the query. The results are presented in a table with one column labeled "invention_name character varying(20)". The data rows are:

invention_name character varying(20)
1 Algebra
2 Flower pollination
3 Quantum Theory
4 R.B.C

At the bottom of the window, status information is displayed: Unix Ln 115, Col 1, Ch 7152, 80 chars, 4 rows, 14 msec.

15.)

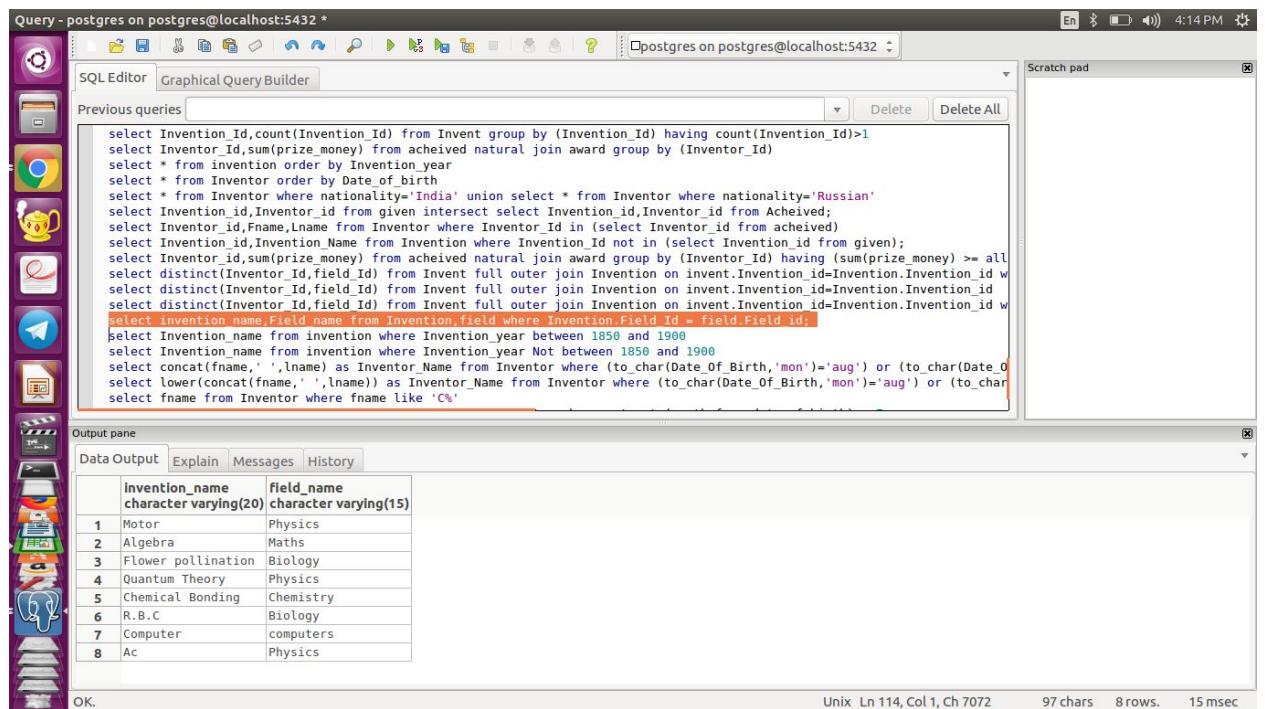
15.1 Query purpose :

To select inventions and their fields

15.2 Query :

```
select invention_name,Field_name from Invention,field where  
Invention.Field_Id = field.Field_id;
```

15.3 Screenshot :



The screenshot shows a PostgreSQL client interface with the following details:

- Query - postgres on postgres@localhost:5432 ***: The title bar indicates the connection information.
- SQL Editor**: The active tab, showing the query code.
- Graphical Query Builder**: A secondary tab.
- Scratch pad**: An empty panel on the right.
- Output pane**: The main result area.
 - Data Output**: The selected tab, displaying the query results in a table format.
 - Explain**: A tab for query planning.
 - Messages**: A tab for log messages.
 - History**: A tab for query history.
- Table Data**: The results of the query:

Invention_name	Field_name
character varying(20)	character varying(15)
1 Motor	Physics
2 Algebra	Maths
3 Flower pollination	Biology
4 Quantum Theory	Physics
5 Chemical Bonding	Chemistry
6 R.B.C	Biology
7 Computer	computers
8 Ac	Physics
- Statistics**: At the bottom of the output pane, it shows: OK., Unix Ln 114, Col 1, Ch 7072, 97 chars, 8 Rows., 15 msec.

16.)

16.1 Query purpose :

To select inventions that are not b/w 1850 and 1900

16.2 Query :

select Invention_name from invention where Invention_year not between 1850 and 1900

16.3 Screenshot :

The screenshot shows a PostgreSQL client window titled "Query - postgres on postgres@localhost:5432 *". The SQL Editor tab is active, containing the following SQL code:

```
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from acheived)
select Invention_id,Invention.Name from Invention where Invention_Id not in (select Invention_id from given);
select Inventor_id,sum(prize money) fromacheived natural join award group by (Inventor_Id) having (sum(prize_money) >= all
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;
select Invention name from invention where Invention year between 1850 and 1900
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_0
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char
select fname from Inventor where fname like 'C%'
select concat(fname,' ',lname) as Inventor_Name from Inventor where extract (month from date_of_birth) = 7;
select fname from inventor where (fname like 'B%' and Inventor_id in (select inventor_id fromacheived,award where (acheive
```

The Output pane below shows the results of the query:

Invention_name character varying(20)
1 Motor
2 Chemical Bonding
3 Computer
4 Ac

At the bottom of the window, status information is displayed: Unix Ln 116, Col 1, Ch 7236, 84 chars, 4 rows, 14 msec.

17.)

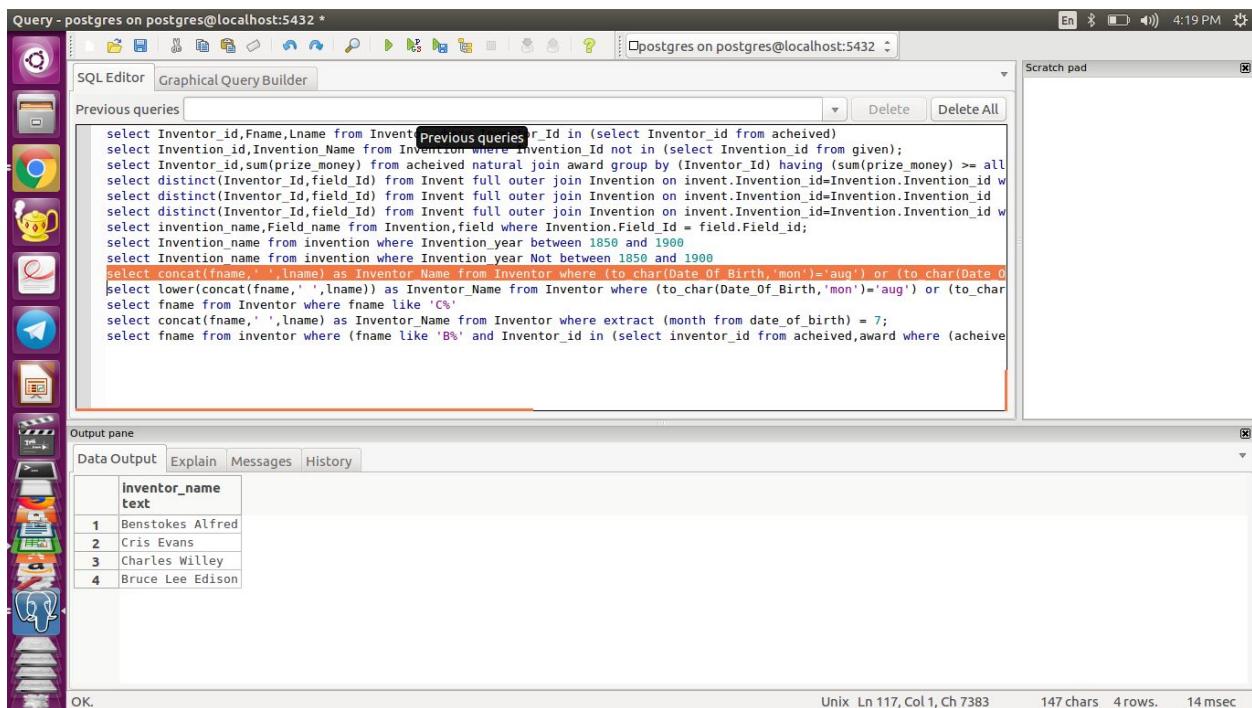
17.1 Query purpose :

To select fname,lname of who are born in august or may concatenated as Inventor_name

17.2 Query :

```
select concat(fname,' ',lname) as Inventor_Name from Inventor where
(to_char(Date_Of_Birth,'mon')='aug') or
(to_char(Date_Of_Birth,'mon')='may');
```

17.3 Screenshot :



The screenshot shows a PostgreSQL client window titled "Query - postgres on postgres@localhost:5432". The SQL Editor pane contains the following SQL query:

```
select concat(fname,' ',lname) as Inventor_Name from Inventor where
(to_char(Date_Of_Birth,'mon')='aug') or
(to_char(Date_Of_Birth,'mon')='may');
```

The Output pane displays the results of the query:

Inventor_name
1 Benstokes Alfred
2 Cris Evans
3 Charles Willey
4 Bruce Lee Edison

At the bottom of the window, status information is shown: Unix Ln 117, Col 1, Ch 7383, 147 chars, 4 rows, 14 msec.

18.)

18.1 Query purpose :

To select fname,lname of who are born in august or may concatenated as Inventor_name in lower alphabets

18.2 Query :

```
select lower(concat(fname,' ',lname)) as Inventor_Name from
Inventor where (to_char(Date_Of_Birth,'mon')='aug') or
(to_char(Date_Of_Birth,'mon')='may');
```

18.3 Screenshot :

The screenshot shows a PostgreSQL client window titled "Query - postgres on localhost:5432 *". The main area is the "SQL Editor" tab, which contains the following SQL query:

```
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Acheived;
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from acheived)
select Invention_id,Invention_Name from Invention where Invention_Id not in (select Invention_id from given);
select Inventor_id,sum(prize money) fromacheived natural join award group by (Inventor_Id) having (sum(prize money) >= all
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;
select Invention_name from invention where Invention_year between 1850 and 1900
select Invention_name from invention where Invention_year Not between 1850 and 1900
select concat(fname,' ',lname) as Inventor Name from Inventor where (to char(Date Of Birth,'mon')='aug') or (to char(Date O
select lower(concat(fname,' ',lname)) as Inventor Name from Inventor where (to char(Date Of Birth,'mon')='aug') or (to char
select fname from Inventor where fname like 'C%'
select concat(fname,' ',lname) as Inventor Name from Inventor where extract (month from date_of_birth) = 7;
select fname from inventor where (fname like 'B%' and Inventor_id in (select inventor_id fromacheived,award where (acheive
```

The "Output pane" below the editor shows the results of the query:

inventor_name	text
1	benstokes alfred
2	cris evans
3	charles willey
4	bruce lee edison

At the bottom right of the window, status information is displayed: Unix Ln 118, Col 1, Ch 7537, 154 chars, 4 rows, 14 msec.

19.)

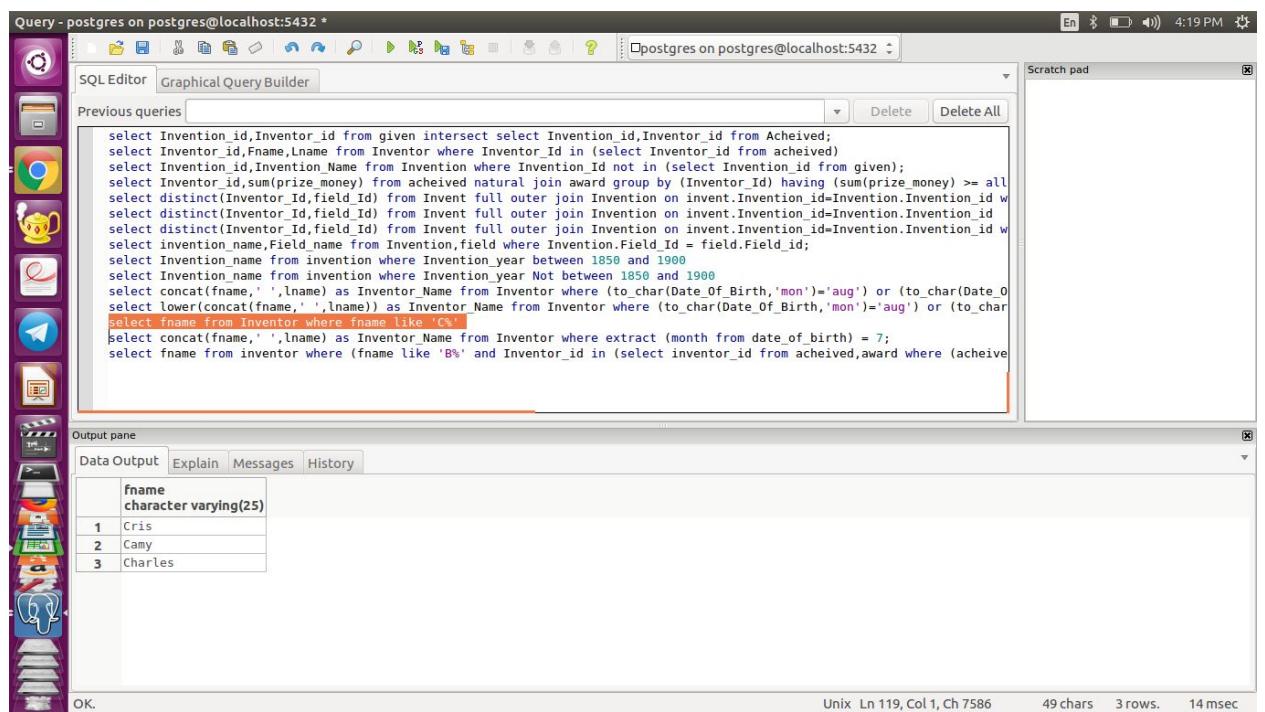
19.1 Query purpose :

To select fname of inventor whose name starts with 'C'

19.2 Query :

select fname from Inventor where fname like 'C%'

19.3 Screenshot :



The screenshot shows the pgAdmin III interface. The SQL Editor tab is active, displaying the following query:

```
select Invention_id,Inventor_id from given intersect select Invention_id,Inventor_id from Acheived;
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from acheived)
select Invention_id,Invention.Name from Invention where Invention.Id not in (select Invention_id from given);
select Inventor_id,sum(prize money) fromacheived natural join award group by (Inventor_Id) having (sum(prize money)) >= all
select distinct(Inventor_Id,field.Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field.Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field.Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select invention_name,Field.name from Invention,field where Invention.Field_Id = field.Field_id;
select Invention_name from invention where Invention_year between 1850 and 1900
select Invention_name from invention where Invention_year Not between 1850 and 1900
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_O
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_cha
select fname from Inventor where fname like 'C%'
select concat(fname,' ',lname) as Inventor_Name from Inventor where extract (month from date_of_birth) = 7;
select fname from inventor where (fname like 'B%' and Inventor_id in (select inventor_id fromacheived,award where (acheive
```

The Output pane shows the results of the query:

	fname character varying(25)
1	Cris
2	Camy
3	Charles

Statistics at the bottom of the screen: Unix Ln 119, Col 1, Ch 7586, 49 chars, 3 rows, 14 msec.

20.)

20.1 Query purpose :

To select fname,lname of who are born in july concatenated as Inventor_name using extract

20.2 Query :

```
select concat(fname,' ',lname) as Inventor_Name from Inventor where
extract (month from date_of_birth) = 7;
```

20.3 Screenshot :

The screenshot shows a PostgreSQL client window titled "Query - postgres on postgres@localhost:5432". The main area is the "SQL Editor" tab, which contains the following SQL code:

```
select Inventor_id,Fname,Lname from Inventor where Inventor_Id in (select Inventor_id from acheived)
select Invention_id,Invention_Name from Invention where Invention_Id not in (select Invention_id from given);
select Inventor_id,sum(prize_money) from acheived natural join award group by (Inventor_Id) having (sum(prize_money) >= all
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id w
select invention_name,Field_name from Invention,field where Invention.Field_Id = field.Field_id;
select Invention_name from invention where Invention_year between 1850 and 1900
select Invention_name from invention where Invention_year Not between 1850 and 1900
select concat(fname, ' ',lname) as Inventor_Name from Inventor where (to_char(Date_Of_Birth,'mon')='aug') or (to_char(Date_O
select lower(concat(fname, ' ',lname)) as Inventor_Name from Inventor where (to_char(Date_Of_Birth,'mon')='aug') or (to_char
select fname from Inventor where fname like 'C%'
select concat(fname, ' ',lname) as Inventor_Name from Inventor where extract (month from date of birth) = 7;
select fname from inventor where (fname like 'B%' and Inventor_id in (select inventor_id from acheived,award where (acheive
```

The "Output pane" below shows the results of the last query:

Inventor_name
Baskara Charya

At the bottom right, the status bar displays: Unix Ln 120, Col 1, Ch 7695 109 chars 1 row. 64 msec.

21.)

21.1 Query purpose :

To select fname of inventor whose name starts with 'B' and got an award with name starting with 'A'

21.2 Query :

```
select fname from inventor where (fname like 'B%' and Inventor_id in
(select inventor_id fromacheived,award where
(acheived.award_id=award.award_id and award_name like 'A%')));
```

21.3 Screenshot :

The screenshot shows the pgAdmin III interface. The SQL Editor pane contains a complex multi-table query. The Output pane below it displays the results, which are a single row with the value 'Baskara' in the 'fname' column.

fname
Baskara

Details from the bottom status bar: Unix Ln 121, Col 1, Ch 7873, 178 chars, 1 row., 14 msec.

22.)

22.1 Query purpose :

To update prize money by 100000

22.2 Query :

```
update award set prize_money=prize_money+100000;
```

22.3 Screenshot :

The screenshot shows the pgAdmin III interface. The SQL Editor pane contains a complex multi-step SQL query used to calculate the total prize money for inventors and then update the 'award' table. The Output pane at the bottom shows the results of the query execution.

```
Activities Places pgAdmin III
Wed 10:23 AM
Query - postgres on postgres@localhost:5432 - [/home/bote/] *
File Edit Query Favourites Macros View Help
SQL Editor Graphical Query Builder
Previous queries
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id);
select * from invention order by Invention_year;
select * from Inventor order by Date_of_birth;
select Inventor_Id,sum(prize_money) from achieved natural join award group by (Inventor_Id) order by sum(prize_money);
select * from Inventor where nationality='India' union select * from Inventor where nationality='Russia';
select Inventor_id,Inventor_name from Inventor where Inventor_id in (select Inventor_id from Achieved);
select Inventor_id,Inventor_name from Inventor where Inventor_id not in (select Inventor_id from given);
select Inventor_id,Inventor_name from Inventor where extract(year from date_of_birth)-1800 >= all (select sum(prize_money) from achieved natural join award group by (Inventor_Id));
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id where Inventor_Id='IR1';
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id where field_Id='f2';
select distinct(Inventor_Id,field_Id) from Invent full outer join Invention on invent.Invention_id=Invention.Invention_id where field_Id='f2';
select invention_name,Field_name from Invention,field where Invention.field_Id = field.Field_Id;
select Invention_name from Invention where Invention_year between 1850 and 1900;
select concat(fname,' ',lname) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_of_Birth,'mon')='may');
select lower(concat(fname,' ',lname)) as Inventor_Name from Inventor where (to_char(Date_of_Birth,'mon')='aug') or (to_char(Date_of_Birth,'mon')='may');
select fname from Inventor where fname like 'C%';
select concat(fname,' ',lname) as Inventor_Name from Inventor where extract(month from date_of_birth) = 7;
select fname from Inventor where (fname like 'B%' and Inventor.id in (select inventor_id from achieved,award where (achieved.award_id=award.award_id and award_name like 'A%')));
update award set prize_money=prize_money+100000;
select invention_id,inventor_id from achieved group by invention_id,inventor_id having count(award_id)>=1 except (select invention_id,inventor_id from achieved join award using (award_id) where award_id>1800);
select concat(fname,' ',lname) as Inventor_Name from Inventor where (extract(year from date of birth)-1800) and exists (select concat(fname,' ',lname) as Inventor_Name from invent join Inventor on concat(fname,' ',lname)=Inventor_Name);
select concat(fname,' ',lname) as Inventor_Name,round((current_date-date_of_birth)/365) as age_of_Inventor from Inventor;
```

Output pane

Data Output Explain Messages History

Query returned successfully: 6 rows affected, 32 msec execution time.

6 rows affected.

Unix Ln 122, Col 1, Ch 8292 49 chars 32 msec

23.)

23.1 Query purpose :

To select all inventions along with inventors who got more than 1 award except those who got acharya award

23.2 Query :

```
select invention_id,inventor_id fromacheived group by
Invention_id,inventor_id having count(award_id)>=1 except (select
invention_id,inventor_id fromacheived join award using (award_id)
where award_name='Acharya');
```

23.3 Screenshot :

The screenshot shows the pgAdmin III interface. The SQL Editor tab contains a complex multi-step SQL query. The Data Output tab shows the results of the query, which is a list of invention IDs and inventor IDs. The results are as follows:

	invention_id	inventor_id
1	I05	IR5
2	I08	IR8
3	I07	IR7
4	I02	IR1
5	I01	IR1
6	I07	IR8
7	I06	IR6
8	I08	IR7

24.)

24.1 Query purpose :

To select fname,lname of inventor of those who are born in 1800 made invention in the year 1860

24.2 Query :

```
select concat(fname,' ',lname) as Inventor_Name from inventor where
(extract (year from date_of_birth)=1800) and exists (select
concat(fname,' ',lname) as Inventor_Name from invent join inventor
on invent.inventor_id=inventor.inventor_id join invention on
invent.invention_id=invention.invention_id and invention_year =
1860)
```

24.3 Screenshot :

The screenshot shows the pgAdmin III interface. The top bar displays 'Activities', 'Places', 'pgAdmin III', 'Wed 10:36 AM', and a connection to 'postgres on postgres@localhost:5432 - [home/bote/f]'. The main window has tabs for 'SQL Editor' (which is selected) and 'Graphical Query Builder'. The SQL Editor contains the query provided above. The output pane at the bottom shows the results:

inventor_name
text
1 Baskara Charya
2 Charles Willey

Below the output pane, status information includes 'Data Output', 'Explain', 'Messages', and 'History'. The bottom right corner shows 'OK', 'Unix Ln 124, Col 1, Ch 8838', '329 chars', '2 rows.', and '11 msec'.

25.)

25.1 Query purpose :

To find age of the inventors

25.2 Query :

```
select concat(fname,' ',lname) as
Inventor_Name,round((current_date-date_of_birth)/365) as
age_of_Inventor from inventor;
```

25.3 Screenshot :

The screenshot shows the pgAdmin III interface. The top window displays a complex SQL query involving multiple joins and subqueries to calculate the age of inventors based on their birth dates. The bottom window, titled 'Output pane', shows the results of the query, which lists eight inventors with their names and calculated ages.

inventor_name	age_of_inventor
Thomas Miller	58
Baskara Charya	219
Benstokes Alfred	199
Cris Evans	179
Cany John	188
Charles Willey	219
Bruce Lee Edison	209
Venkatesh Pavan	115