Project 3
Housing Prices in Perth

Yingzhen Wang
Shristi Bhattarai
Dashrath Bhandari
Sushil Baskota

PURPOSE OF PROJECT

To provide an overview of how the housing prices have changed over the past decade, highlighting any significant trends or patterns in the data also focus on five suburbs in perth with the highest sold prices and it will include a map with markers indicating the location and price of each property

To analyse out the factors thats affects the housing prices so that we can make the best decision while investing in real estate.

Resources and libraries

Python

Pandas

SQLite

Python Flask API

JavaScript

HTML

STEPS IN OUR DATA VISUALISATION

- Data collection KAGGLE
- Analyse data (look at the missing information, check required information (rows/column)
- Data cleaning
- Check data type
- Create database

```python
# Import the necessary libraries
import numpy as np
import pandas as pd
from flask import Flask
from flask_cors import CORS
from sqlalchemy import create_engine
from sqlalchemy.ext.automap import automap_base
from sqlalchemy.orm import Session
from flask import Flask, jsonify
from sqlalchemy import Column, Integer, String, Float
from sqlalchemy.ext.declarative import declarative_base
Base = declarative_base()

# Create a SQLAlchemy engine using the SQLite file
engine = create_engine('sqlite:///housing.db')
      Emgee2, 8 hours ago • Add files via upload
# Reflect the existing database into a new model
Base.metadata.reflect(engine)

# Define the model for the table
from sqlalchemy.ext.declarative import declarative_base
Base = declarative_base()

Emgee2, 8 hours ago | 1 author (Emgee2)
class Housing(Base):
    __tablename__ = 'mytable'
    ID = Column(Integer, primary_key=True)
    ADDRESS = Column(String)
    SUBURB = Column(String)
    PRICE = Column(Integer)
    BEDROOMS = Column(Integer)
    BATHROOMS = Column(Integer)
    LAND_AREA = Column(Integer)
    CBD_DIST = Column(Integer)
    NEAREST_STN = Column(String)
```

```python
@app.route("/")
def welcome():
    """List all available api routes."""
    return(
        f"<h1>Housing price in Perth<h1>"
        f" <img width='600' src='https://www.housingwire.com/wp-content/uploads/2020/08/AdobeStock_300251965-e1596655507791.jpeg'/ >"
        f"<h2>Here you can get the hyperlinked routes list click the link to see the pages:<h2>"
        f"<ol><li><a href=http://127.0.0.1:5000/api/v1.0/yearandprice>"
        f"List of data for Perth suburb, date sold, land area and price </a></li><br/><br/>"
        f"<li><a href=http://127.0.0.1:5000/api/v1.0/coordinate>"
        f"List of coordinate for map</a></li><br/><br/>"
    )

@app.route("/api/v1.0/yearandprice")
def price():
    session = Session(bind=engine)

    results = session.query(Housing.SUBURB, Housing.PRICE, Housing.DATE_SOLD, Housing.LAND_AREA).all()
    session.close()

    # Convert each Row to a dictionary using .asdict()
    results_dict = [r._asdict() for r in results]

    return jsonify(results_dict)

@app.route("/api/v1.0/coordinate")
def coordinate():
    session = Session(bind=engine)

    results = session.query(Housing.LATITUDE, Housing.LONGITUDE, Housing.ADDRESS, Housing.PRICE).all()
    session.close()

    # Convert each row to a dictionary using .asdict()
    results_dict = [r._asdict() for r in results]

    return jsonify(results_dict)
```



```python
# Run the app
if __name__ == '__main__':
    app.run()
```

Data Visualization

- Dashboard

  Bar graph

  Line graph
- Leaflet

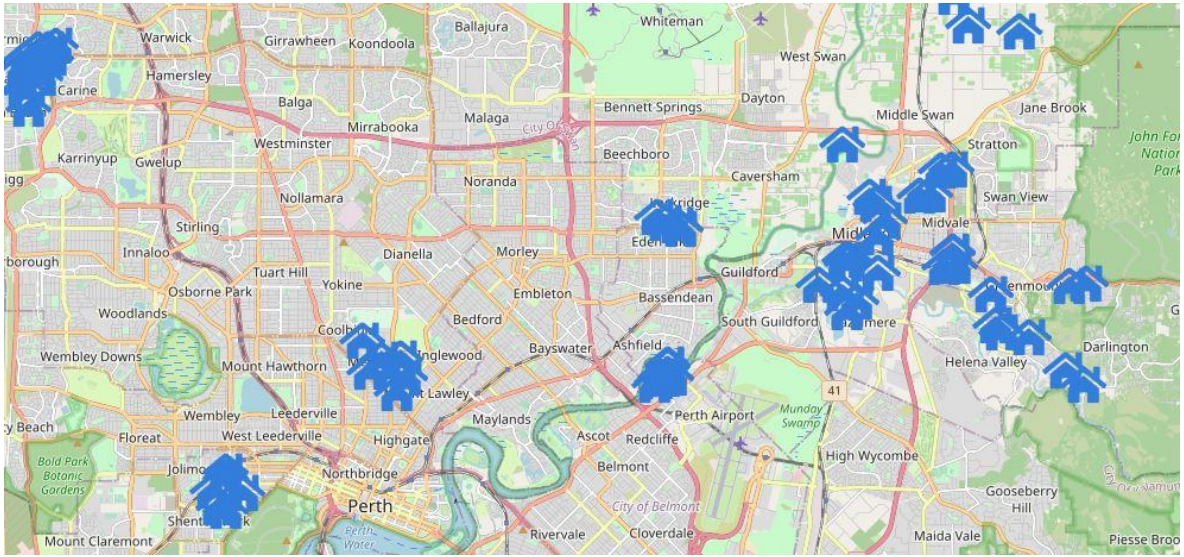
  Maps

Images from the dashboard

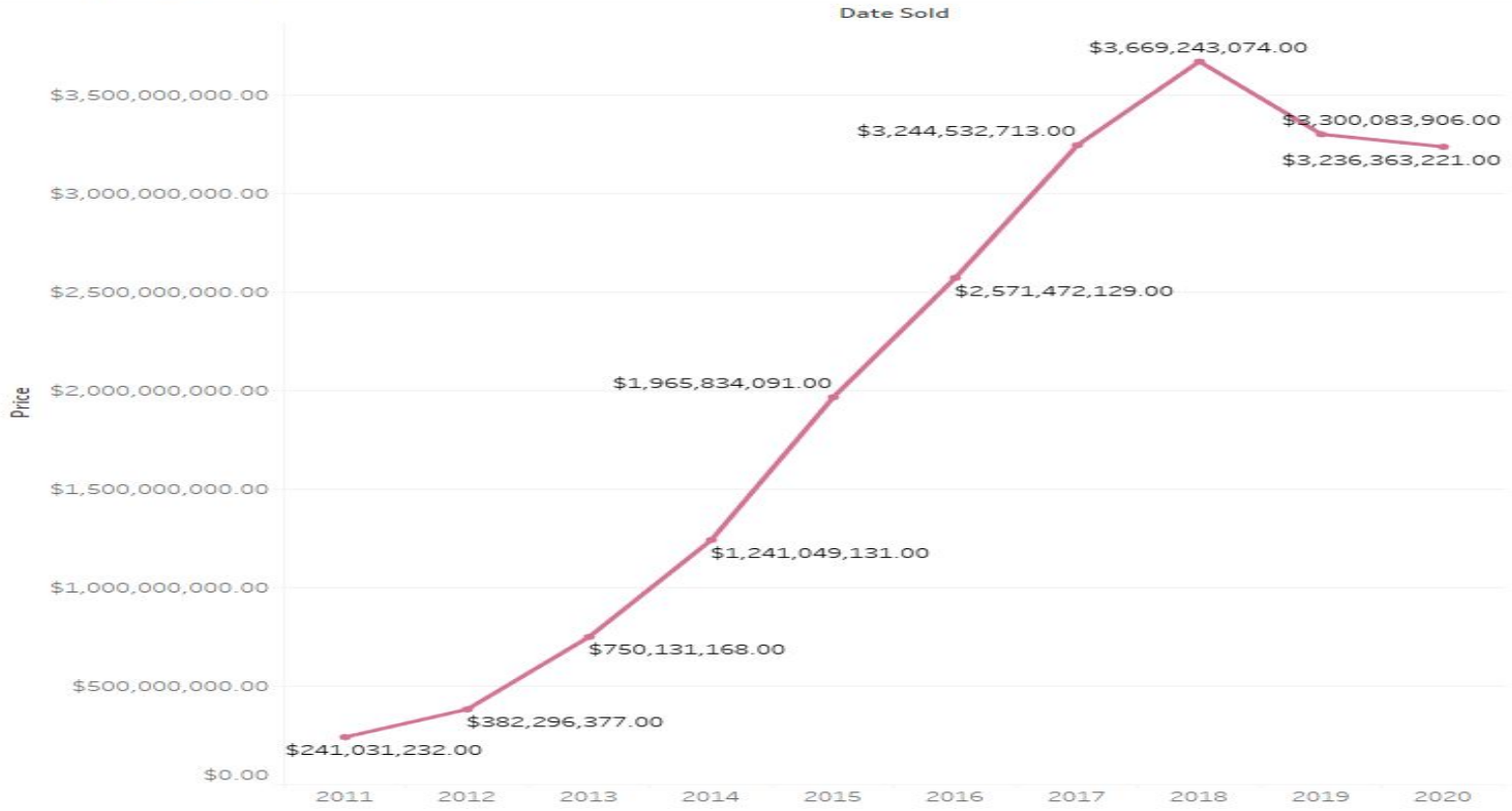
Coding from Leaflet

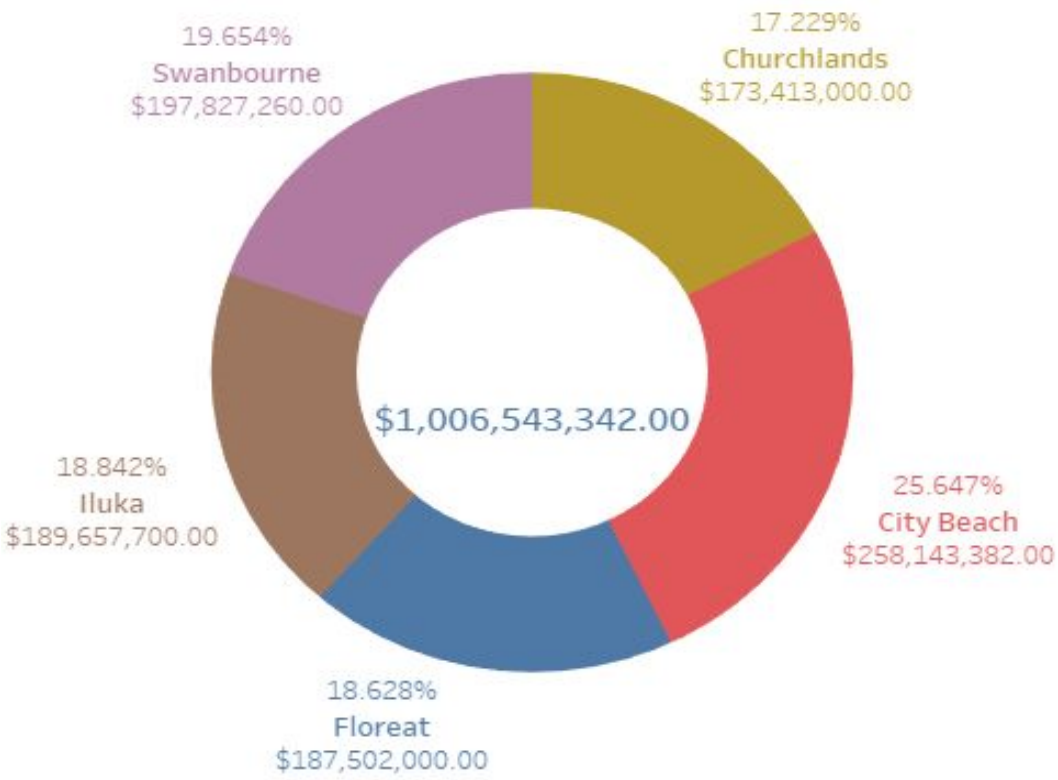
- Use D3 library
- Use Font Awesome library to create home icon markers - plug in to JavaScript.
- Popup address and price

Images from the leaflet



Perth property sales volume from 2011 to 2020




19.654%
Swanbourne
$197,827,260.00
17.229%
Churchlands
$173,413,000.00
$1,006,543,342.00
18.842%
Iluka
$189,657,700.00
25.647%
City Beach
$258,143,382.00
18.628%
Floreat
$187,502,000.00

Conclusion:

- Our analysis of housing prices in Perth from 2011 to 2020 shows some interesting trends and variations among different suburbs.
- We found that the overall sales volume peaked in the mid-2010s and has been declining since then. Through the dashboard and visualization tools we created, we were able to gain a better understanding of the data and identify some patterns and outliers.
- Our case study of five suburbs revealed that the housing markets in these areas vary significantly in terms of size and growth. While there could be many factors contributing to these differences, our analysis suggests that location, amenities, and market demand play a key role in shaping real estate prices.
- We hope that this presentation has given you some insights into the housing market in Perth and the power of data analysis has helped in making right decisions.

Thank you for your attention