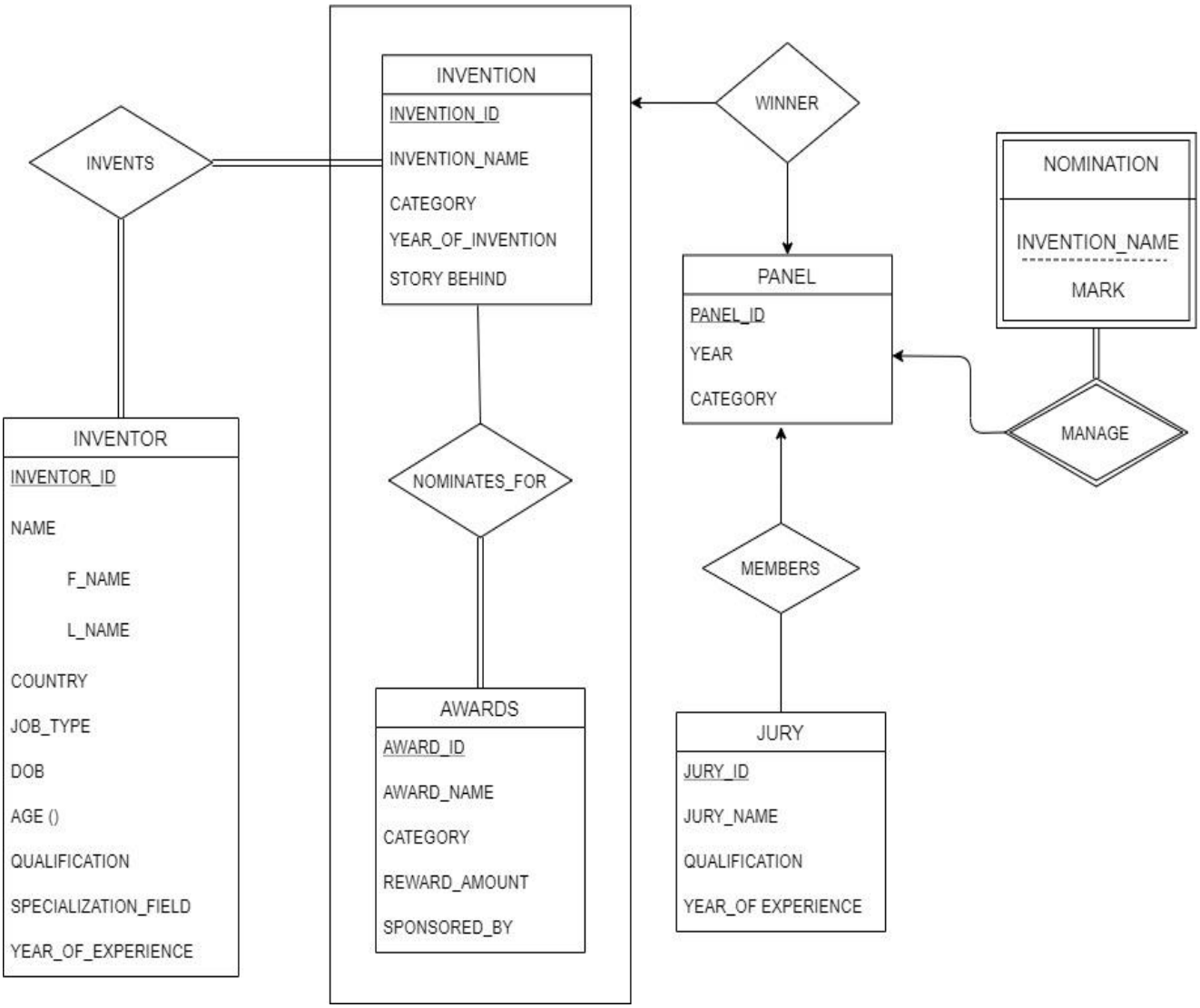
GROUP 10

INVENTION MANAGEMENT SYSTEM



RELATIONAL SCHEMA

INVENTOR (INVENTOR_ID , F_NAME , L_NAME , COUNTRY , JOB_TYPE , DOB , AGE , QUALIFICATION , SPECIALIZATION_FIELD , YEAR_OF_EXPERIENCE)

INVENTION (INVENTION_ID, INVENTION_NAME, CATEGORY, YEAR_OF_INVENTION, STORY_BEHIND)

INVENTS (INVENTION_ID, INVENTOR_ID)

PANEL (PANEL_ID , YEAR, CATEGORY)

JURY (PANEL_ID, JURY_ID , JURY_NAME , QUALIFICATION , YEAR_OF_EXPERIENCE)

NOMINATIONS (PANEL_ID, INVENTION_NAME, MARKS)

AWARDS (AWARD_ID, AWARD_NAME, CATEGORY, REWARD_AMOUNT, SPONSERED_BY)

WINNER (INVENTION_ID , PANEL_ID , AWARD_ID)

CREATE TABLE QUERY

CREATE TABLE INVENTOR

(INVENTOR_ID VARCHAR (10) PRIMARY KEY,

F_NAME VARCHAR (20),

L_NAME VARCHAR (20),

COUNTRY VARCHAR (20),

JOB_TYPE VARCHAR (20),

DOB DATE,

QUALIFICATION VARCHAR (20),

SPECIALIZATION_FIELD VARCHAR (20),

YEAR_OF_EXPERIENCE INT)

CREATE TABLE INVENTION

(INVENTION_ID VARCHAR (10) PRIMARY KEY,

INVENTION_NAME VARCHAR (30),

CATEGORY VARCHAR (20),

YEAR_OF_INVENTION INT,

STORY_BEHIND VARCHAR (100))

```
CREATE TABLE AWARDS
(AWARD_ID VARCHAR (10) PRIMARY KEY,
AWARD_NAME VARCHAR (20),
CATEGORY VARCHAR (20),
REWARD_AMOUNT INT,
SPONSORED_BY VARCHAR (20))

CREATE TABLE PANEL
(PANEL_ID VARCHAR (10) PRIMARY KEY,
CATEGORY VARCHAR (20),
YEAR INT)

CREATE TABLE JURY
(JURY_ID VARCHAR (10) PRIMARY KEY,
JURY_NAME VARCHAR (20),
QUALIFICATION VARCHAR (20),
YEAR_OF_EXPERIENCE INT,
PANEL_ID VARCHAR (10) REFERENCES PANEL(PANEL_ID))
```

CREATE TABLE NOMINATIONS

(INVENTION_NAME VARCHAR (30),

PANEL_ID VARCHAR (10),

MARKS INT,

PRIMARY KEY (INVENTION_NAME, PANEL_ID),

FOREIGN KEY (PANEL_ID) REFERENCES PANEL)

CREATE TABLE INVENTS

(INVENTION_ID VARCHAR (10) REFERENCES

INVENTION(INVENTION_ID),

INVENTOR_ID VARCHAR (10) REFERENCES

INVENTOR(INVENTOR_ID))

CREATE TABLE WINNER

(INVENTION_ID VARCHAR (10) REFERENCES

INVENTION(INVENTION_ID),

AWARD_ID VARCHAR (10) REFERENCES AWARDS(AWARD_ID),

PANEL_ID VARCHAR (20) REFERENCES PANEL(PANEL_ID))

```sql
CREATE TABLE INVENTOR(INVENTOR_ID VARCHAR (10) PRIMARY KEY, F_NAME VARCHAR (20), L_NAME VARCHAR (20), COUNTRY VARCHAR (20),
JOB_TYPE VARCHAR (20), DOB DATE, QUALIFICATION VARCHAR (20), SPECIALIZATION_FIELD VARCHAR (20), YEAR_OF_EXPERIENCE INT);

CREATE TABLE INVENTION(INVENTION_ID VARCHAR (10) PRIMARY KEY, INVENTION_NAME VARCHAR (30), CATEGORY VARCHAR (20),
YEAR_OF_INVENTION INT, STORY_BEHIND VARCHAR (100));

CREATE TABLE AWARDS(AWARD_ID VARCHAR (10) PRIMARY KEY,AWARD_NAME VARCHAR (20),CATEGORY VARCHAR (20),REWARD_AMOUNT INT,SPONSORED_BY VARCHAR (20));
CREATE TABLE PANEL(PANEL_ID VARCHAR (10) PRIMARY KEY, CATEGORY VARCHAR (20),YEAR INT);

CREATE TABLE JURY(JURY_ID VARCHAR (10) PRIMARY KEY, JURY_NAME VARCHAR (20), QUALIFICATION VARCHAR (20),
YEAR_OF_EXPERIENCE INT,PANEL_ID VARCHAR (10) REFERENCES PANEL(PANEL_ID));

CREATE TABLE NOMINATIONS(INVENTION_NAME VARCHAR (30),PANEL_ID VARCHAR (10),MARKS INT,
PRIMARY KEY (INVENTION_NAME, PANEL_ID), FOREIGN KEY (PANEL_ID) REFERENCES PANEL);

CREATE TABLE INVENTS(INVENTION_ID VARCHAR (10) REFERENCES INVENTION(INVENTION_ID),INVENTOR_ID VARCHAR (10) REFERENCES INVENTOR(INVENTOR_ID));

CREATE TABLE WINNER(INVENTION_ID VARCHAR (10) REFERENCES INVENTION(INVENTION_ID),
AWARD_ID VARCHAR (10) REFERENCES AWARDS(AWARD_ID),PANEL_ID VARCHAR (20) REFERENCES PANEL(PANEL_ID));
```

Data Output | Explain | Messages | Notifications

```
CREATE TABLE

Query returned successfully in 154 msec.
```

INSERTING DATA

```
INSERT INTO INVENTOR VALUES
('IN001','STEPHANIE','KWOLEK','UKRAIN','CHEMIST','31-07-
1923','BSC CHEMISTRY','CHEMISTRY',25),
('IN002','CAMILLO','RICORDI','UNITED STATES','CHIEF
ACADEMICIAN','18-06-1957','MEDICINE
GRADUATE','GASTROINTESTINAL',30),
('IN003','PAUL','WINCHELL','UNITED
STATES','VENTRILOQUIST','21-12-1922','MEDICAL
GRADUATE','HYPNOTISM',40),
('IN004','NIKOLA','TESLA','SERBIA','ENGINEER','10-07-
1856','ENGINEERING GRADUATE','ELECTRICAL',35),
('IN005','MARTIN','COOPER','UNITED STATES','ENGINEER','26-12-
1928','ELECTRICAL ENGINEER','RADIO SPECTRUM',50),
('IN006','PERCY','SPENCER','UNITED STATES','ENGINEER','19-07-
1894','ELECTRICAL GRADUATE','ELECTRICAL',40),
('IN007','ROBERT','OPPENHEIMER','UNITED
STATES','PHYSICIST','22-04-1904','PHD IN PHYSICS','PHYSICS',35),
('IN008','EDWARD','TELLER','HUNGARY','PHYSICIST','15-01-
1908','CHEMICAL ENGINEERING','SCIENTIST',25),
```

('IN009','ALEXANDER','FLEMING','SCOTLAND','PHYSICIAN','06-08-1991','BSC BACTERIOLOGY','MICROBIOLOGIST',24),
('IN010','STEVE','JOBS','UNITED STATES','BUSINESS','24-02-1955','PHD ','CEO APPLE CO',29);

- THIS QUERY IS USED TO INSERT VALUES INTO THE INVERTOR TABLE.
- THE PRIMARY KEY IS INVERTOR_ID BECAUSE IT WILL BE ONLY HAVING UNIQUE NUMBERS COMPARED TO THE OTHER ATTRIBUTES WHICH MAY BE SIMILAR
- THE ATTRIBUTES OF INVENTOR ARE:

    - INVENTOR_ID
    - F_NAME
    - L_NAME
    - COUNTRY
    - JOB_TYPE
    - DOB DATE
    - QUALIFICATION
    - SPECIALIZATION_FIELD
    - YEAR_OF_EXPERIENCE

```sql
INSERT INTO INVENTOR VALUES
('IN001','STEPHANIE','KWOLEK','UKRAIN','CHEMIST','31-07-1923','BSC CHEMISTRY','CHEMISTRY',25),
('IN002','CAMILLO','RICORDI','UNITED STATES','CHIEF ACADEMICIAN','18-06-1957','MEDICINE GRADUATE','GASTROINTESTINAL',30),
('IN003','PAUL','WINCHELL','UNITED STATES','VENTRILOQUIST','21-12-1922','MEDICAL GRADUATE','HYPNOTISM',40),
('IN004','NIKOLA','TESLA','SERBIA','ENGINEER','10-07-1856','ENGINEERING GRADUATE','ELECTRICAL',35),
('IN005','MARTIN','COOPER','UNITED STATES','ENGINEER','26-12-1928','ELECTRICAL ENGINEER','RADIO SPECTRUM',50),
('IN006','PERCY','SPENCER','UNITED STATES','ENGINEER','19-07-1894','ELECTRICAL GRADUATE','ELECTRICAL',40),
('IN007','ROBERT','OPPENHEIMER','UNITED STATES','PHYSICIST','22-04-1904','PHD IN PHYSICS','PHYSICS',35),
('IN008','EDWARD','TELLER','HUNGARY','PHYSICIST','15-01-1908','CHEMICAL ENGINEERING','SCIENTIST',25),
('IN009','ALEXANDER','FLEMING','SCOTLAND','PHYSICIAN','06-08-1991','BSC BACTERIOLOGY','MICROBIOLOGIST',24),
('IN010','STEVE','JOBS','UNITED STATES','BUSINESS','24-02-1955','PHD ','CEO APPLE CO',29);
```

Data Output | Explain | Messages | Notifications

```
INSERT 0 10

Query returned successfully in 84 msec.
```

```
INSERT INTO INVENTION VALUES
('I001','KEVLAR','SCIENTIFIC',1965,'KEVLAR, the body armor can protect from fatal attacks.'),
('I002','STEMCELL DIABETES CURE','INNOVATION IN HEALTH',2014,'Treatment can involve a lifetime of careful eating, insulin injections tests.'),
('I003','THE ARTIFICIAL HEART','MEDICINE',1982,'An artificial heart is a device that replaces the heart.'),
('I004','WIRELESS ELECTRICITY','RESEARCH',1899,'This technology involves a plug-in coil that creates a magnetic field.'),
('I005','MOBILE PHONE','TECHNOLOGY',1973,'People would be able to communicate free of the restriction of wires and cables.'),
('I006','MICROWAVE OVEN','SCIENTIFIC',1967,'Microwave ovens heat food using microwaves, a form of electromagnetic radiation.'),
('I007','ATOM BOMB','RESEARCH',1945,'Atomic bombs are weapons that get their energy from fission reactions.'),
('I008','HYDROGEN BOMB','RESEARCH',1952,'When a hydrogen bomb is detonated, the immediate effects are devastating.'),
('I009','PENICILLIN','MEDICINE',1928,'An antibiotic or group of antibiotics produced naturally by certain blue moulds.'),
('I010','IPAD','TECHNOLOGY',1998,'The iPad is a tablet computer developed by Apple.');
```

- THIS QUERY IS USED TO INSERT VALUES INTO THE INVENTION TABLE
- THE PRIMARY KEY IS INVENTION_ID AS IT IS INDIVIDUAL AND PECULIAR.
- THE ATTRIBUTES OF INVENTION ARE:
    - INVENTION_ID
    - INVENTION_NAME
    - CATEGORY
    - YEAR_OF_INVENTION
    - STORY_BEHIND

```
INSERT INTO INVENTION VALUES
('I001','KEVLAR','SCIENTIFIC',1965,'KEVLAR, the body armor can protect from fatal attacks.'),
('I002','STEMCELL DIABETES CURE','INNOVATION IN HEALTH',2014,'Treatment can involve a lifetime of careful eating, insulin injections tests.'),
('I003','THE ARTIFICIAL HEART','MEDICINE',1982,'An artificial heart is a device that replaces the heart.'),
('I004','WIRELESS ELECTRICITY','RESEARCH',1899,'This technology involves a plug-in coil that creates a magnetic field.'),
('I005','MOBILE PHONE','TECHNOLOGY',1973,'People would be able to communicate free of the restriction of wires and cables.'),
('I006','MICROWAVE OVEN','SCIENTIFIC',1967,'Microwave ovens heat food using microwaves, a form of electromagnetic radiation.'),
('I007','ATOM BOMB','RESEARCH',1945,'Atomic bombs are weapons that get their energy from fission reactions.'),
('I008','HYDROGEN BOMB','RESEARCH',1952,'When a hydrogen bomb is detonated, the immediate effects are devastating.'),
('I009','PENICILLIN','MEDICINE',1928,'An antibiotic or group of antibiotics produced naturally by certain blue moulds.'),
('I010','IPAD','TECHNOLOGY',1998,'The iPad is a tablet computer developed by Apple.');
```

Data Output | Explain | Messages | Notifications

```
INSERT 0 10

Query returned successfully in 87 msec.
```

```
INSERT INTO AWARDS VALUES
('A001','ENTERPRISE TROPHY','RESEARCH',900000,'ACADEMY'),
('A002','SPIRIT OF INNOVATION','SCIENTIFIC',100000,'DPMA'),
('A003','INNOVATIVE THINKING','TECHNOLOGY',600000,'BLUE
PATENT'),
('A004','EDISON AWARD','MEDICINE',700000,'EDISON AWARDS'),
('A005','DONALD MACHAY','INNOVATION IN
HEALTH',800000,'IEEE');
```

- THIS QUERY IS USED TO INSERT VALUES INTO THE AWARDS TABLE.
- THE PRIMARY KEY IS AWARD_ID BECAUSE IT WILL BE UNIQUE COMPARED TO AWARD_NAME BECAUSE AWARD_NAME CAN BE SAME.
- THE ATTRIBUTES OF AWARDS ARE:
    - AWARD_ID
    - AWARD_NAME
    - CATEGORY
    - REWARD_AMOUNT
    - SPONSORED_BY

```
INSERT INTO AWARDS VALUES
('A001','ENTERPRISE TROPHY','RESEARCH',900000,'ACADEMY'),
('A002','SPIRIT OF INNOVATION','SCIENTIFIC',100000,'DPMA'),
('A003','INNOVATIVE THINKING','TECHNOLOGY',600000,'BLUE PATENT'),
('A004','EDISON AWARD','MEDICINE',700000,'EDISON AWARDS'),
('A005','DONALD MACHAY','INNOVATION IN HEALTH',800000,'IEEE');
```

Data Output | Explain | Messages | Notifications

```
INSERT 0 5

Query returned successfully in 91 msec.
```

INSERT INTO PANEL VALUES

('P101','RESEARCH',2020),

('P102','SCIENTIFIC' ,2019),

('P103','TECHNOLOGY',2018),

('P104','MEDICINE',2016),

('P105','INNOVATION IN HEALTH',2017);

- THIS QUERY IS USED TO INSERT VALUES INTO THE PANEL TABLE

- THE PRIMARY KEY IS PANEL_ID BECAUSE IT IS THE ONE WHICH IS UNIQUE FROM THE ABOVE ATTRIBUTES
- THE ATTRIBUTES OF PANEL ARE
    - PANEL_ID
    - CATEGORY
    - YEAR

```
1  INSERT INTO PANEL VALUES
2  ('P101','RESEARCH',2020),
3  ('P102','SCIENTIFIC' ,2019),
4  ('P103','TECHNOLOGY',2018),
5  ('P104','MEDICINE',2016),
6  ('P105','INNOVATION IN HEALTH',2017);
7
```

Data Output | Explain | Messages | Notifications

```
INSERT 0 5

Query returned successfully in 143 msec.
```

```
INSERT INTO JURY VALUES
('J001','ABHISHEK S','PHD IN SCIENCE',30,'P105'),
('J002','RAHAN MANOJ','PHD IN PHYSICS' ,29,'P103'),
('J003','HARSHA SATHISH','PHD IN CHEMISTRY',23,'P104'),
('J004','ARVIND KUMAR K','PHD IN BIOLOGY',24,'P101'),
('J005','AKSHAY KUMAR','PHD IN BIOSCIENCE',22,'P102');
```

- THIS QUERY IS USED TO INSERT VALUES INTO THE JURY TABLE.
- THE PRIMARY KEY IS JURY_ID AS JURY MAY CONTAIN MANY REPEATED NAMES HERE ID IS BEING SELECTED AS PRIMARY KEY
- THE ATTRIBUTES OF JURY ARE:
    - JURY_ID
    - JURY_NAME
    - QUALIFICATION
    - YEAR_OF_EXPERIENCE
    - PANEL_ID - REFERENCES PANEL(PANEL_ID)

```
1  INSERT INTO JURY VALUES
2  ('J001','ABHISHEK S','PHD IN SCIENCE',30,'P105'),
3  ('J002','RAHAN MANOJ','PHD IN PHYSICS' ,29,'P103'),
4  ('J003','HARSHA SATHISH','PHD IN CHEMISTRY',23,'P104'),
5  ('J004','ARVIND KUMAR K','PHD IN BIOLOGY',24,'P101'),
6  ('J005','AKSHAY KUMAR','PHD IN BIOSCIENCE',22,'P102');
7
```

Data Output | Explain | Messages | Notifications

```
INSERT 0 5

Query returned successfully in 182 msec.
```

INSERT INTO INVENTS VALUES ('I001','IN001'), ('I002','IN002'), ('I003','IN003'),('I004','IN004'),('I005','IN005'), ('I006','IN006'), ('I007','IN007'),('I008','IN008'),('I009','IN009'), ('I010','IN010');

- THIS QUERY IS USED TO INSERT VALUES INTO THE INVENTS TABLE.
- THE ATTRIBUTES OF INVENTS ARE:
    - INVENTION_ID - REFERENCES INVENTION(INVENTION_ID)
    - INVENTOR_ID - REFERENCES INVENTOR(INVENTOR_ID)

```
1  INSERT INTO INVENTS VALUES
2  ('I001','IN001'),('I002','IN002'),
3  ('I003','IN003'),('I004','IN004'),
4  ('I005','IN005'),('I006','IN006'),
5  ('I007','IN007'),('I008','IN008'),
6  ('I009','IN009'),('I010','IN010');
7
8
```

Data Output | Explain | Messages | Notifications

```
INSERT 0 10

Query returned successfully in 109 msec.
```

INSERT INTO NOMINATIONS VALUES

('KEVLAR', 'P102' ,9),

('STEMCELL DIABETES CURE', 'P105' , 9),

('THE ARTIFICIAL HEART', 'P104' ,10),

('WIRELESS ELECTRICITY', 'P101' ,8),

('MOBILE PHONE', 'P103', 7),

('MICROWAVE OVEN', 'P102' ,7),

('ATOM BOMB', 'P101', 7),

('HYDROGEN BOMB', 'P101',6),

('PENICILLIN', 'P104', 8),

('IPAD', 'P103' ,6);

```
INSERT INTO NOMINATIONS VALUES
('KEVLAR', 'P102' ,9),
('STEMCELL DIABETES CURE', 'P105' , 9),
('THE ARTIFICIAL HEART', 'P104' ,10),
('WIRELESS ELECTRICITY', 'P101' ,8),
('MOBILE PHONE', 'P103', 7),
('MICROWAVE OVEN', 'P102' ,7),
('ATOM BOMB', 'P101', 7),
('HYDROGEN BOMB', 'P101',6),
('PENICILLIN', 'P104', 8),
('IPAD','P103',6);
```

Data Output | Explain | Messages | Notifications

```
INSERT 0 10

Query returned successfully in 90 msec.
```

INSERT INTO WINNER VALUES

('I001','A001','P101',),

('I002','A002','P102'),

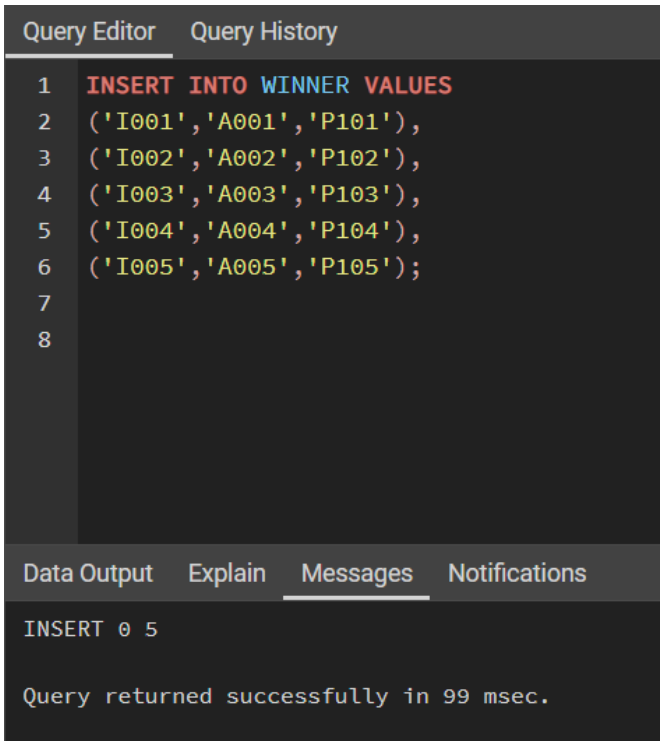
('I003','A003','P103'),

('I004','A004','P104'),

('I005','A005','P105');

- THIS QUERY IS USED TO INSERT VALUES INTO THE WINNER TABLE

- THE ATTRIBUTE OF WINNER ARE:
    - INVENTION_ID - REFERENCES INVENTION(INVENTION_ID)
    - AWARD_ID - REFERENCES AWARDS(AWARD_ID)
    - PANEL_ID - REFERENCES PANEL(PANEL_ID))



QUERIES

- **SELECT CATEGORY, COUNT (*) FROM INVENTION GROUP BY CATEGORY HAVING COUNT (*) > 1;**

```
1  SELECT CATEGORY, COUNT (*)
2  FROM INVENTION GROUP BY CATEGORY HAVING COUNT (*) > 1;
3
4
5
```

Data Output | Explain | Messages | Notifications

	category character varying (20)	count bigint
1	TECHNOLOGY	2
2	MEDICINE	2
3	SCIENTIFIC	2
4	RESEARCH	3

- This query is used to view the count of the Inventions which belongs to the same category with count greater than 1.

➢ **SELECT * FROM INVENTOR ORDER BY F_NAME;**

```
SELECT * FROM INVENTOR WHERE YEAR_OF_EXPERIENCE>=30 ORDER BY F_NAME ;
```

Data Output | Explain | Messages | Notifications

	inventor_id [PK] character var	f_name character varying (20)	l_name character varying (2	country character varying (20)	job_type character varying (20)	dob date	qualification character varying (20)	specialization_field character varying (20)	year_of_experience integer
1	IN002	CAMILLO	RICORDI	UNITED STATES	CHIEF ACADEMICIAN	1957-06-18	MEDICINE GRADUATE	GASTROINTESTINAL	30
2	IN005	MARTIN	COOPER	UNITED STATES	ENGINEER	1928-12-26	ELECTRICAL ENGINEER	RADIO SPECTRUM	50
3	IN004	NIKOLA	TESLA	SERBIA	ENGINEER	1856-07-10	ENGINEERING GRADUATE	ELECTRICAL	35
4	IN003	PAUL	WINCHELL	UNITED STATES	VENTRILOQUIST	1922-12-21	MEDICAL GRADUATE	HYPNOTISM	40
5	IN006	PERCY	SPENCER	UNITED STATES	ENGINEER	1894-07-19	ELECTRICAL GRADUATE	ELECTRICAL	40
6	IN007	ROBERT	OPPENHEIMER	UNITED STATES	PHYSICIST	1904-04-22	PHD IN PHYSICS	PHYSICS	35

- This query is used to select all the tuples of INVENTOR table which is sorted alphabetically with respect to F_NAME and having more than 30 or more years' experience.

➢ **SELECT INVENTION_NAME, F_NAME || ' ' || L_NAME AS INVENTOR_NAME, CATEGORY FROM INVENTION NATURAL JOIN INVENTOR NATURAL JOIN INVENTS;**

```
1  SELECT INVENTION_NAME, F_NAME || ' ' || L_NAME AS INVENTOR_NAME,
2  CATEGORY FROM INVENTION NATURAL JOIN INVENTOR NATURAL JOIN INVENTS;
3
4
```

Data Output | Explain | Messages | Notifications

	invention_name character varying (30)	inventor_name text	category character varying (20)
1	KEVLAR	STEPHANIE KWOLEK	SCIENTIFIC
2	STEMCELL DIABETES CURE	CAMILLO RICORDI	INNOVATION IN HEALTH
3	THE ARTIFICIAL HEART	PAUL WINCHELL	MEDICINE
4	WIRELESS ELECTRICITY	NIKOLA TESLA	RESEARCH
5	MOBILE PHONE	MARTIN COOPER	TECHNOLOGY
6	MICROWAVE OVEN	PERCY SPENCER	SCIENTIFIC
7	ATOM BOMB	ROBERT OPPENHEI...	RESEARCH
8	HYDROGEN BOMB	EDWARD TELLER	RESEARCH
9	PENICILLIN	ALEXANDER FLEMI...	MEDICINE
10	IPAD	STEVE JOBS	TECHNOLOGY

- This query is used to obtain Inventor Name and the name of their Inventions along with its category.

➢ **SELECT MAX(REWARD_AMOUNT), COUNT(INVENTION_ID), CATEGORY FROM AWARDS NATURAL JOIN INVENTION GROUP BY CATEGORY HAVING MAX(REWARD_AMOUNT) = (SELECT MAX(REWARD_AMOUNT) FROM AWARDS)**

Query Editor | Query History

```
1  SELECT MAX(REWARD_AMOUNT), COUNT(INVENTION_ID),
2  CATEGORY FROM AWARDS NATURAL JOIN INVENTION GROUP BY CATEGORY
3  HAVING MAX(REWARD_AMOUNT) = (SELECT MAX(REWARD_AMOUNT) FROM AWARDS);
4
5
6
```

Data Output | Explain | Messages | Notifications

	max integer	count bigint	category character varying (20)
1	900000	3	RESEARCH

- This query is used to obtain the maximum reward amount among all inventions and the number of inventions which received the maximum reward amount along with its category.

➢ **SELECT * FROM AWARDS WHERE REWARD_AMOUNT>100000 AND REWARD_AMOUNT<900000**

```
1  SELECT * FROM AWARDS WHERE REWARD_AMOUNT>100000 AND REWARD_AMOUNT<900000
2
3
4
```

Data Output | Explain | Messages | Notifications

	award_id [PK] character varying (10)	award_name character varying (20)	category character varying (20)	reward_amount integer	sponsored_by character varying (20)
1	A003	INNOVATIVE THINKING	TECHNOLOGY	600000	BLUE PATENT
2	A004	EDISON AWARD	MEDICINE	700000	EDISON AWARDS
3	A005	DONALD MACHAY	INNOVATION IN HEALTH	800000	IEEE

- This query displays details of all awards whose reward amount is more than 100000 and less than 900000.

➢ **SELECT AWARD_NAME, CATEGORY, REWARD_AMOUNT, REWARD_AMOUNT*15/100 AS CHARITY_AMOUNT, REWARD_AMOUNT-REWARD_AMOUNT*15/100 AS AMOUNT_RECEIVED FROM AWARDS WHERE REWARD_AMOUNT*15/100>80000 AND REWARD_AMOUNT-REWARD_AMOUNT*15/100>550000**

```
SELECT AWARD_NAME,CATEGORY,REWARD_AMOUNT,REWARD_AMOUNT*15/100 AS CHARITY_AMOUNT,
REWARD_AMOUNT-REWARD_AMOUNT*15/100 AS AMOUNT_RECEIVED
FROM AWARDS
WHERE REWARD_AMOUNT*15/100>80000 AND
REWARD_AMOUNT-REWARD_AMOUNT*15/100>550000
```

Data Output | Explain | Messages | Notifications

	award_name character varying (20)	category character varying (20)	reward_amount integer	charity_amount integer	amount_received integer
1	ENTERPRISE TROPHY	RESEARCH	900000	135000	765000
2	EDISON AWARD	MEDICINE	700000	105000	595000
3	DONALD MACHAY	INNOVATION IN HEALTH	800000	120000	680000

- In this query, 15% of REWARD_AMOUNT is given as CHARITY_AMOUNT.
- 100-15 = 85% is taken as AMOUNT_RECEIVED
- This query displays AWARD_NAME, CATEGORY of AWARDS table whose CHARITY_AMOUNT > 80000 and AMOUNT_RECIEVED > 550000.

➢ **SELECT CONCAT (F_NAME,' ', L_NAME) AS NAME, COUNTRY, JOB_TYPE FROM INVENTOR WHERE LEFT(COUNTRY,1) ='U' AND RIGHT(JOB_TYPE,1) ='T'**

```
1  SELECT CONCAT (F_NAME,' ', L_NAME) AS NAME,
2  COUNTRY, JOB_TYPE FROM INVENTOR WHERE LEFT(COUNTRY,1) ='U'
3  AND RIGHT(JOB_TYPE,1) ='T'
4
```

Data Output | Explain | Messages | Notifications

	name text	country character varying (20)	job_type character varying (20)
1	STEPHANIE KWOLEK	UKRAIN	CHEMIST
2	PAUL WINCHELL	UNITED STATES	VENTRILOQUIST
3	ROBERT OPPENHEIMER	UNITED STATES	PHYSICIST

- In this query, first we concatenate the F_NAME and L_NAME separated by a space and it is renamed as NAME.
- We obtain the NAME along with the COUNTRY and JOB_TYPE of the inventor whose COUNTRY starts with 'U' and JOB_TYPE ends with 'T'.

➢ **SELECT F_NAME, DOB, TO_CHAR(DOB,'DAY') AS DAY_NAME, TO_CHAR(DOB,'DD') AS DAY_OF_MONTH, TO_CHAR(DOB,'MONTH') AS MONTH, EXTRACT (YEAR FROM DOB) AS YEAR FROM INVENTOR**

```
1  SELECT F_NAME, DOB, TO_CHAR(DOB,'DAY') AS DAY_NAME, EXTRACT(DAY FROM DOB) AS DATE_OF_MONTH,
2  TO_CHAR(DOB,'MONTH') AS MONTH,
3  EXTRACT (YEAR FROM DOB) AS YEAR FROM INVENTOR
4
```

Data Output | Explain | Messages | Notifications

	f_name character varying (20)	dob date	day_name text	date_of_month double precision	month text	year double precision
1	STEPHANIE	1923-07-31	TUESDAY	31	JULY	1923
2	CAMILLO	1957-06-18	TUESDAY	18	JUNE	1957
3	PAUL	1922-12-21	THURSDAY	21	DECEMBER	1922
4	NIKOLA	1856-07-10	THURSDAY	10	JULY	1856
5	MARTIN	1928-12-26	WEDNESDAY	26	DECEMBER	1928
6	PERCY	1894-07-19	THURSDAY	19	JULY	1894
7	ROBERT	1904-04-22	FRIDAY	22	APRIL	1904
8	EDWARD	1908-01-15	WEDNESDAY	15	JANUARY	1908
9	ALEXANDER	1991-08-06	TUESDAY	6	AUGUST	1991
10	STEVE	1955-02-24	THURSDAY	24	FEBRUARY	1955

- It obtains the F_NAME, DOB, name of the day, date of the month, name of the month and the year in which the Inventor born.

➢ **SELECT * FROM INVENTION WHERE CATEGORY IN ('RESEARCH','MEDICINE','TECHNOLOGY') AND YEAR_OF_INVENTION BETWEEN 1950 AND 2000**

```
SELECT * FROM INVENTION WHERE CATEGORY
IN ('RESEARCH','MEDICINE','TECHNOLOGY')
AND YEAR_OF_INVENTION BETWEEN 1950 AND 2000
```

Data Output | Explain | Messages | Notifications

	invention_id [PK] character varying (10)	invention_name character varying (30)	category character varying (20)	year_of_invention integer	story_behind character varying (100)
1	I003	THE ARTIFICIAL HEART	MEDICINE	1982	An artificial heart is a device that replaces the heart.
2	I005	MOBILE PHONE	TECHNOLOGY	1973	People would be able to communicate free of the restriction of wires and cables.
3	I008	HYDROGEN BOMB	RESEARCH	1952	When a hydrogen bomb is detonated, the immediate effects are devastating.
4	I010	IPAD	TECHNOLOGY	1998	The iPad is a tablet computer developed by Apple.

- This query selects all the tuples from the INVENTION table whose CATEGORY is one among RESEARCH, MEDICINE, TECHNOLOGY and the YEAR_OF_INVENTION should be in between 1950 and 2000.

➢ **SELECT * FROM INVENTION WHERE CATEGORY NOT IN('MEDICINE','TECHNOLOGY') AND YEAR_OF_INVENTION NOT BETWEEN 1950 AND 2000**

```
SELECT * FROM INVENTION
WHERE CATEGORY NOT IN('MEDICINE','TECHNOLOGY')
AND YEAR_OF_INVENTION NOT BETWEEN 1950 AND 2000
```

Data Output | Explain | Messages | Notifications

	invention_id [PK] character varying (10)	invention_name character varying (30)	category character varying (20)	year_of_invention integer	story_behind character varying (100)
1	I002	STEMCELL DIABETES CURE	INNOVATION IN HEALTH	2014	Treatment can involve a lifetime of careful eating, insulin injections tests.
2	I004	WIRELESS ELECTRICITY	RESEARCH	1899	This technology involves a plug-in coil that creates a magnetic field.
3	I007	ATOM BOMB	RESEARCH	1945	Atomic bombs are weapons that get their energy from fission reactions.

- This query selects all the tuples from INVENTION table whose CATEGORY is not MEDICINE and TECHNOLOGY and the YEAR_OF_INVENTION should not be in between 1950 and 2000.

➢ **SELECT * FROM INVENTOR WHERE DOB BETWEEN '1950-01-01' AND '2000-01-01' UNION SELECT * FROM INVENTOR WHERE YEAR_OF_EXPERIENCE BETWEEN 20 AND 25;**

```
SELECT * FROM INVENTOR
WHERE DOB
BETWEEN '1950-01-01' AND '2000-01-01'
UNION SELECT * FROM INVENTOR
WHERE YEAR_OF_EXPERIENCE BETWEEN 20 AND 25;
```

Data Output | Explain | Messages | Notifications

	inventor_id character varyin	f_name character varying (20)	l_name character varying (20)	country character varying (20)	job_type character varying (20)	dob date	qualification character varying (20)	specialization_field character varying (20)	year_of_experience integer
1	IN001	STEPHANIE	KWOLEK	UKRAIN	CHEMIST	1923-07-31	BSC CHEMISTRY	CHEMISTRY	25
2	IN002	CAMILLO	RICORDI	UNITED STATES	CHIEF ACADEMICIAN	1957-06-18	MEDICINE GRADUATE	GASTROINTESTINAL	30
3	IN008	EDWARD	TELLER	HUNGARY	PHYSICIST	1908-01-15	CHEMICAL ENGINEERING	SCIENTIST	25
4	IN009	ALEXANDER	FLEMING	SCOTLAND	PHYSICIAN	1991-08-06	BSC BACTERIOLOGY	MICROBIOLOGIST	24
5	IN010	STEVE	JOBS	UNITED STATES	BUSINESS	1955-02-24	PHD	CEO APPLE CO	29

- This query selects all the tuples from INVENTOR table whose DOB should be in between 1st January 1950 and 1st January 2000 and we also select all tuples from INVENTOR whose YEAR_OF_EXPERIENCE should be in between 20 and 25.
- We use UNION to combine these 2 select queries, where any duplicate row will be removed.

➢ **SELECT * FROM INVENTION WHERE CATEGORY='RESEARCH' INTERSECT SELECT * FROM INVENTION WHERE YEAR_OF_INVENTION BETWEEN 1900 AND 2000;**

```
1  SELECT * FROM INVENTION
2  WHERE CATEGORY='RESEARCH'
3  INTERSECT SELECT * FROM INVENTION
4  WHERE YEAR_OF_INVENTION BETWEEN 1900 AND 2000;
```

Data Output | Explain | Messages | Notifications

	invention_id character varying (10)	invention_name character varying (30)	category character varying (20)	year_of_invention integer	story_behind character varying (100)
1	I008	HYDROGEN BOMB	RESEARCH	1952	When a hydrogen bomb is detonated, the immediate effects are devastating.
2	I007	ATOM BOMB	RESEARCH	1945	Atomic bombs are weapons that get their energy from fission reactions.

- This query displays all data from INVENTION whose CATEGORY is RESEARCH and YEAR_OF_INVENTION is in between 1900 and 2000.
- Here, INTERSECT is used to join the 2 select queries, but only the common tuples are returned.

➢ **SELECT * FROM INVENTION WHERE CATEGORY IN('RESEARCH','MEDICINE','TECHNOLOGY') EXCEPT SELECT * FROM INVENTION WHERE YEAR_OF_INVENTION > 1950;**

```
1  SELECT * FROM INVENTION
2  WHERE CATEGORY IN('RESEARCH','MEDICINE','TECHNOLOGY')
3  EXCEPT SELECT * FROM INVENTION WHERE YEAR_OF_INVENTION > 1950;
```

Data Output | Explain | Messages | Notifications

	invention_id character varying (10)	invention_name character varying (30)	category character varying (20)	year_of_invention integer	story_behind character varying (100)
1	I007	ATOM BOMB	RESEARCH	1945	Atomic bombs are weapons that get their energy from fission reactions.
2	I004	WIRELESS ELECTRICITY	RESEARCH	1899	This technology involves a plug-in coil that creates a magnetic field.
3	I009	PENICILLIN	MEDICINE	1928	An antibiotic or group of antibiotics produced naturally by certain blue moulds.

- This query selects all the tuples from INVENTION whose CATEGORY is one among RESEARCH, MEDICINE, TECHNOLOGY and the YEAR_OF_INVENTION should not be >1950.
- The EXCEPT operator returns distinct rows from the first (left) query that are not in the output of the second (right) query.

THANK YOU!!

DONE BY

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