

Screenshots

Step: Find
Find the right parcel

Step: Intro

Step: Find
Find the comps (Data returned from Zillow)

Step: Find
Hover on the comps symbol and show the details table

Step: Find
Generate routes when the origin (address) is set

Step: Find
Use the slider to define a price range and filter parcels

Screenshots

Step: Intro

1 Intro

Button: Click the button and go back to the landing page.

Style/Layer Switches: Click the radio button/checkbox to change the styles and layers in the application.

Stepper: The stepper indicates which step the user is in.

Zoom/Pitch/Geolocate Control: Use the control to set map zoom/pitch and/or geolocate the location.

Table (hidden first): The table will show up when comps info is available.

Text Input: The user can set the origin of the route searching the address. After clicking the button on the right, a red circle will show up on the screen indicating the spot/origin.

Slider (Frequency Chart): Use the slider to filter parcels for a determined price range.

2 Find

Button: Click the button to calculate the area of the last polygon or the length of the last line drawn on the map.

Text: The calculation results will be shown in the text box.

Drawing Control: The control bar will add drawing control when user enters into the step.

Snackbar (hidden first): The snackbar will show the number of geometries drawn and warnings if the user draws an invalid point.

3 Measure

Button: Click the button here to define the building height (only extrude the polygon).

4 Build

Slider: Use the slider here to define the building height (only extrude the polygon).

5 Decide

When user enters into the step, the app will automatically turn other buildings on as 3d-buildings layer.

The map will show the user generated building in a city context and help user decide whether the building is compatible to others.

Main Interface

Entry Point

Background

Background

Latest Transaction

R Script Task:
Query URLs -> Zillow Website -> Download HTML files in Local Machine -> Filter and Resemble Data -> Upload to Database (Firebase)

Market Heat

Location Map: Location, location, location!

Historical Data

Spiral Chart: The spiral chart shows the average housing price in Philadelphia by month from 2010, which illustrates the fact that the real estate market becomes more stable in recent years.

Rose Chart: The rose chart presents the average housing price by neighborhood in Philadelphia. Ordered by price, houses in neighborhoods show different market performances explaining how location drives the price.

Workflow

Model Overview

Tree Diagram: The tree diagram presents the data sources and steps to build the dataset and the prediction model.

Model Selection

Bar Chart: MSE, RMSE and R squared are compared as key values here.

Variable Selection

Marimekko Chart: Marimekko chart, also known as mosaic chart, visualizes the correlation matrix of numeric variables in the model.

Challenge

Smart Select

Explore your next commercial investment in Philadelphia.

About
Smart Select is a decision support tool for commercial real estate investors to explore their next investment opportunity.

The application is expected to be the tech disruption to the traditional real estate market. Bringing more real-time data and estimation models to the front, more information could be shared in the market between professionals and unprofessionals to avoid unnecessary price fluctuations in the market.

Problem
In the real estate sector, information asymmetry and calculation model are crucial barriers to ordinary people.

Without knowing the appropriate price estimate of own houses, home owners are hard to give a asking price, and investors are hard to invest in unfamiliar places.

Solution
The statistical model in the application estimating the home price uses only "location" factors as predictors.

This is to make sure that anyone can have an easy access to get a suggested price for a parcel.

For more details, please visit
GitHub repo: <https://github.com/yunS-Stacy/SmartSelect-SPA-react>
Application URL: <https://smartselect.herokuapp.com>

Yun Shi
Master of Urban Spatial Analytics 17'
PennDesign | University of Pennsylvania