

## Project 4

### Lucas, Shaun, Paul

**Topic:** Housing Market Predictions

**Data Source:**

<https://virginiarealtors.org/research/data/>

Data sets to download:

Dependent Variable

Independent Variables

- Home Sales by County/City (Monthly), 2016-present
- Median Sales Prices by County/City (Monthly), 2016-present
- Mortgage Rates (Weekly), 2016-present
- County and City Population Totals, 2010-2021
- Job Totals, U.S. and Virginia (Monthly), 2009-present
- Unemployment Rate, U.S. and Virginia (Monthly), 2009-present.

How do factors like housing construction activity, mortgage rates, and population growth affect median sales prices in Virginia?

We will perform a multiple linear regression analysis to create a model that can predict future housing prices.

We will present our visualizations in Tableau.

We will create a SQL database to connect several csv files from virginia realtors.

We believe that we will see home prices begin to level or plateau as current interest rates and other external factors have begun to affect the average prices of homes in any given area. We may see some outliers in the top and bottom of our data predictions as well.

Tableau will hopefully help us tell the story that we expect to see in the current and future housing market.

SQL Reshaping: <https://dba.stackexchange.com/questions/201929/tips-on-reshaping-data-pivot-like>

SQL Cleaning functions:

TRIM(): Removes leading and trailing spaces from a string.

sql

Copy code

```
SELECT TRIM('hello') AS
```

LTRIM(): Removes leading spaces from a string.

sql

Copy code

```
SELECT LTRIM('hello') AS
```

RTRIM(): Removes trailing spaces from a string.

sql

Copy code

```
SELECT RTRIM('hello ') AS
```

UPPER(): Converts a string to uppercase.

sql

Copy code

```
SELECT UPPER 'hello' AS
```

LOWER(): Converts a string to lowercase.

sql

Copy code

```
SELECT LOWER 'HELLO' AS
```

CONCAT(): Concatenates two or more strings together.

sql

Copy code

```
SELECT 'Hello' || 'World' AS
```

SUBSTRING(): Extracts a substring from a string.

sql

Copy code

```
SELECT SUBSTRING 'Hello World' 1 5 AS
```

REPLACE(): Replaces occurrences of a substring within a string with another substring.

sql

[Copy code](#)

```
SELECT REPLACE('Hello, world!', 'world', 'SQL') AS
```

COALESCE(): Returns the first non-null value in a list of expressions.

sql

[Copy code](#)

```
SELECT COALESCE(NULL, 'default_value') AS result
```

CAST(): Converts a value from one data type to another.

sql

[Copy code](#)

```
SELECT CAST('123' AS INT) AS
```

CONVERT(): Converts a value from one data type to another.

sql

[Copy code](#)

```
SELECT CONVERT('123', INT) AS
```



DATE\_FORMAT(): Formats a date value.

sql

[Copy code](#)

```
SELECT                '2022-01-01'    '%Y-%m-%d'    AS
```

DROP TABLE: Removes a table from the database.

sql

[Copy code](#)

```
DROP TABLE
```

DELETE: Removes rows from a table based on a condition.

sql

[Copy code](#)

```
DELETE FROM          WHERE condition
```

TRUNCATE TABLE: Removes all rows from a table, but keeps the table structure intact.

sql

[Copy code](#)

```
TRUNCATE TABLE table_name;
```