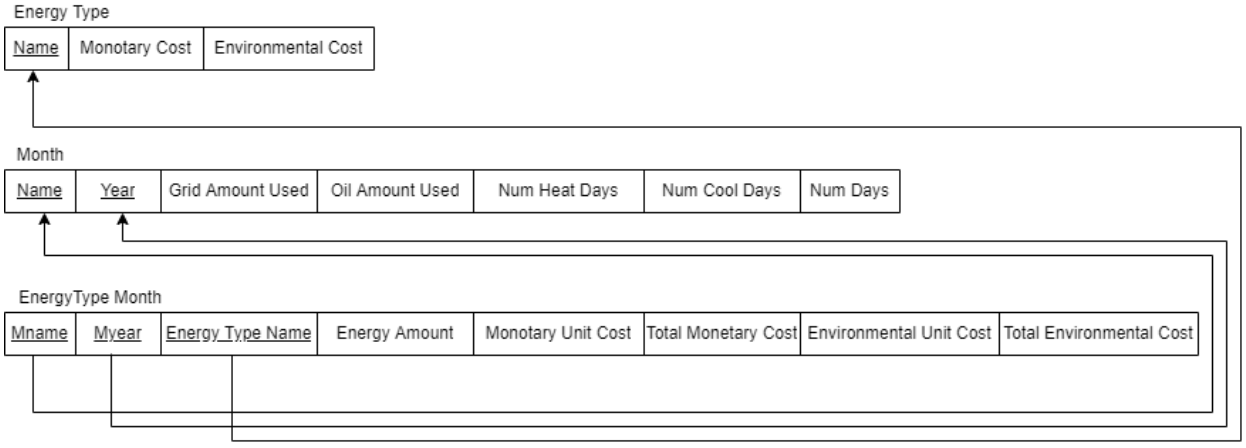
Original Relational Schema:



EnergyType Relational Table:

The EnergyType relational table is in 2NF because all of its non-prime attributes, Monetary Cost and Environmental Cost, are fully functionally dependent on the primary key, Name.

The EnergyType relational table is in 3NF because no non-prime attribute is transitivelly associated with the primary key.

The EnergyType relational table is in Boyce-Codd Normal Form because Name is a super key for both Monetary Cost and Environmental Cost.

Month Relational Table:

The Month relational table is in 2NF because GridAmountUsed, OilAmountUsed, NumHeatDays, NumCoolDays and NumDays are all fully functionally dependent on both MName and MYear.

The Month relational table is in 3NF because no non-prime attribute is transitivelly associated with the primary key.

The Month relational table is in Boyce-Codd Normal Form because Name, Year is a super key for Grid Amount Used, Oil Amount Used, Num Heat Days, Num Cool Days, and Num Days.

EnergyType Month Relational Table:

The EnergyType Month relational table is not in 2NF because:

Monetary Unit Cost is fully functionally dependent on EnergyType Name.
Environmental Unit Cost is fully functionally dependent on EnergyType Name.

To normalize the EnergyType Month relational table to 2NF, remove MonetaryUnitCost and Environmental Unit Cost from EnergyType Month. They are both fully dependent on EnergyType Name, and so they can stay just in the EnergyType relational table.

The new EnergyType Month relational table looks as follows:

EnergyType Month:

MName	MYear	EnergyTypeName	EnergyAmount	TotalMonetaryCost	TotalEnvironmentalCost

The above EnergyType Month relational table is not in 3NF because:

MName, MYear, EnergyTypeName -> EnergyAmount
EnergyTypeName -> MonetaryCost
MonetaryCost, EnergyAmount -> TotalMonetaryCost.

So TotalMonetaryCost is transitively dependent on the primary key.

Also:

MName, MYear, EnergyTypeName -> EnergyAmount
EnergyTypeName -> EnvironmentalCost
MonetaryCost, EnergyAmount -> TotalEnvironmentalCost.

So TotalEnvironmentalCost is transitively dependent on the primary key.

In order to eliminate the transitivity, we need to break EnergyTypeMonth into three further sub relational tables as follows:

EnergyType Month:

MName	MYear	EnergyTypeName	EnergyAmount

EnergyTypeTotalMonetaryCost:

MonetaryUnitCost	EnergyAmount	TotalMonetaryCost

EnergyTypeTotalEnvironmentalCost:

EnvironmentaUnitCost	EnergyAmount	TotalEnvironmentalCost

The above three relational tables are all in Boycs-Codd Normal form as for in each case, the primary key is a superkey for the singular non prime attribute in each relational table.

The Modified Relational Schema is shown below: