INTERLIS Relations in QGIS

How INTERLIS associations and inheritances are handled as QGIS relations

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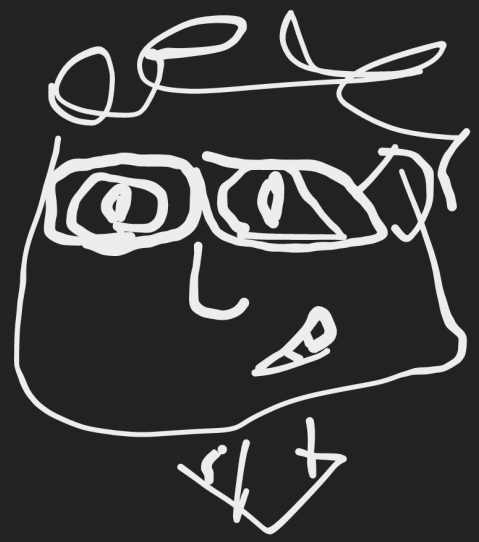

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Workshop

- INTERLIS Classes
- INTERLIS Associations
- Check the INTERLIS Model
- Inheritancs in Physical Models
- Associations in QGIS

INTERLIS Classes

Classes

Syntax

```
ClassDef =  'CLASS' Class-Name '='
                { AttributeDef }
            'END' Class-Name ';'.
```

Example

```
CLASS Building =
    Name : TEXT*20;
    Nr_of_Floors : MANDATORY 1 .. 100;
END Building;
```

Structures

Syntax

```
StructureDef =  'STRUCTURE' Struct-Name '='
                    { AttributeDef }
                'END' Struct-Name ';'.
```

Example

```
STRUCTURE Address =
    StreetName : TEXT*40;
    Number : TEXT*12;
END Address;

CLASS Building =
    Position : Address;
END Building;
```

```
CLASS Building =
    Position : BAG {0..*] OF Address;
END Building;
```

Types of classes

- Concrete
- Abstract
- Final
- Derivate/Extended

Concrete Classes

```
CLASS Building =
END Building;

CLASS Office_Building
    EXTENDS Building =
END CLASS Office_Building;
```

Abstract Classes

```
CLASS Building (ABSTRACT) =
END Building;

CLASS Office_Building
    EXTENDS Building =
END CLASS Office_Building;
```

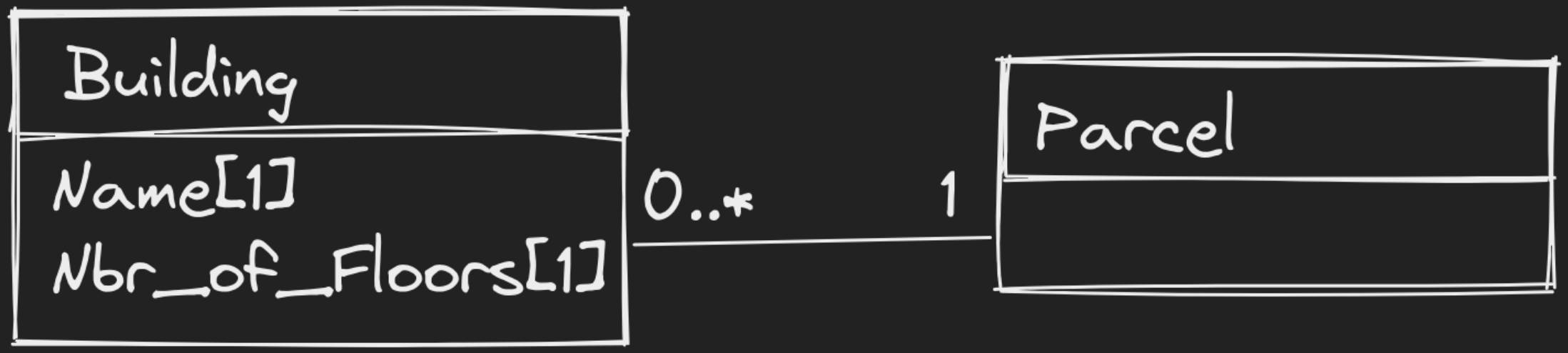
Final Classes

```
CLASS Building (FINAL) =
END Building;

CLASS Office_Building
    EXTENDS Building =
END CLASS Office_Building;
```

```
!! Error: Building cannot be extended
```

INTERLIS Associations



Cardinality

one-to-many

A building belongs to exactly one parcel. A parcel can have multiple buildings.

```
ASSOCIATION =
    local_buildings -- {0..*} Building;
    parcel -- {1} Parcel;
END;
```

many-to-many

A building belongs to exactly one parcel. A parcel can have multiple buildings.

```
ASSOCIATION Property =
    Person -- {1..*} Person;
    Parcel -- {0..*} Parcel;
END;
```

Strength

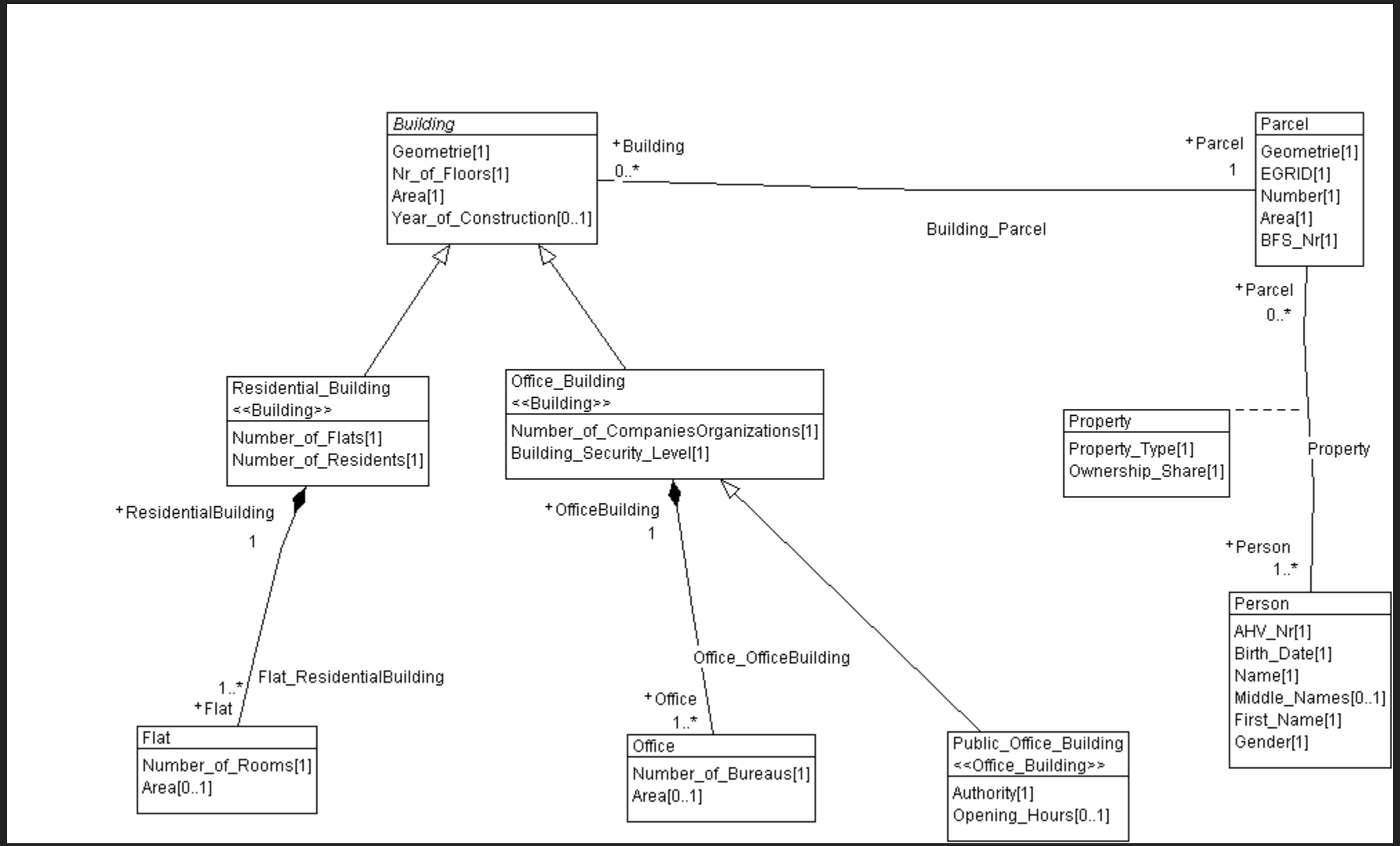
- Association `--`: Relationship between independent objects.
- Aggregation `-<>`: Relationship between parts and a whole. A part can be part of multiple wholes.
- Composition `-<#>`: Relationship between parts and a whole. A part can only be part of a single whole.

Attributes

An association can contain attributes as well.

```
ASSOCIATION Property =
    Person -- {1..*} Person;
    Parcel -- {0..*} Parcel;
    Ownership_Share : 0 .. 100;
END;
```

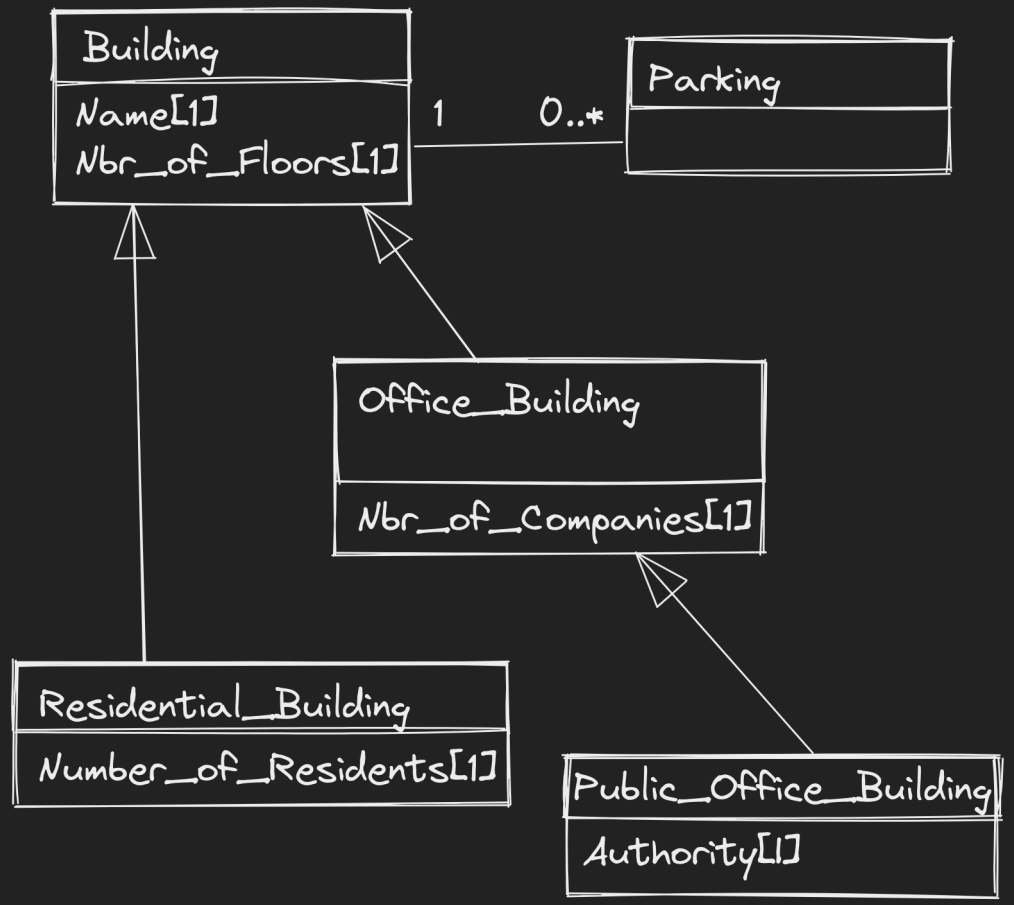
Example Model `Building_Parcel_Property`



Inharitance mapping

- New Class
- Super Class
- Sub Class
- New+Sub Class

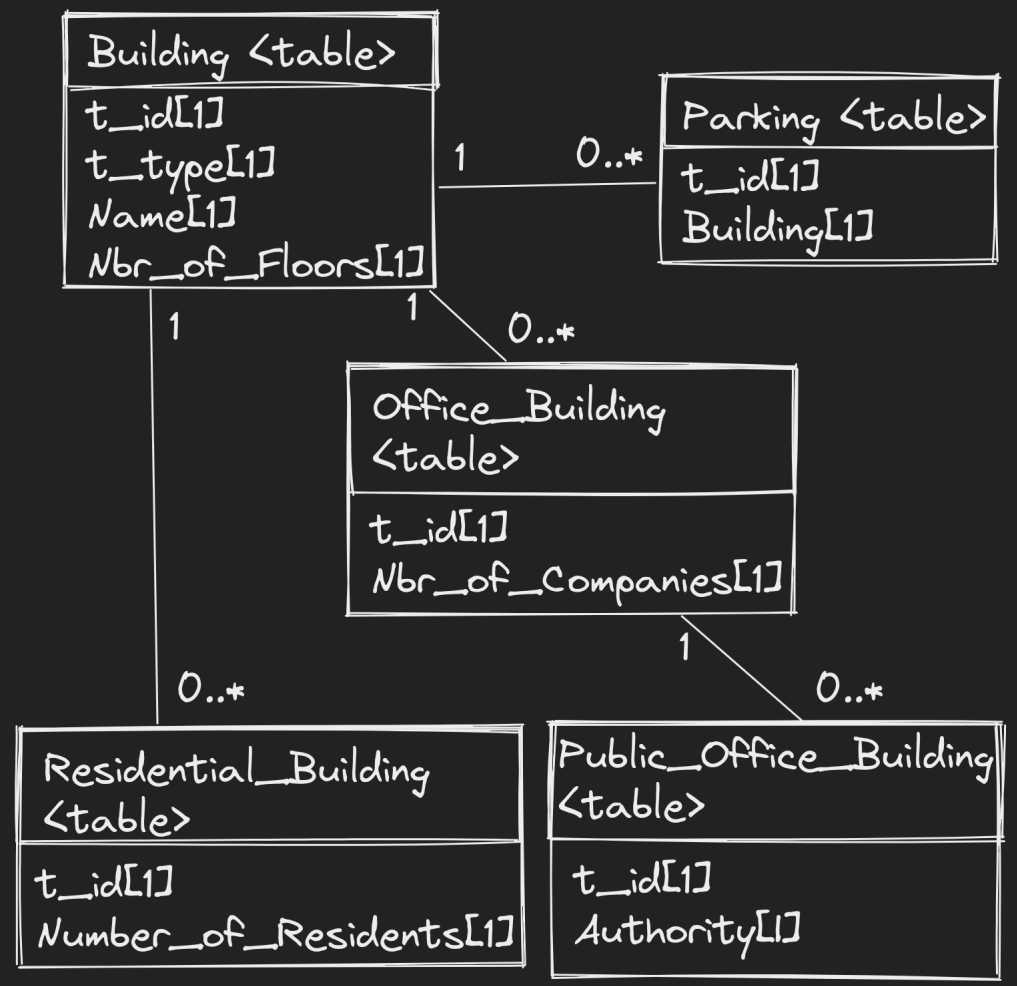
Sample Model



New Class

```
Building.t_type: (
    Residental_Building,
    Office_Building,
    Public_Office_Building
)
```

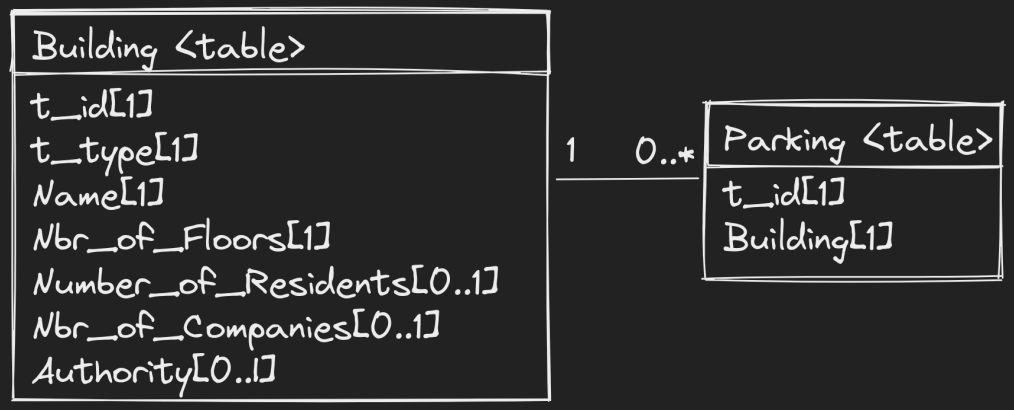
- Specializations are mapped as associations
- Multiple inserts and updates required per object
- Not null attributes can be setted
- Referential integrity is respected



Super Class

```
Building.t_type: (
    Residental_Building,
    Office_Building,
    Public_Office_Building
)
```

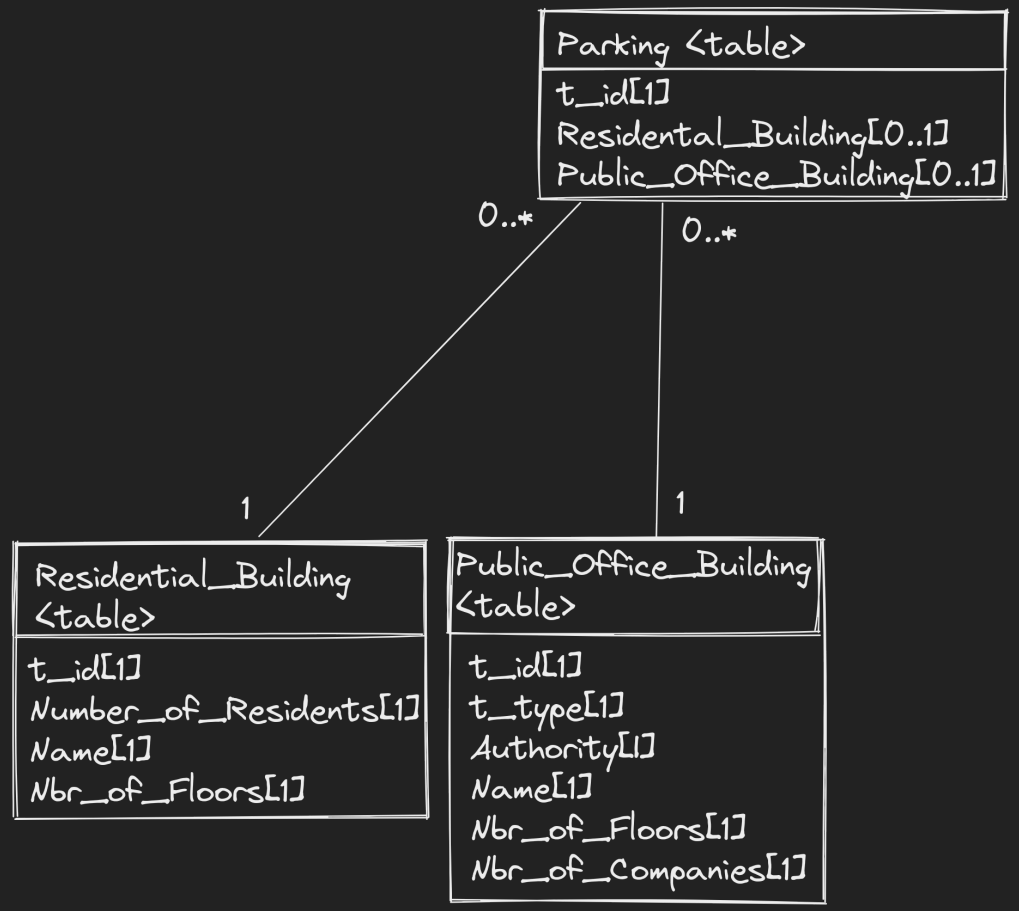
- Missing not null constraints
- Less tables and associations (easy to use)



Sub Class

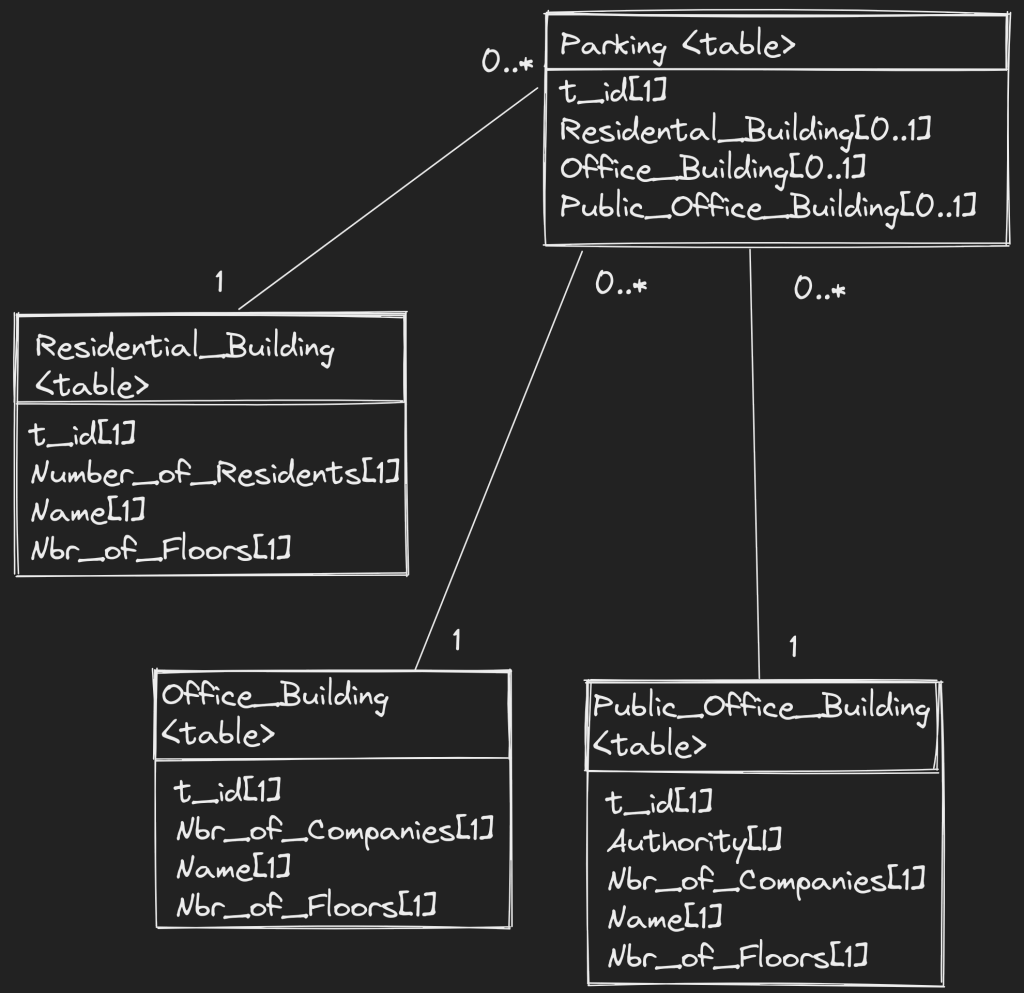
```
Public_Office_Building.t_type: (
    Office_Building,
    Public_Office_Building
)
```

- Missing not null constraints



New + Sub Class

- Missing not null constraints
- Referential integrity is respected



Smart Mapping in ili2db

noSmartMapping

- All classes are mapped using *New Class* strategy

smart1Inheritance

- Abstract classes without associations -> *Sub Class* strategy
- Abstract classes with associations and no concrete super class -> *New Class* strategy
- Concrete classes without concrete super class -> *New Class* strategy
- All other classes -> *Super Class* strategy

smart2Inheritance

- Abstract classes -> *Sub Class* strategy
- All concrete classes -> *New* + *Sub Class* strategy

Relations in QGIS