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CSC315-02

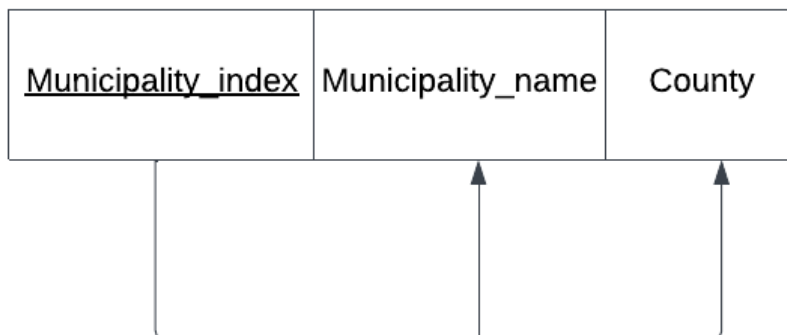
Effectiveness of NJ Energy Efficiency Programs and Solar Installations Model

Normalization

Relational Schema:

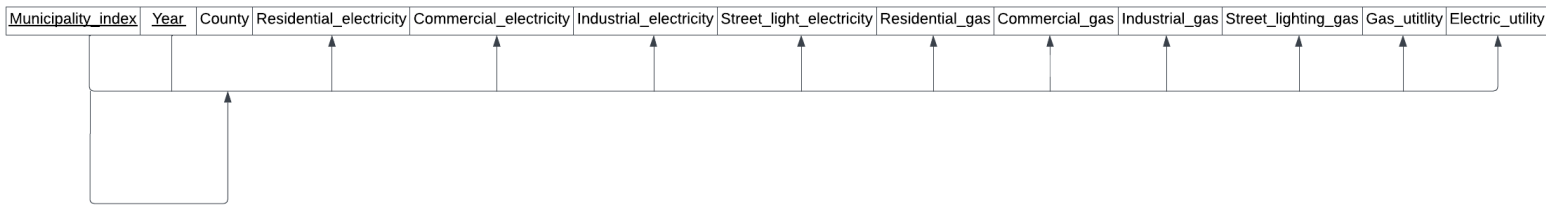


Municipality Code:

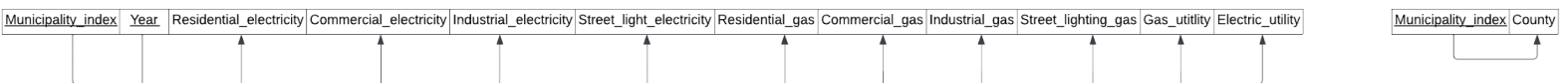


- 1NF: No multivalued attributes.
- 2NF: All functional dependencies are fully functionally dependent (on Municipality_index).
- 3NF: No transitive functional dependencies.
- BCNF: The determinant (Municipality_index) is a candidate key.

Municipality



- 1NF: No multivalued attributes.
- 2NF: Does not meet second normal form due to the county attribute being only partially dependent on the key (only dependent on Municipality_index, not year).



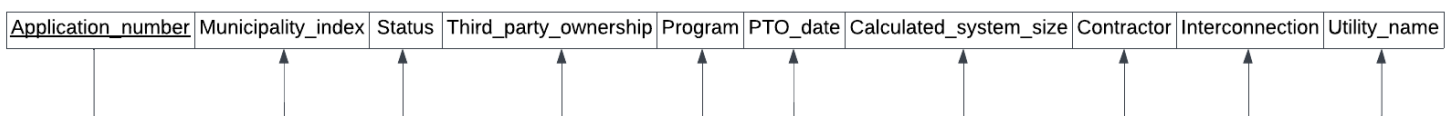
- 2NF: All functional dependencies are fully functionally dependent.
- 3NF: No transitive functional dependencies.
- BCNF: The determinant (Municipality_index and year) is a candidate key.

Energy Efficiency Programs



- 1NF: No multivalued attributes.
- 2NF: All functional dependencies are fully functionally dependent (on Municipality_index).
- 3NF: No transitive functional dependencies.
- BCNF: The determinant (Municipality_index) is a candidate key.

Solar Installation Programs



- 1NF: No multivalued attributes.

- 2NF: All functional dependencies are fully functionally dependent (on Application_number).
- 3NF: No transitive functional dependencies.
- BCNF: The determinant (Application_number) is a candidate key.

Commercial Solar Customer



- 1NF: No multivalued attributes.
- 2NF: All functional dependencies are fully functionally dependent (on Application_number).
- 3NF: No transitive functional dependencies.
- BCNF: The determinant (Application_number) is a candidate key.

3. Table views

Municipality Code: SELECT * FROM Municipality_Code

Municipality: SELECT * FROM Municipality

Energy Efficiency Programs: SELECT * FROM Energy_Efficiency_Programs

Solar Installation Programs: SELECT * FROM Solar_Installation_Programs

Commercial Solar Customer SELECT * FROM Commercial_Solar_Customer

View for main page:

```
CREATE VIEW eff_program_vs_energy_usage AS SELECT mc.Municipality_index,
mc.Municipality_name, mc.County, m.Year, m.Residential_electricity, m.Commercial_electricity,
m.Industrial_electricity, m.street_light_electricity, m.residential_gas, m.commercial_gas,
m.industrial_gas, m.street_lighting_gas, m.Electricity_utility, m.Gas_utility,
e.Total_completed_projects, e.current_lifetime_rate FROM Municipality_Code mc, Municipality
m, Energy_efficiency_programs e ON mc.Municipality_index=m.Municipality_index AND
mc.Municipality_index=e.Municipality_index;
```

```
CREATE VIEW solar_program_vs_energy_usafe AS SELECT s.Municipality_index,  
count(Application_number), mc.Municipality_name, mn.County FROM  
Solar_installation_programs s, Municipality_county mc ORDER BY Municipality_index;
```