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| Southern New Hampshire University |
| **Gas Price Tracker** |
| **A CS231 Project** |
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| **Version #:** | 1.2 |

# Glossary & Acronyms

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| Term /  Acronym | Explanation |
| SDLC | Software Development Life Cycle |
| DBMS | Database Management System |
| SE | Software Engineering |
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# Overview of Project

This simple app will be able to display gas stations and the prices of their gas that they sell. Gas station managers can update, add, and remove gas prices with ease.

# Current State

The app will support basic price tracking for user input gas stations. It will show what types of gas they have and any other amenities like a store or EV charger. There will also be options to sort the data by things like price.

# Future State

The app could be scaled up to allow for users to add their own prices as they get gas, taking the weight off the location managers. There could also be more detailed descriptions of the stations, like how many pumps there are, if they’re busy, or the best time to get gas. There is a lot of room to grow.

# Detailed Business Rules

## **A. General**

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| **No.** | **General Requirements** |
| 1001 | A manager can ADD, REMOVE, or EDIT their stores prices. |
| 1002 | A store will have data about its types of gas, each price, and other amenities offered by the store in a short description. |
| 1003 | The prices should be available to everyone, while editing privileges are not. |
| 1004 |  |
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ER Diagram

Diagram

Description automatically generated

Relational Schema

**Company Table**

* CompanyID (Primary Key)
* CompanyName
* CompanyDataCreated
* CompanyValue
* StationName

**Station Table**

* StationID (Primary Key)
* StationName
* StationAddress
* CompanyID (Foreign Key referencing Company.CompanyID)

**FuelType Table**

* FuelTypeID (Primary Key)
* FuelTypeName

**Price Table**

* PriceID (Primary Key)
* StationID (Foreign Key referencing Station.StationID)
* FuelTypeID (Foreign Key referencing FuelType.FuelTypeID)
* Price

SQL DDL and DML

To Create Tables

CREATE TABLE Company (

CompanyID INT PRIMARY KEY,

CompanyName VARCHAR(50),

CompanyDateCreated DATE,

CompanyValue DECIMAL(10,2),

StationName VARCHAR(50)

);

CREATE TABLE Station (

StationID INT PRIMARY KEY,

StationName VARCHAR(50),

StationAddress VARCHAR(100),

CompanyID INT,

FOREIGN KEY (CompanyID) REFERENCES Company(CompanyID)

);

CREATE TABLE FuelType (

FuelTypeID INT PRIMARY KEY,

FuelTypeName VARCHAR(50)

);

CREATE TABLE Price (

PriceID INT PRIMARY KEY,

StationID INT,

FuelTypeID INT,

Price DECIMAL(10,2),

FOREIGN KEY (StationID) REFERENCES Station(StationID),

FOREIGN KEY (FuelTypeID) REFERENCES FuelType(FuelTypeID)

);

To Insert some sample data

INSERT INTO Company (CompanyID, CompanyName, CompanyDataCreated, CompanyValue, StationName)

VALUES (1, 'Shell', '2021-01-01', 50000, 'Shell');

INSERT INTO Company (CompanyID, CompanyName, CompanyDataCreated, CompanyValue, StationName)

VALUES (2, 'ExxonMobil', '2021-02-01', 60000, 'Mobil');

INSERT INTO Station (StationID, StationName, StationAddress, CompanyID)

VALUES (1, 'Shell Station 1', '1234 Main St, Anytown, USA', 1);

INSERT INTO Station (StationID, StationName, StationAddress, CompanyID)

VALUES (2, 'ExxonMobil Station 1', '5678 Elm St, Anytown, USA', 2);

INSERT INTO FuelType (FuelTypeID, FuelTypeName)

VALUES (1, 'Regular Gasoline');

INSERT INTO FuelType (FuelTypeID, FuelTypeName)

VALUES (2, 'Premium Gasoline');

INSERT INTO Price (PriceID, StationID, FuelTypeID, Price)

VALUES (1, 1, 1, 2.50);

INSERT INTO Price (PriceID, StationID, FuelTypeID, Price)

VALUES (2, 1, 2, 3.00);

INSERT INTO Price (PriceID, StationID, FuelTypeID, Price)

VALUES (3, 2, 1, 2.60);

INSERT INTO Price (PriceID, StationID, FuelTypeID, Price)

VALUES (4, 2, 2, 3.10);

Some sample select statements

SELECT \* FROM Price;

SELECT \* FROM Station WHERE CompanyID = 1;

Sample update statement

UPDATE Price SET Price = 2.70 WHERE StationID = 1 AND FuelTypeID = 1;

Sample delete statement

DELETE FROM Company WHERE CompanyID = 2;