

Databases Project

1. Description:

Main topic: Managing emergency calls and responses for Romania's 112 system. The database track emergency calls, callers, responders, incidents and locations.

Main entities:

Caller
 Operator: answers and processes the emergency call
 Responder: paramedics, firefighters, police officers
 Incident
 Location

Main attributes:

| Caller | Operator | Responder | Incident | Location |
|--------------|-----------|---------------------------|-------------------------------|------------|
| Full name | Full name | Full Name | ID - PK | ID - PK |
| ID - PK | ID - PK | ID - PK | Call_ID - FK | Address |
| Phone_No | Shift | Title | Type | GPS |
| Address | Time | Status (on/off duty etc.) | Description | Settlement |
| Call_History | Call_No | | Status (ongoing, solved etc.) | |
| | | | Time | |
| | | | Operator_ID - FK | |
| | | | Responder_ID-FK | |
| | | | Location_ID - FK | |

Links between entities:

1. Caller → Incident

A Caller can make one or more calls, which relate to specific Incidents.
 The Incident entity needs to store information about which Caller reported the incident.
 Call_ID (FK) in the Incident table will reference the ID (PK) in the Caller table.

2. Operator → Incident

Each emergency call is handled by a single Operator, but each Operator can handle multiple calls, which are related to Incidents.
 Operator_ID in the Incident table will reference the ID (PK) in the Operator table.

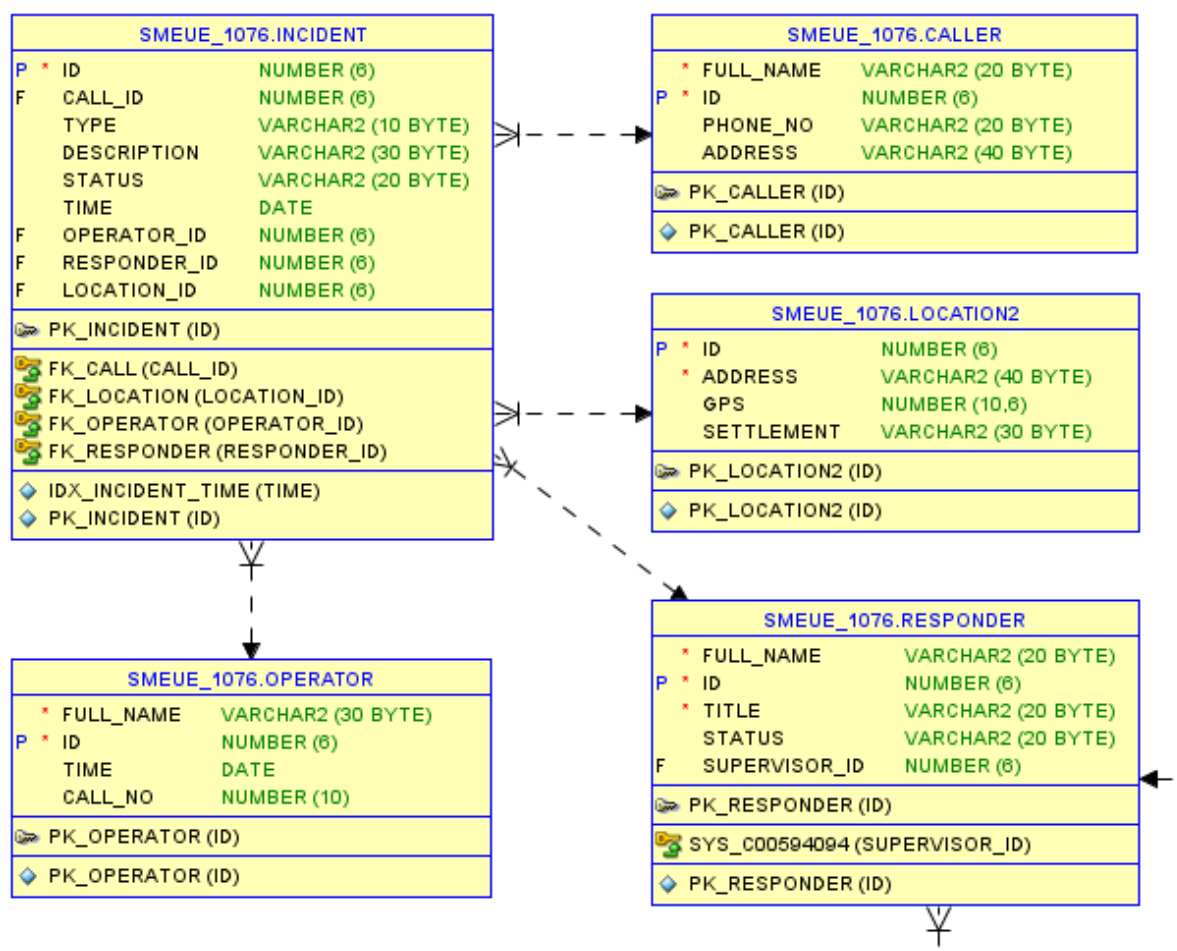
3. Responder → Incident

Multiple responders can be dispatched to a single Incident or each responder can be assigned to many incidents.
 Responder_ID referencing ID from Responder table.

4. Location → Incident

Each Incident occurs at a specific Location. A single Location can be linked to multiple incidents.
 Location_ID (FK) in the Incident table will reference the ID (OK) in the Location table.

2. Database schema:



3. Tables and constraints with DDL statements

```

Create table Caller (
Full_name VARCHAR2(20) NOT NULL,
ID NUMBER(6) CONSTRAINT pk_caller PRIMARY KEY,
Phone_No VARCHAR2(20),
Address VARCHAR2(20)
);
  
```

| ❖ COLUMN_NAME | ❖ DATA_TYPE | ❖ NULLABLE | DATA_DEFAULT | ❖ COLUMN_ID | ❖ COMMENTS |
|---------------|--------------------|------------|--------------|-------------|------------|
| 1 FULL_NAME | VARCHAR2 (20 BYTE) | No | (null) | 1 (null) | |
| 2 ID | NUMBER (6, 0) | No | (null) | 2 (null) | |
| 3 PHONE_NO | VARCHAR2 (20 BYTE) | Yes | (null) | 3 (null) | |
| 4 ADDRESS | VARCHAR2 (20 BYTE) | Yes | (null) | 4 (null) | |

```

Create table Operator (
Full_name VARCHAR2(20) NOT NULL,
ID NUMBER(6) CONSTRAINT pk_operator PRIMARY KEY,
Time DATE,
Call_No NUMBER(10)
);
  
```

| ❖ COLUMN_NAME | ❖ DATA_TYPE | ❖ NULLABLE | DATA_DEFAULT | ❖ COLUMN_ID | ❖ COMMENTS |
|---------------|--------------------|------------|--------------|-------------|------------|
| 1 FULL_NAME | VARCHAR2 (20 BYTE) | No | (null) | 1 (null) | |
| 2 ID | NUMBER (6, 0) | No | (null) | 2 (null) | |
| 3 TIME | DATE | Yes | (null) | 3 (null) | |
| 4 CALL_NO | NUMBER (10, 0) | Yes | (null) | 4 (null) | |

```

Create table Responder (
Full_Name VARCHAR2(20) NOT NULL,
ID NUMBER(6) CONSTRAINT pk_responder PRIMARY KEY,
Title VARCHAR2(20) NOT NULL,
Status VARCHAR2(20)
);

```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|-------------|---|--------------------|-----|----------|--------------|---|-----------|---|----------|
| 1 | FULL_NAME | | VARCHAR2 (20 BYTE) | No | | (null) | | 1 | | (null) |
| 2 | ID | | NUMBER (6,0) | No | | (null) | | 2 | | (null) |
| 3 | TITLE | | VARCHAR2 (20 BYTE) | No | | (null) | | 3 | | (null) |
| 4 | STATUS | | VARCHAR2 (20 BYTE) | Yes | | (null) | | 4 | | (null) |

```

Create table Location2 (
ID NUMBER(6) CONSTRAINT pk_location2 PRIMARY KEY,
Address VARCHAR2(20) NOT NULL,
GPS NUMBER(10,6),
Settlement VARCHAR2(30)
);

```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|-------------|---|--------------------|-----|----------|--------------|---|-----------|---|----------|
| 1 | ID | | NUMBER (6,0) | No | | (null) | | 1 | | (null) |
| 2 | ADDRESS | | VARCHAR2 (20 BYTE) | No | | (null) | | 2 | | (null) |
| 3 | GPS | | NUMBER (10,6) | Yes | | (null) | | 3 | | (null) |
| 4 | SETTLEMENT | | VARCHAR2 (30 BYTE) | Yes | | (null) | | 4 | | (null) |

```

Create table Incident (
ID NUMBER(6) CONSTRAINT pk_incident PRIMARY KEY,
Call_ID NUMBER(6),
Type VARCHAR2(10),
Description VARCHAR2(30),
Status VARCHAR2(20),
Time DATE,
Operator_ID NUMBER(6),
Responder_ID NUMBER(6),
Location_ID NUMBER(6),

CONSTRAINT fk_call FOREIGN KEY (Call_ID) REFERENCES Caller(ID),
CONSTRAINT fk_operator FOREIGN KEY (Operator_ID) REFERENCES Operator(ID),
CONSTRAINT fk_responder FOREIGN KEY (Responder_ID) REFERENCES Responder(ID),
CONSTRAINT fk_location FOREIGN KEY (Location_ID) REFERENCES Location2(ID)
);

```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|--------------|---|--------------------|-----|----------|--------------|---|-----------|---|----------|
| 1 | ID | | NUMBER (6,0) | No | | (null) | | 1 | | (null) |
| 2 | CALL_ID | | NUMBER (6,0) | Yes | | (null) | | 2 | | (null) |
| 3 | TYPE | | VARCHAR2 (10 BYTE) | Yes | | (null) | | 3 | | (null) |
| 4 | DESCRIPTION | | VARCHAR2 (30 BYTE) | Yes | | (null) | | 4 | | (null) |
| 5 | STATUS | | VARCHAR2 (20 BYTE) | Yes | | (null) | | 5 | | (null) |
| 6 | TIME | | DATE | Yes | | (null) | | 6 | | (null) |
| 7 | OPERATOR_ID | | NUMBER (6,0) | Yes | | (null) | | 7 | | (null) |
| 8 | RESPONDER_ID | | NUMBER (6,0) | Yes | | (null) | | 8 | | (null) |
| 9 | LOCATION_ID | | NUMBER (6,0) | Yes | | (null) | | 9 | | (null) |

```
ALTER TABLE LOCATION2
```

```
RENAME COLUMN GPS TO GPS_Localization;
```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|------------------|---|-------------------|---|----------|--------------|---|-----------|---|----------|
| 1 | ID | | NUMBER(6,0) | | No | (null) | | 1 | | (null) |
| 2 | ADDRESS | | VARCHAR2(20 BYTE) | | No | (null) | | 2 | | (null) |
| 3 | GPS_LOCALIZATION | | NUMBER(10,6) | | Yes | (null) | | 3 | | (null) |
| 4 | SETTLEMENT | | VARCHAR2(30 BYTE) | | Yes | (null) | | 4 | | (null) |

```
ALTER TABLE LOCATION2
```

```
RENAME COLUMN GPS_Localization TO GPS;
```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|-------------|---|-------------------|---|----------|--------------|---|-----------|---|----------|
| 1 | ID | | NUMBER(6,0) | | No | (null) | | 1 | | (null) |
| 2 | ADDRESS | | VARCHAR2(20 BYTE) | | No | (null) | | 2 | | (null) |
| 3 | GPS | | NUMBER(10,6) | | Yes | (null) | | 3 | | (null) |
| 4 | SETTLEMENT | | VARCHAR2(30 BYTE) | | Yes | (null) | | 4 | | (null) |

```
ALTER TABLE Incident
```

```
ADD InterventionLevel VARCHAR2(20)
```

```
CHECK (InterventionLevel IN ('easy', 'moderate', 'urgent'));
```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|----|-------------------|---|-------------------|---|----------|--------------|---|-----------|---|----------|
| 1 | ID | | NUMBER(6,0) | | No | (null) | | 1 | | (null) |
| 2 | CALL_ID | | NUMBER(6,0) | | Yes | (null) | | 2 | | (null) |
| 3 | TYPE | | VARCHAR2(10 BYTE) | | Yes | (null) | | 3 | | (null) |
| 4 | DESCRIPTION | | VARCHAR2(30 BYTE) | | Yes | (null) | | 4 | | (null) |
| 5 | STATUS | | VARCHAR2(20 BYTE) | | Yes | (null) | | 5 | | (null) |
| 6 | TIME | | DATE | | Yes | (null) | | 6 | | (null) |
| 7 | OPERATOR_ID | | NUMBER(6,0) | | Yes | (null) | | 7 | | (null) |
| 8 | RESPONDER_ID | | NUMBER(6,0) | | Yes | (null) | | 8 | | (null) |
| 9 | LOCATION_ID | | NUMBER(6,0) | | Yes | (null) | | 9 | | (null) |
| 10 | INTERVENTIONLEVEL | | VARCHAR2(20 BYTE) | | Yes | (null) | | 10 | | (null) |

```
ALTER TABLE Incident
```

```
DROP COLUMN InterventionLevel;
```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|--------------|---|-------------------|---|----------|--------------|---|-----------|---|----------|
| 1 | ID | | NUMBER(6,0) | | No | (null) | | 1 | | (null) |
| 2 | CALL_ID | | NUMBER(6,0) | | Yes | (null) | | 2 | | (null) |
| 3 | TYPE | | VARCHAR2(10 BYTE) | | Yes | (null) | | 3 | | (null) |
| 4 | DESCRIPTION | | VARCHAR2(30 BYTE) | | Yes | (null) | | 4 | | (null) |
| 5 | STATUS | | VARCHAR2(20 BYTE) | | Yes | (null) | | 5 | | (null) |
| 6 | TIME | | DATE | | Yes | (null) | | 6 | | (null) |
| 7 | OPERATOR_ID | | NUMBER(6,0) | | Yes | (null) | | 7 | | (null) |
| 8 | RESPONDER_ID | | NUMBER(6,0) | | Yes | (null) | | 8 | | (null) |
| 9 | LOCATION_ID | | NUMBER(6,0) | | Yes | (null) | | 9 | | (null) |

```
ALTER TABLE Caller
MODIFY Address VARCHAR2(40);
```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|-------------|---|-------------------|---|----------|--------------|---|-----------|---|----------|
| 1 | FULL_NAME | | VARCHAR2(20 BYTE) | | No | (null) | | 1 | | (null) |
| 2 | ID | | NUMBER(6,0) | | No | (null) | | 2 | | (null) |
| 3 | PHONE_NO | | VARCHAR2(20 BYTE) | | Yes | (null) | | 3 | | (null) |
| 4 | ADDRESS | | VARCHAR2(40 BYTE) | | Yes | (null) | | 4 | | (null) |

```
ALTER TABLE Operator
Modify Full_name VARCHAR2(30);
```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|-------------|---|-------------------|---|----------|--------------|---|-----------|---|----------|
| 1 | FULL_NAME | | VARCHAR2(30 BYTE) | | No | (null) | | 1 | | (null) |
| 2 | ID | | NUMBER(6,0) | | No | (null) | | 2 | | (null) |
| 3 | TIME | | DATE | | Yes | (null) | | 3 | | (null) |
| 4 | CALL_NO | | NUMBER(10,0) | | Yes | (null) | | 4 | | (null) |

```
ALTER TABLE Location2
MODIFY Address VARCHAR2(40);
```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|-------------|---|-------------------|---|----------|--------------|---|-----------|---|----------|
| 1 | ID | | NUMBER(6,0) | | No | (null) | | 1 | | (null) |
| 2 | ADDRESS | | VARCHAR2(40 BYTE) | | No | (null) | | 2 | | (null) |
| 3 | GPS | | NUMBER(10,6) | | Yes | (null) | | 3 | | (null) |
| 4 | SETTLEMENT | | VARCHAR2(30 BYTE) | | Yes | (null) | | 4 | | (null) |

4. DML statements

Inserts into Caller table

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Sasha Alexandru', 100, '0753954155', 'Strada Horea, Alba Iulia')
```

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Alina Smith', 101, '0774096791', 'Strada Mihai Eminescu, Bucharest');
```

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Bogdan Joana', 102, '0726408253', 'Strada Victoriei, Cluj-Napoca');
```

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Carolina Leti', 103, '0736289354', 'Strada Unirii, Timisoara');
```

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('David Bronu', 104, '0724721075', 'Strada Libertatii, Iasi');
```

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Emilia David', 105, '0704982505', 'Strada Universității, Craiova');
```

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Fransis Goleanu', 106, '0730683922', 'Strada Republicii, Braşov');
```

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Gratiela Schiopu', 107, '0791163422', 'Strada Independenței, Constanța');
```

```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Henry Avil', 108, '0794027400', 'Strada Culturii, Sibiu');
```



```
INSERT INTO Caller (Full_name, ID, Phone_No, Address) VALUES ('Ivan Loviste',
109, '0713224398', 'Strada Traian, Oradea');
```

| | Full_NAME | ID | PHONE_NO | ADDRESS |
|----|------------------|-----|------------|----------------------------------|
| 1 | Bogdan Joana | 102 | 0726408253 | Strada Victoriei, Cluj-Napoca |
| 2 | Carolina Leti | 103 | 0736289354 | Strada Unirii, Timisoara |
| 3 | David Bronu | 104 | 0724721075 | Strada Libertatii, Iasi |
| 4 | Fransis Goleanu | 106 | 0730683922 | Strada Republicii, Braşov |
| 5 | Henry Avil | 108 | 0794027400 | Strada Culturii, Sibiu |
| 6 | Ivan Loviste | 109 | 0713224398 | Strada Traian, Oradea |
| 7 | Sasha Alexandru | 100 | 0753954155 | Strada Horea, Alba Iulia |
| 8 | Alina Smith | 101 | 0774096791 | Strada Mihai Eminescu, Bucharest |
| 9 | Emilia David | 105 | 0704982505 | Strada Universităţii, Craiova |
| 10 | Gratiela Schiopu | 107 | 0791163422 | Strada Independenţei, Constanţa |

I didn't insert the values in order but they can be arranged by ID as follows:

```
SELECT *
FROM Caller
ORDER BY ID ASC;
```

| | Full_NAME | ID | PHONE_NO | ADDRESS |
|----|------------------|-----|------------|----------------------------------|
| 1 | Sasha Alexandru | 100 | 0753954155 | Strada Horea, Alba Iulia |
| 2 | Alina Smith | 101 | 0774096791 | Strada Mihai Eminescu, Bucharest |
| 3 | Bogdan Joana | 102 | 0726408253 | Strada Victoriei, Cluj-Napoca |
| 4 | Carolina Leti | 103 | 0736289354 | Strada Unirii, Timisoara |
| 5 | David Bronu | 104 | 0724721075 | Strada Libertatii, Iasi |
| 6 | Emilia David | 105 | 0704982505 | Strada Universităţii, Craiova |
| 7 | Fransis Goleanu | 106 | 0730683922 | Strada Republicii, Braşov |
| 8 | Gratiela Schiopu | 107 | 0791163422 | Strada Independenţei, Constanţa |
| 9 | Henry Avil | 108 | 0794027400 | Strada Culturii, Sibiu |
| 10 | Ivan Loviste | 109 | 0713224398 | Strada Traian, Oradea |

Inserts into Operator table

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Estera Valentina
Smeu', 200, TO_DATE('2025-01-01 10:00:00', 'YYYY-MM-DD HH24:MI:SS'), 1);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Ioan Decanu',
201, TO_DATE('2025-01-01 10:30:00', 'YYYY-MM-DD HH24:MI:SS'), 3);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Maria Jarnea',
202, TO_DATE('2025-01-01 11:00:00', 'YYYY-MM-DD HH24:MI:SS'), 2);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Mihai Postolache',
203, TO_DATE('2025-01-01 12:45:00', 'YYYY-MM-DD HH24:MI:SS'), 4);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Sara Canoru',
204, TO_DATE('2025-01-01 13:15:00', 'YYYY-MM-DD HH24:MI:SS'), 1);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Thomas
Andronesu', 205, TO_DATE('2025-01-01 14:30:00', 'YYYY-MM-DD HH24:MI:SS'), 5);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Natalia Poma',
206, TO_DATE('2025-01-01 15:00:00', 'YYYY-MM-DD HH24:MI:SS'), 3);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Daniela Caragea',
207, TO_DATE('2025-01-01 16:45:00', 'YYYY-MM-DD HH24:MI:SS'), 2);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Sofia Lorena',
208, TO_DATE('2025-01-01 17:30:00', 'YYYY-MM-DD HH24:MI:SS'), 1);
```

```
INSERT INTO Operator (Full_name, ID, Time, Call_No) VALUES ('Bruce Wayne',
209, TO_DATE('2025-01-01 18:00:00', 'YYYY-MM-DD HH24:MI:SS'), 6);
```

| | ⚡ FULL_NAME | ⚡ ID | ⚡ TIME | ⚡ CALL_NO |
|----|-----------------------|------|-----------|-----------|
| 1 | Estera Valentina Smeu | 200 | 01-JAN-25 | 1 |
| 2 | Ioan Decanu | 201 | 01-JAN-25 | 3 |
| 3 | Maria Jarnea | 202 | 01-JAN-25 | 2 |
| 4 | Mihai Postolache | 203 | 01-JAN-25 | 4 |
| 5 | Sara Canoru | 204 | 01-JAN-25 | 1 |
| 6 | Thomas Andronescu | 205 | 01-JAN-25 | 5 |
| 7 | Natalia Poma | 206 | 01-JAN-25 | 3 |
| 8 | Daniela Caragea | 207 | 01-JAN-25 | 2 |
| 9 | Sofia Lorena | 208 | 01-JAN-25 | 1 |
| 10 | Bruce Wayne | 209 | 01-JAN-25 | 6 |

Inserts into Responder table

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Sara Avramescu',
300, 'Doctor', 'Available');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Linda Carter',
301, 'Paramedic', 'Available');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Petru Panduru',
302, 'Firefighter', 'On Duty');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Clara Carol',
303, 'Police Officer', 'Available');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Diana Prun',
304, 'Paramedic', 'On Duty');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Briana Banu',
305, 'Doctor', 'Unavailable');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Natasha
Romanoff', 306, 'Nurse', 'Available');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Stefan Rosu',
307, 'Police Officer', 'On Duty');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Toni Stanciu',
308, 'Firefighter', 'Unavailable');
```

```
INSERT INTO Responder (Full_Name, ID, Title, Status) VALUES ('Valentin
Butnaru', 309, 'Doctor', 'Available');
```

| | FULL_NAME | ID | TITLE | STATUS |
|----|------------------|-----|----------------|-------------|
| 1 | Sara Avramescu | 300 | Doctor | Available |
| 2 | Linda Carter | 301 | Paramedic | Available |
| 3 | Petru Panduru | 302 | Firefighter | On Duty |
| 4 | Clara Carol | 303 | Police Officer | Available |
| 5 | Diana Prun | 304 | Paramedic | On Duty |
| 6 | Briana Banu | 305 | Doctor | Unavailable |
| 7 | Natasha Romanoff | 306 | Nurse | Available |
| 8 | Stefan Rosu | 307 | Police Officer | On Duty |
| 9 | Toni Stanciu | 308 | Firefighter | Unavailable |
| 10 | Valentin Butnaru | 309 | Doctor | Available |

Inserts into Location2 table

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (400, 'Strada Horea, Alba Iulia', 46.074729, 'Alba Iulia');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (401, 'Strada Mihai Eminescu, Bucharest', 44.439663, 'Bucharest');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (402, 'Strada Victoriei, Cluj-Napoca', 46.771210, 'Cluj-Napoca');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (403, 'Strada Unirii, Timisoara', 45.748871, 'Timisoara');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (404, 'Strada Libertatii, Iasi', 47.158454, 'Iasi');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (405, 'Strada Universitatii, Craiova', 44.330179, 'Craiova');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (406, 'Strada Republicii, Brasov', 45.655651, 'Brasov');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (407, 'Strada Independentei, Constanta', 44.174020, 'Constanta');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (408, 'Strada Culturii, Sibiu', 45.798327, 'Sibiu');

INSERT INTO Location2 (ID, Address, GPS, Settlement) VALUES (409, 'Strada Traian, Oradea', 47.072223, 'Oradea');

| | ID | ADDRESS | GPS | SETTLEMENT |
|----|-----|----------------------------------|-----------|-------------|
| 1 | 400 | Strada Horea, Alba Iulia | 46.074729 | Alba Iulia |
| 2 | 401 | Strada Mihai Eminescu, Bucharest | 44.439663 | Bucharest |
| 3 | 402 | Strada Victoriei, Cluj-Napoca | 46.77121 | Cluj-Napoca |
| 4 | 403 | Strada Unirii, Timisoara | 45.748871 | Timisoara |
| 5 | 404 | Strada Libertatii, Iasi | 47.158454 | Iasi |
| 6 | 405 | Strada Universitatii, Craiova | 44.330179 | Craiova |
| 7 | 406 | Strada Republicii, Brasov | 45.655651 | Brasov |
| 8 | 407 | Strada Independentei, Constanta | 44.17402 | Constanta |
| 9 | 408 | Strada Culturii, Sibiu | 45.798327 | Sibiu |
| 10 | 409 | Strada Traian, Oradea | 47.072223 | Oradea |

Inserts into Incident table

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (500, 100, 'Fire', 'Small fire', 'Pending', TO_DATE('2025-01-07
10:15:00', 'YYYY-MM-DD HH24:MI:SS'), 200, 300, 400);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (501, 101, 'Fire', 'Apartment fire', 'Active', TO_DATE('2025-01-07
10:45:00', 'YYYY-MM-DD HH24:MI:SS'), 201, 302, 401);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (502, 102, 'Medical', 'Heart attack', 'Resolved', TO_DATE('2025-01-07
11:15:00', 'YYYY-MM-DD HH24:MI:SS'), 202, 304, 402);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (503, 103, 'Accident', 'Car crash', 'Active', TO_DATE('2025-01-07
12:30:00', 'YYYY-MM-DD HH24:MI:SS'), 203, 303, 403);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (504, 104, 'Burglary', 'Break-in', 'Pending', TO_DATE('2025-01-07
13:00:00', 'YYYY-MM-DD HH24:MI:SS'), 204, 307, 404);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (505, 105, 'Fire', 'Warehouse fire', 'Resolved', TO_DATE('2025-01-07
14:00:00', 'YYYY-MM-DD HH24:MI:SS'), 205, 308, 405);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (506, 106, 'Medical', 'Stroke', 'Active', TO_DATE('2025-01-07
14:45:00', 'YYYY-MM-DD HH24:MI:SS'), 206, 309, 406);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (507, 107, 'Accident', 'Bicycle crash', 'Pending', TO_DATE('2025-01-07
15:30:00', 'YYYY-MM-DD HH24:MI:SS'), 207, 306, 407);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (508, 108, 'Fire', 'Apartment fire', 'Active', TO_DATE('2025-01-07
16:00:00', 'YYYY-MM-DD HH24:MI:SS'), 208, 302, 408);
```

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (509, 109, 'Medical', 'Seizure', 'Resolved', TO_DATE('2025-01-01
16:45:00', 'YYYY-MM-DD HH24:MI:SS'), 209, 304, 409);
```

| | ID | CALL_ID | TYPE | DESCRIPTION | STATUS | TIME | OPERATOR_ID | RESPONDER_ID | LOCATION_ID |
|----|-----|---------|----------|----------------|----------|-----------|-------------|--------------|-------------|
| 1 | 500 | 100 | Fire | Small fire | Pending | 07-JAN-25 | 200 | 300 | 400 |
| 2 | 501 | 101 | Fire | Apartment fire | Active | 07-JAN-25 | 201 | 302 | 401 |
| 3 | 502 | 102 | Medical | Heart attack | Resolved | 07-JAN-25 | 202 | 304 | 402 |
| 4 | 503 | 103 | Accident | Car crash | Active | 07-JAN-25 | 203 | 303 | 403 |
| 5 | 504 | 104 | Burglary | Break-in | Pending | 07-JAN-25 | 204 | 307 | 404 |
| 6 | 505 | 105 | Fire | Warehouse fire | Resolved | 07-JAN-25 | 205 | 308 | 405 |
| 7 | 506 | 106 | Medical | Stroke | Active | 07-JAN-25 | 206 | 309 | 406 |
| 8 | 507 | 107 | Accident | Bicycle crash | Pending | 07-JAN-25 | 207 | 306 | 407 |
| 9 | 508 | 108 | Fire | Apartment fire | Active | 07-JAN-25 | 208 | 302 | 408 |
| 10 | 509 | 109 | Medical | Seizure | Resolved | 01-JAN-25 | 209 | 304 | 409 |

Wrong name, so update

For example we need to change: "Henry Avil" → Henry Advil and we can write the following knowing the ID:

```
UPDATE Caller
SET Full_name = 'Henry Advil'
WHERE ID = 108;
```

| ID | FULL_NAME | PHONE_NO | ADDRESS |
|----|------------------|----------------|----------------------------------|
| 1 | Sasha Alexandru | 100 0753954155 | Strada Horea, Alba Iulia |
| 2 | Alina Smith | 101 0774096791 | Strada Mihai Eminescu, Bucharest |
| 3 | Bogdan Joana | 102 0726408253 | Strada Victoriei, Cluj-Napoca |
| 4 | Carolina Leti | 103 0736289354 | Strada Unirii, Timisoara |
| 5 | David Bronu | 104 0724721075 | Strada Libertatii, Iasi |
| 6 | Emilia David | 105 0704982505 | Strada Universității, Craiova |
| 7 | Fransis Goleanu | 106 0730683922 | Strada Republicii, Braşov |
| 8 | Gratiela Schiopu | 107 0791163422 | Strada Independenței, Constanța |
| 9 | Henry Advil | 108 0794027400 | Strada Culturii, Sibiu |
| 10 | Ivan Loviste | 109 0713224398 | Strada Traian, Oradea |

A responder wants to retire

We can run one of the following queries:

- I. if we want to **delete the data** about the responder:

The ID from Responder table has a primary key and in the Incident table is the foreign key Responder_ID, caused by the constraints.

We can delete first the row where we find the Responder_ID = 308 in the Incident table and after we are allowed to delete the responder we want with that same ID = 308 from the Responder table as follows:

```
DELETE FROM Incident WHERE Responder_ID = 308;
```

| ID | CALL_ID | TYPE | DESCRIPTION | STATUS | TIME | OPERATOR_ID | RESPONDER_ID | LOCATION_ID | |
|----|---------|------|-------------|----------------|----------|-------------|--------------|-------------|-----|
| 1 | 500 | 100 | Fire | Small fire | Pending | 07-JAN-25 | 200 | 300 | 400 |
| 2 | 501 | 101 | Fire | Apartment fire | Active | 07-JAN-25 | 201 | 302 | 401 |
| 3 | 502 | 102 | Medical | Heart attack | Resolved | 07-JAN-25 | 202 | 304 | 402 |
| 4 | 503 | 103 | Accident | Car crash | Active | 07-JAN-25 | 203 | 303 | 403 |
| 5 | 504 | 104 | Burglary | Break-in | Pending | 07-JAN-25 | 204 | 307 | 404 |
| 6 | 506 | 106 | Medical | Stroke | Active | 07-JAN-25 | 206 | 309 | 406 |
| 7 | 507 | 107 | Accident | Bicycle crash | Pending | 07-JAN-25 | 207 | 306 | 407 |
| 8 | 508 | 108 | Fire | Apartment fire | Active | 07-JAN-25 | 208 | 302 | 408 |
| 9 | 509 | 109 | Medical | Seizure | Resolved | 01-JAN-25 | 209 | 304 | 409 |

```
DELETE FROM Responder WHERE ID = 308;
```

| | FULL_NAME | ID | TITLE | STATUS |
|---|------------------|-----|----------------|-------------|
| 1 | Sara Avramescu | 300 | Doctor | Available |
| 2 | Linda Carter | 301 | Paramedic | Available |
| 3 | Petru Panduru | 302 | Firefighter | On Duty |
| 4 | Clara Carol | 303 | Police Officer | Available |
| 5 | Diana Prun | 304 | Paramedic | On Duty |
| 6 | Briana Banu | 305 | Doctor | Unavailable |
| 7 | Natasha Romanoff | 306 | Nurse | Available |
| 8 | Stefan Rosu | 307 | Police Officer | On Duty |
| 9 | Valentin Butnaru | 309 | Doctor | Available |

- II. The best way is to keep the data until we create a new database to don't lose information of the cases in which the responder was involved, so we can update the responder title and status as follows:

```
UPDATE Responder
SET Title='retired Doctor', Status='Off duty'
WHERE Full_Name='Toni Stanciu';
```

| | FULL_NAME | ID | TITLE | STATUS |
|----|------------------|-----|----------------|-------------|
| 1 | Sara Avramescu | 300 | Doctor | Available |
| 2 | Linda Carter | 301 | Paramedic | Available |
| 3 | Petru Panduru | 302 | Firefighter | On Duty |
| 4 | Clara Carol | 303 | Police Officer | Available |
| 5 | Diana Prun | 304 | Paramedic | On Duty |
| 6 | Briana Banu | 305 | Doctor | Unavailable |
| 7 | Natasha Romanoff | 306 | Nurse | Available |
| 8 | Stefan Rosu | 307 | Police Officer | On Duty |
| 9 | Toni Stanciu | 308 | retired Doctor | Off duty |
| 10 | Valentin Butnaru | 309 | Doctor | Available |

Availability and ID check:

We consider the responders with ID>301 newbies and we want to help them get experience by putting them more to work. We check their availability and the ID as follows:

```
SELECT Full_Name, ID, Status
FROM Responder
WHERE ID > 301 AND Status = 'Available';
```

| | FULL_NAME | ID | STATUS |
|---|------------------|-----|-----------|
| 1 | Clara Carol | 303 | Available |
| 2 | Natasha Romanoff | 306 | Available |
| 3 | Valentin Butnaru | 309 | Available |

We want to look for the responders which are still working for our 112 system:

```
SELECT Full_Name, Title, Status
FROM Responder
WHERE Status != 'Off duty' AND Status IS NOT NULL;
```

| | FULL_NAME | TITLE | STATUS |
|---|------------------|----------------|-------------|
| 1 | Sara Avramescu | Doctor | Available |
| 2 | Linda Carter | Paramedic | Available |
| 3 | Petru Panduru | Firefighter | On Duty |
| 4 | Clara Carol | Police Officer | Available |
| 5 | Diana Prun | Paramedic | On Duty |
| 6 | Briana Banu | Doctor | Unavailable |
| 7 | Natasha Romanoff | Nurse | Available |
| 8 | Stefan Rosu | Police Officer | On Duty |
| 9 | Valentin Butnaru | Doctor | Available |

The GPS of an ambulance crashed

But there exist a spare one. The operators don't have anymore the GPS coordinates so they contacted the responder in charge for such situations and gave him the information they remembered about the case: an ID between 405 - 409 and in the GPS coordinates the number "45". The code to find the data was runned before receiving the information about the settlement, which was Braşov and it gave the following table in return:

```
SELECT ID, Address, Settlement, GPS
FROM Location2
WHERE GPS LIKE '%45%'
AND ID IN (405, 406, 407, 408, 409);
```

| ID | ADDRESS | SETTLEMENT | GPS |
|----|-------------------------------|------------|-----------|
| 1 | 406 Strada Republicii, Brasov | Brasov | 45.655651 |
| 2 | 408 Strada Culturii, Sibiu | Sibiu | 45.798327 |

They could have tried something easier or faster but the important thing is that they arrived in time and the patient was saved.

Status check:

A responder started his shift on 07.01.2025 at 10 AM, now it's 12AM and want to check quick the status of the cases added in his working time.

```
SELECT ID, Time, Status
FROM Incident
WHERE Time BETWEEN TO_DATE('2025-01-07 10:00:00', 'YYYY-MM-DD HH24:MI:SS')
AND TO_DATE('2025-01-07 12:00:00', 'YYYY-MM-DD HH24:MI:SS');
```

| ID | TIME | STATUS |
|----|---------------|----------|
| 1 | 500 07-JAN-25 | Pending |
| 2 | 501 07-JAN-25 | Active |
| 3 | 502 07-JAN-25 | Resolved |

Incident date&time, day, month and year columns

We want to also see the incident time and we thought it would be a great idea to have the date and time together but also have separate columns for the 'DAY', 'MONTH' and 'YEAR'.

```
SELECT ID,
TO_CHAR(Time, 'DD-MON-YYYY HH24:MI') AS Incident_Time,
EXTRACT(DAY FROM TIME) AS Day,
EXTRACT(MONTH FROM TIME) AS Month,
EXTRACT(YEAR FROM TIME) AS Year
FROM Incident;
```

| | ID | INCIDENT_TIME | DAY | MONTH | YEAR |
|----|-----|-------------------|-----|-------|------|
| 1 | 500 | 07-JAN-2025 10:15 | 7 | 1 | 2025 |
| 2 | 501 | 07-JAN-2025 10:45 | 7 | 1 | 2025 |
| 3 | 502 | 07-JAN-2025 11:15 | 7 | 1 | 2025 |
| 4 | 503 | 07-JAN-2025 12:30 | 7 | 1 | 2025 |
| 5 | 504 | 07-JAN-2025 13:00 | 7 | 1 | 2025 |
| 6 | 506 | 07-JAN-2025 14:45 | 7 | 1 | 2025 |
| 7 | 507 | 07-JAN-2025 15:30 | 7 | 1 | 2025 |
| 8 | 508 | 07-JAN-2025 16:00 | 7 | 1 | 2025 |
| 9 | 509 | 01-JAN-2025 16:45 | 1 | 1 | 2025 |
| 10 | 505 | 07-JAN-2025 14:00 | 7 | 1 | 2025 |

Number of cases grouped by type

We want to find the number of cases from the incident table grouped by their type and having the minimum number of IDs counted 2.

```
SELECT Type,
COUNT(ID) AS Incident_table_Count
FROM Incident
GROUP BY Type
HAVING COUNT(ID) > 2;
```

| | TYPE | INCIDENT_TABLE_COUNT |
|---|---------|----------------------|
| 1 | Fire | 4 |
| 2 | Medical | 3 |

Caller and responder inner join

We want to find easier the responder which took the case of the a certain caller by looking at the ID from the Incident table.

```
SELECT I.ID, C.Full_Name AS Caller_Name, R.Full_Name AS Responder_Name
FROM Incident I
INNER JOIN Caller C ON I.Call_ID = C.ID
INNER JOIN Responder R ON I.Responder_ID = R.ID;
```

| | ID | CALLER_NAME | RESPONDER_NAME |
|----|-----|------------------|------------------|
| 1 | 502 | Bogdan Joana | Diana Prun |
| 2 | 503 | Carolina Leti | Clara Carol |
| 3 | 504 | David Bronu | Stefan Rosu |
| 4 | 506 | Fransis Goleanu | Valentin Butnaru |
| 5 | 508 | Henry Advil | Petru Panduru |
| 6 | 509 | Ivan Loviste | Diana Prun |
| 7 | 500 | Sasha Alexandru | Sara Avramescu |
| 8 | 501 | Alina Smith | Petru Panduru |
| 9 | 505 | Emilia David | Toni Stanciu |
| 10 | 507 | Gratiela Schiopu | Natasha Romanoff |

Responders assigned incident

We want to find which responder has assigned which incident.

```
SELECT R.Full_Name, I.Description
FROM Responder R
LEFT OUTER JOIN Incident I ON R.ID = I.Responder_ID
```

| | FULL_NAME | DESCRIPTION |
|----|------------------|----------------|
| 1 | Sara Avramescu | Small fire |
| 2 | Linda Carter | (null) |
| 3 | Petru Panduru | Apartment fire |
| 4 | Petru Panduru | Apartment fire |
| 5 | Clara Carol | Car crash |
| 6 | Diana Prun | Heart attack |
| 7 | Diana Prun | Seizure |
| 8 | Briana Banu | (null) |
| 9 | Natasha Romanoff | Bicycle crash |
| 10 | Stefan Rosu | Break-in |
| 11 | Toni Stanciu | Warehouse fire |
| 12 | Valentin Butnaru | Stroke |

Incident status change

```
SELECT ID, Type,
CASE
WHEN Status = 'Resolved' THEN 'closed case'
WHEN Status = 'Active' THEN 'in progress'
ELSE 'Pending Action'
END AS Incident_Status
FROM Incident;
```

| | ID | TYPE | INCIDENT_STATUS |
|----|-----|----------|-----------------|
| 1 | 500 | Fire | Pending Action |
| 2 | 501 | Fire | in progress |
| 3 | 502 | Medical | closed case |
| 4 | 503 | Accident | in progress |
| 5 | 504 | Burglary | Pending Action |
| 6 | 506 | Medical | in progress |
| 7 | 507 | Accident | Pending Action |
| 8 | 508 | Fire | in progress |
| 9 | 509 | Medical | closed case |
| 10 | 505 | Fire | closed case |

Callers and responders name union

We want to take a closer look at callers and responders name and it would be easier for us to have their Full_Names gathered.

```
SELECT Full_Name, 'Caller' AS Role FROM Caller
UNION
SELECT Full_Name, 'Responder' AS Role FROM Responder;
```

| | FULL_NAME | ROLE |
|----|------------------|-----------|
| 1 | Bogdan Joana | Caller |
| 2 | Carolina Leti | Caller |
| 3 | David Bronu | Caller |
| 4 | Fransis Goleanu | Caller |
| 5 | Henry Advil | Caller |
| 6 | Ivan Loviste | Caller |
| 7 | Sasha Alexandru | Caller |
| 8 | Alina Smith | Caller |
| 9 | Emilia David | Caller |
| 10 | Gratiela Schiopu | Caller |
| 11 | Sara Avramescu | Responder |
| 12 | Linda Carter | Responder |
| 13 | Petru Panduru | Responder |
| 14 | Clara Carol | Responder |
| 15 | Diana Prun | Responder |
| 16 | Briana Banu | Responder |
| 17 | Natasha Romanoff | Responder |
| 18 | Stefan Rosu | Responder |
| 19 | Toni Stanciu | Responder |
| 20 | Valentin Butnaru | Responder |

Responders IDs with 'status' condition

We want to see the IDs from the responders which have their incident status 'Resolved'.

```
SELECT ID FROM Responder
MINUS
SELECT Responder_ID FROM Incident WHERE Status='Resolved';
```

| | ID |
|---|-----|
| 1 | 300 |
| 2 | 301 |
| 3 | 302 |
| 4 | 303 |
| 5 | 305 |
| 6 | 306 |
| 7 | 307 |
| 8 | 309 |

Responders with incident status 'Active'

```
SELECT Full_Name
FROM Responder R
WHERE EXISTS (
  SELECT 1
  FROM Incident I
  WHERE I.Responder_ID = R.ID AND I.Status = 'Active'
);
```

| | FULL_NAME |
|---|------------------|
| 1 | Petru Panduru |
| 2 | Clara Carol |
| 3 | Valentin Butnaru |

We've got 4 active cases but one of the responders has two at the same time.

New View and index from Incidents table data

We want to create a view table for the active incidents in case we'll need to access quicker the required data in the future and for that, an index is very useful.

```
CREATE VIEW Active_Incidents AS
SELECT ID, Type, Status, Time
FROM Incident
WHERE Status = 'Active';
```

| | COLUMN_NAME | DATA_TYPE | NULLABLE | DATA_DEFAULT | COLUMN_ID | COMMENTS | INSERTABLE | UPDATABLE | DELETABLE |
|---|-------------|---------------|----------|--------------|-----------|----------|------------|-----------|-----------|
| 1 | ID | NUMBER (6) | No | (null) | 1 | (null) | YES | YES | YES |
| 2 | TYPE | VARCHAR2 (10) | Yes | (null) | 2 | (null) | YES | YES | YES |
| 3 | STATUS | VARCHAR2 (20) | Yes | (null) | 3 | (null) | YES | YES | YES |
| 4 | TIME | DATE | Yes | (null) | 4 | (null) | YES | YES | YES |

| ID | TYPE | STATUS | TIME |
|----|--------------|--------|-----------|
| 1 | 501 Fire | Active | 07-JAN-25 |
| 2 | 503 Accident | Active | 07-JAN-25 |
| 3 | 506 Medical | Active | 07-JAN-25 |
| 4 | 508 Fire | Active | 07-JAN-25 |

```
CREATE INDEX idx_incident_time ON Incident(Time);
```

| INDEX_OWNER | INDEX_NAME | TABLE_OWNER | TABLE_NAME | COLUMN_NAME | COLUMN_POSITION | DESCEND |
|--------------|-------------------|-------------|------------|-------------|-----------------|---------|
| 1 SMEUE_1076 | IDX_INCIDENT_TIME | SMEUE_1076 | INCIDENT | TIME | | 1 ASC |

Incidents sequence - create & test

New week, new incidents sequence. Let's create it and test it.

```
CREATE SEQUENCE incident_seq START WITH 510 INCREMENT BY 1;
```

[illegible]

We got a new call:

```
INSERT INTO Caller (Full_Name, ID, Phone_No, Address)
VALUES ('Mihai Eminescu', 110, 0779173280, 'Strada Mihai Eminescu, Bucharest')
```

| | | | |
|----|----------------|---------------|----------------------------------|
| 11 | Mihai Eminescu | 110 779173280 | Strada Mihai Eminescu, Bucharest |
|----|----------------|---------------|----------------------------------|

```
INSERT INTO Incident (ID, Call_ID, Type, Description, Status, Time,
Operator_ID, Responder_ID, Location_ID)
VALUES (incident_seq.NEXTVAL, 110, 'Medical', 'Burns', 'Pending', SYSDATE,
203, 307, 404);
```

| | CALL_ID | TYPE | DESCRIPTION | STATUS | TIME | OPERATOR_ID | RESPONDER_ID | LOCATION_ID |
|----|---------|--------------|----------------|----------|-----------|-------------|--------------|-------------|
| 1 | 500 | 100 Fire | Small fire | Pending | 07-JAN-25 | 200 | 300 | 400 |
| 2 | 501 | 101 Fire | Apartment fire | Active | 07-JAN-25 | 201 | 302 | 401 |
| 3 | 502 | 102 Medical | Heart attack | Resolved | 07-JAN-25 | 202 | 304 | 402 |
| 4 | 503 | 103 Accident | Car crash | Active | 07-JAN-25 | 203 | 303 | 403 |
| 5 | 504 | 104 Burglary | Break-in | Pending | 07-JAN-25 | 204 | 307 | 404 |
| 6 | 505 | 105 Fire | Warehouse fire | Resolved | 07-JAN-25 | 205 | 308 | 405 |
| 7 | 506 | 106 Medical | Stroke | Active | 07-JAN-25 | 206 | 309 | 406 |
| 8 | 507 | 107 Accident | Bicycle crash | Pending | 07-JAN-25 | 207 | 306 | 407 |
| 9 | 508 | 108 Fire | Apartment fire | Active | 07-JAN-25 | 208 | 302 | 408 |
| 10 | 509 | 109 Medical | Seizure | Resolved | 01-JAN-25 | 209 | 304 | 409 |
| 11 | 511 | 110 Medical | Burns | Pending | 21-JAN-25 | 203 | 307 | 400 |

Synonym creation

```
CREATE SYNONYM Event FOR Incident;
```

| Name | Value |
|------------------|--------------------------|
| 1 CREATED | 07-JAN-25 |
| 2 LAST_DDL_TIME | 12-JAN-25 |
| 3 OWNER | SMEUE_1076 |
| 4 SYNONYM_NAME | EVENT |
| 5 OBJECT_OWNER | SMEUE_1076 |
| 6 OBJECT_NAME | INCIDENT |
| 7 OBJECT_TYPE | TABLE |
| 8 BASE_OBJECT | INCIDENT |
| 9 DB_LINK | (null) |
| 10 ORIGIN_CON_ID | 3 |
| 11 DUPLICATED | N |
| 12 SHARDED | N |

```
SELECT * FROM Event WHERE Type = 'Medical' and Call_ID > 105 ORDER BY
Responder_ID;
```

| ID | CALL_ID | TYPE | DESCRIPTION | STATUS | TIME | OPERATOR_ID | RESPONDER_ID | LOCATION_ID |
|----|---------|-------------|-------------|----------|-----------|-------------|--------------|-------------|
| 1 | 509 | 109 Medical | Seizure | Resolved | 01-JAN-25 | 209 | 304 | 409 |
| 2 | 511 | 110 Medical | Burns | Pending | 21-JAN-25 | 203 | 307 | 400 |
| 3 | 506 | 106 Medical | Stroke | Active | 07-JAN-25 | 206 | 309 | 406 |

Hierarchical queries

In order to create a hierarchical query we must have a self referenced table, so we proceed:

```
ALTER TABLE Responder
ADD Supervisor_ID NUMBER REFERENCES Responder(ID);
```

| ❖ | COLUMN_NAME | ❖ | DATA_TYPE | ❖ | NULLABLE | DATA_DEFAULT | ❖ | COLUMN_ID | ❖ | COMMENTS |
|---|---------------|---|-------------------|-----|----------|--------------|---|-----------|--------|----------|
| 1 | FULL_NAME | | VARCHAR2(20 BYTE) | No | | (null) | | 1 | (null) | |
| 2 | ID | | NUMBER(6,0) | No | | (null) | | 2 | (null) | |
| 3 | TITLE | | VARCHAR2(20 BYTE) | No | | (null) | | 3 | (null) | |
| 4 | STATUS | | VARCHAR2(20 BYTE) | Yes | | (null) | | 4 | (null) | |
| 5 | SUPERVISOR_ID | | NUMBER | Yes | | (null) | | 5 | (null) | |

We need to update the table for the new column as follows:

Doctors with subordinates:

```
UPDATE Responder
SET Supervisor_ID = 300
WHERE Full_Name IN ('Linda Carter', 'Diana Prun'); -- List of subordinates
```

```
UPDATE Responder
SET Supervisor_ID = 305
WHERE Full_Name IN ('Natasha Romanoff'); -- Subordinate
```

```
UPDATE Responder
SET Supervisor_ID = 309 -- top supervisor in domain
WHERE Full_Name IN ('Sara Avramescu', 'Briana Banu'); -- List of subordinates
```

Firefighter supervisor and subordinate:

```
UPDATE Responder
SET Supervisor_ID = 302 -- top supervisor in domain
WHERE Full_Name IN ('Toni Stanciu'); -- Subordinate
```

Police Officer supervisor and subordinate:

```
UPDATE Responder
SET Supervisor_ID = 303 -- top supervisor in domain
WHERE Full_Name IN ('Stefan Rosu'); -- Subordinate
```

| ❖ | FULL_NAME | ❖ | TITLE | ❖ | STATUS | ❖ | SUPERVIS... |
|----|------------------|-----|----------------|-------------|--------|--------|-------------|
| 1 | Sara Avramescu | 300 | Doctor | Available | | 309 | |
| 2 | Linda Carter | 301 | Paramedic | Available | | 300 | |
| 3 | Petru Panduru | 302 | Firefighter | On Duty | | (null) | |
| 4 | Clara Carol | 303 | Police Officer | Available | | (null) | |
| 5 | Diana Prun | 304 | Paramedic | On Duty | | 300 | |
| 6 | Briana Banu | 305 | Doctor | Unavailable | | 309 | |
| 7 | Natasha Romanoff | 306 | Nurse | Available | | 305 | |
| 8 | Stefan Rosu | 307 | Police Officer | On Duty | | 303 | |
| 9 | Toni Stanciu | 308 | retired Doctor | Off duty | | 302 | |
| 10 | Valentin Butnaru | 309 | Doctor | Available | | (null) | |

We got 3 top supervisors: Valentin Butnaru – Doctor, Petru Panduru – Firefighter and Clara Carol – Police Officer.

We can see the hierarchy pointing the responders level by running the following:

```
SELECT LEVEL,
LPAD('--->', LEVEL * 2, '---') || Full_Name AS Hierarchy
FROM Responder
CONNECT BY PRIOR ID = Supervisor_ID
START WITH Supervisor_ID IS NULL
ORDER BY LEVEL;
```

| LEVEL | HIERARCHY |
|-------|-------------------------|
| 1 | 1--Petru Panduru |
| 2 | 1--Valentin Butnaru |
| 3 | 1--Clara Carol |
| 4 | 2--->Stefan Rosu |
| 5 | 2--->Sara Avramescu |
| 6 | 2--->Briana Banu |
| 7 | 2--->Toni Stanciu |
| 8 | 3----->Natasha Romanoff |
| 9 | 3----->Linda Carter |
| 10 | 3----->Diana Prun |

We want to find the superiors of Natasha Romanoff.

```
SELECT ID, full_name, title, level FROM responder
CONNECT BY PRIOR Supervisor_ID=ID
START WITH full_name='Natasha Romanoff';
```

| ID | FULL_NAME | TITLE | LEVEL |
|----|----------------------|--------|-------|
| 1 | 306 Natasha Romanoff | Nurse | 1 |
| 2 | 305 Briana Banu | Doctor | 2 |
| 3 | 309 Valentin Butnaru | Doctor | 3 |

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24.01.2025