



INSTITUTO SUPERIOR TÉCNICO

SIBD PROJECT - PART 2

ENTITY-ASSOCIATION MODEL

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Element's Number	Relative Percentage	Total Effort (hours)
90041	33.3	6
90105	33.3	6
90161	33.3	6

GROUP NUMBER: 17

LAB SHIFT: L07

LAB PROFESSOR: JOÃO GRANADO MARQUES

1 Constraints

(IC-1) The voltage of the primary Bus Bar must match the primary voltage of the Transformer to which the Bus Bar is connected

(IC-2) The voltage of the secondary Bus Bar must match the secondary voltage of the Transformer to which the Bus Bar is connected

(IC-3) The Busbars of a transformer connection must be different

(IC-4) The Busbars of a line connection must be different

(IC-5) Persons cannot analyse incidents regarding Elements of a Substation they supervises

(IC-6) Phone numbers are unique

(IC-7) Tax ID numbers are unique

2 Comments

2.1 Creating the databases

2.1.1 GPS coordinates

In order to store GPS coordinates we needed two separate columns for latitude and longitude. For this we created a new type as follows:

```
CREATE TYPE coordinates AS
(
    longitude NUMERIC(8, 6),
    latitude  NUMERIC(9, 6)
);
```

2.1.2 Severity scale

In order to store define a scale for the severity we opted for an enum with 3 options, as follows:

```
CREATE TYPE Severity AS ENUM ('low', 'medium', 'high');
```

2.1.3 Refers to diamond

Since Incident is a weak entity dependent on the Element, its primary key must be composed of both instant and element_id. Due to this we do not have a table for refers_to, we have the foreign key directly on the Incident table.

2.2 Query B

In **query b** we are asked for the name of the analyst that has reported more incidents. We must take into account that the primary keys of the analyst is both the name and address, so we can have analysts with the same name but different addresses that correspond to different analysts. In order to account for this we must group by both attributes.