
Project HotSpot

Market analysis through automation & data science

Project 1 | Team 4

Alejandra

Ally

Ehab

Konrad

Project HotSpot's Approach

- We are the aggregator of many retail related market data and we translate them into valuable information & provide professional analysis.
- We leverage various Python libraries to conduct in depth analysis and provide invaluable recommendations.



Project Overview

Our Client

PurpleSky - San Francisco's most affordable medical and recreational cannabis dispensary. Located in the Mission district.

Since its opening in 2013, PurpleSky has been very profitable and is ready for expansion outside of California.



Our Task

Our utility, "Project HotSpot", is tasked with providing market intelligence and recommendations for PurpleSky's next retail location, preferably located on Seattle's Eastside.

Roles **and** Assignments



Ally

Lead, Project Management

Lead, Housing Data Engineering

Programming

- ◆ Zillow Historical Housing Stats APIs and data
- ◆ SFR YoY Projected Growth APIs and data

Ehab

Lead, Program Logic and User Stories

Co-Lead, Design Engineering

Programming

- ◆ Tesla Supercharger Station APIs and data
- ◆ Zoning and Land Use Requirements



Alejandra

Lead, API Engineering

Co-Lead, Design Engineering

Programming

- ◆ Yelp! APIs and data
- ◆ Income Stat APIs and data

Konrad

User Stories, GitHub Master

Co-Lead

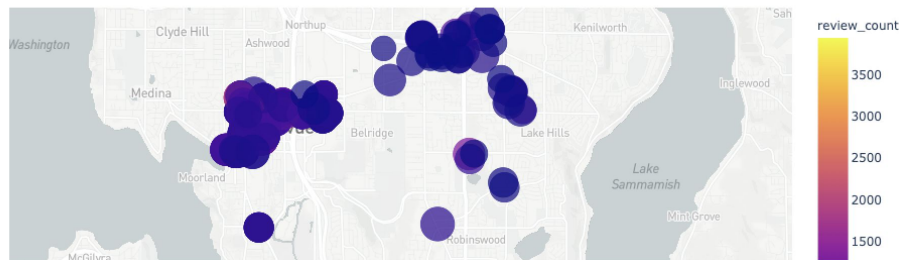
- ◆ Overall architect
- ◆ Overall data & support

Let's talk business

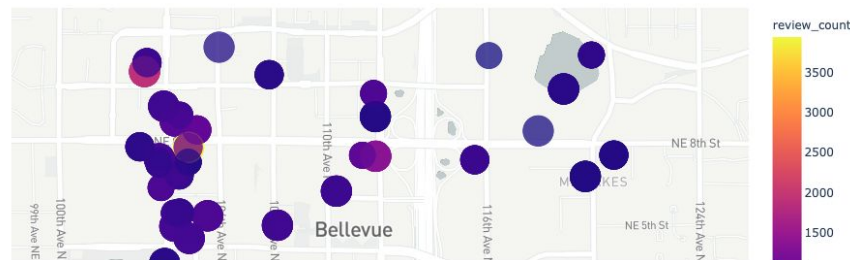
Business Ratings and
Reviews per location.

- Market research can identify how customers and potential customers might view your business.
- Our data scientist dig into millions of reviews, ratings, and pricing to find consumer trends of popular businesses.
- Results are then provided to our user through an interactive map.

Hot Spot Map

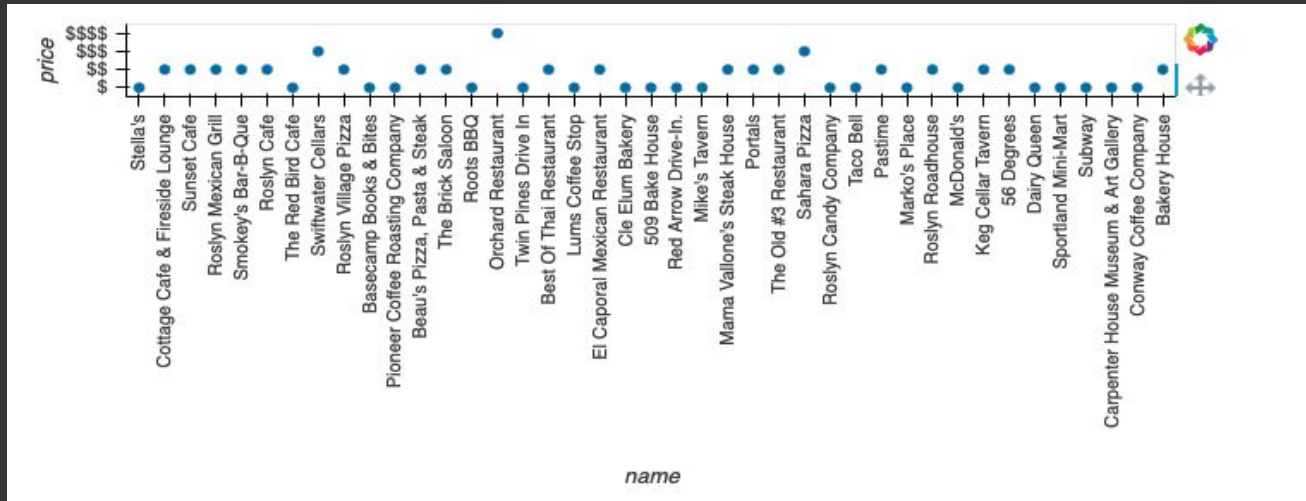


Hot Spot Map



Money talks

- Pricing is important since it defines the value that your product is worth for you to make and your customers to use.
- Knowing the state of the local economy can inform your strategy to develop pricing to match your consumers price tolerance.



Economic Vibrancy

- Are the areas I am looking at projected for growth?
- Will they be viable markets in the future?
-

[Data](#) | [Local News](#) | [Local Politics](#)

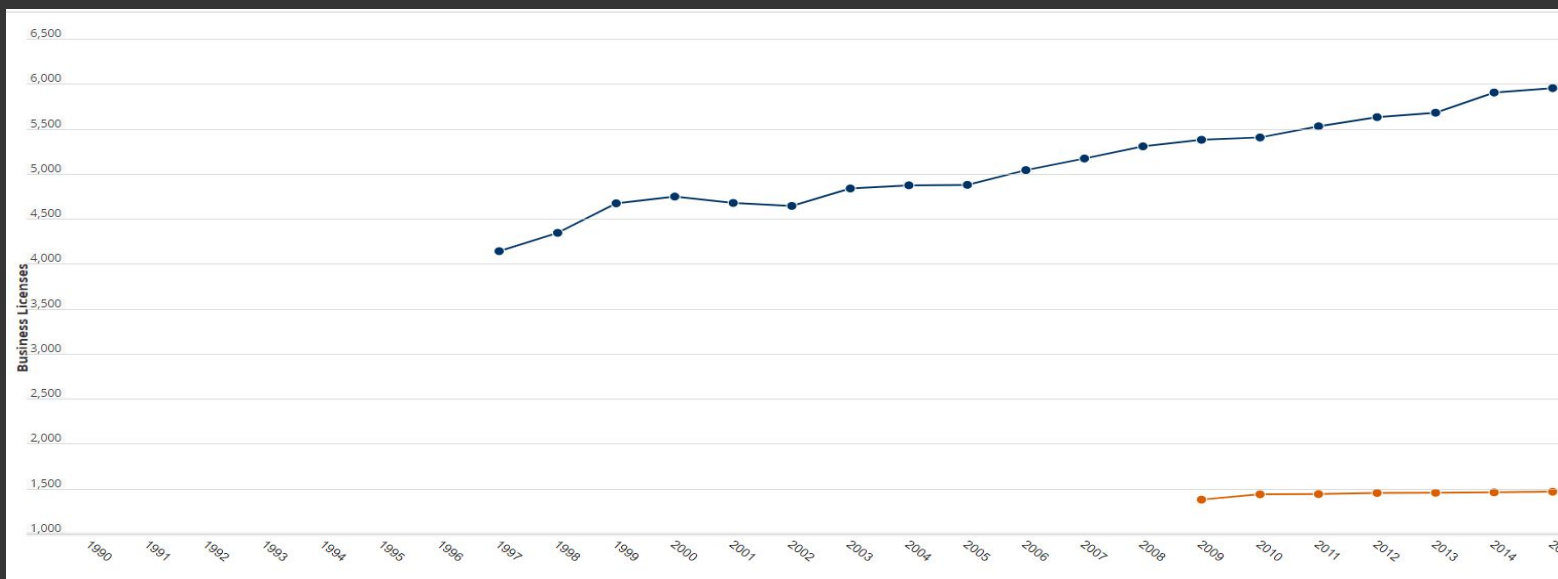
Big-city growth slows across U.S. — but Seattle still ranks No. 2 in 2018

May 23, 2019 at 5:00 am



Redmond Business Licenses

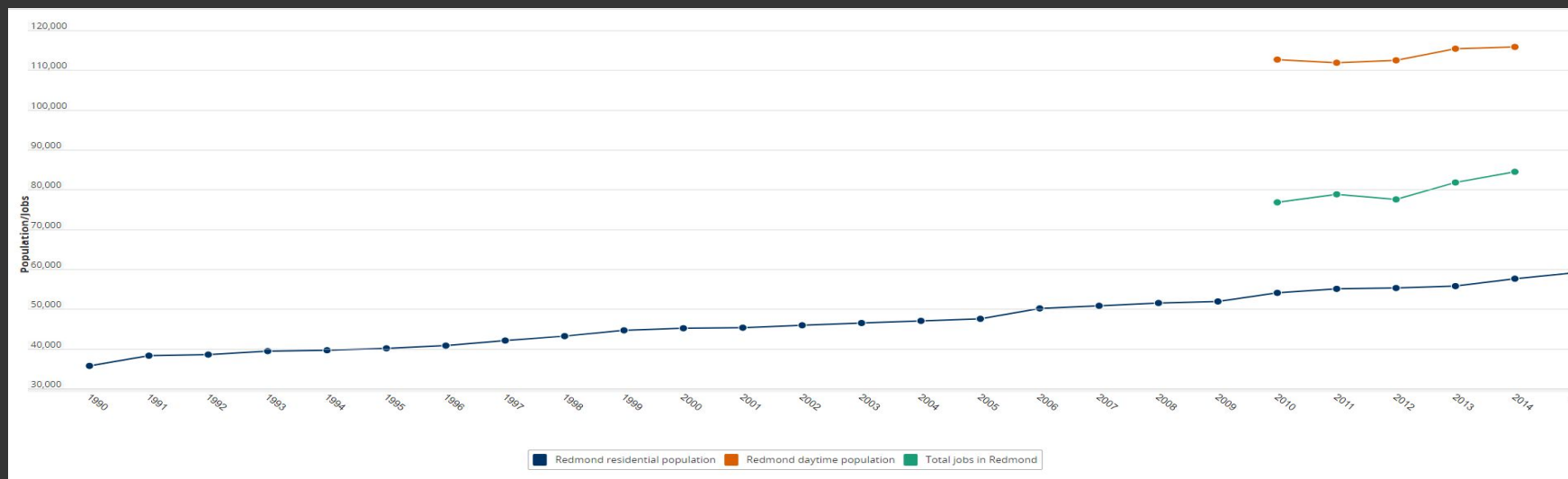
Source: City Permit data filtered for commercial



Redmond population growth

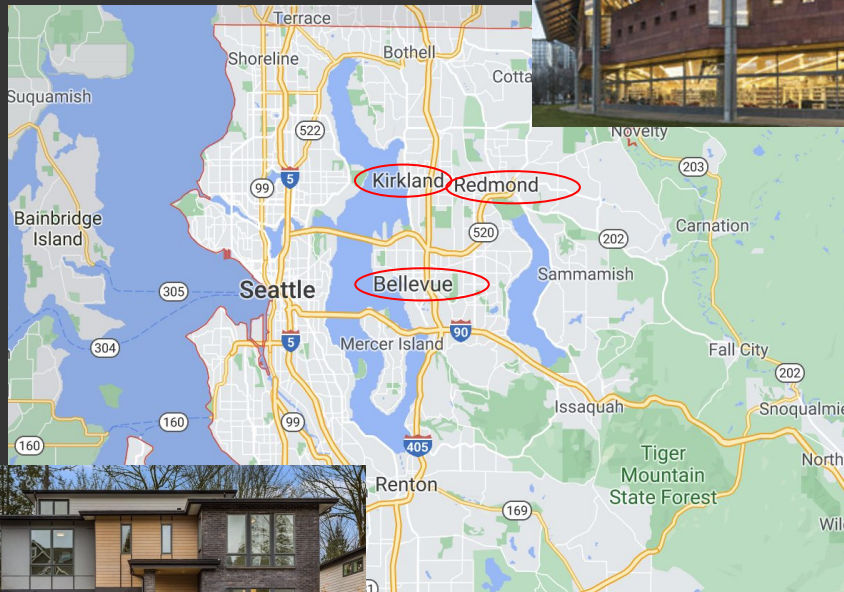
Source: City demographics dataset-filtered for population

Foot traffic filtered by day time



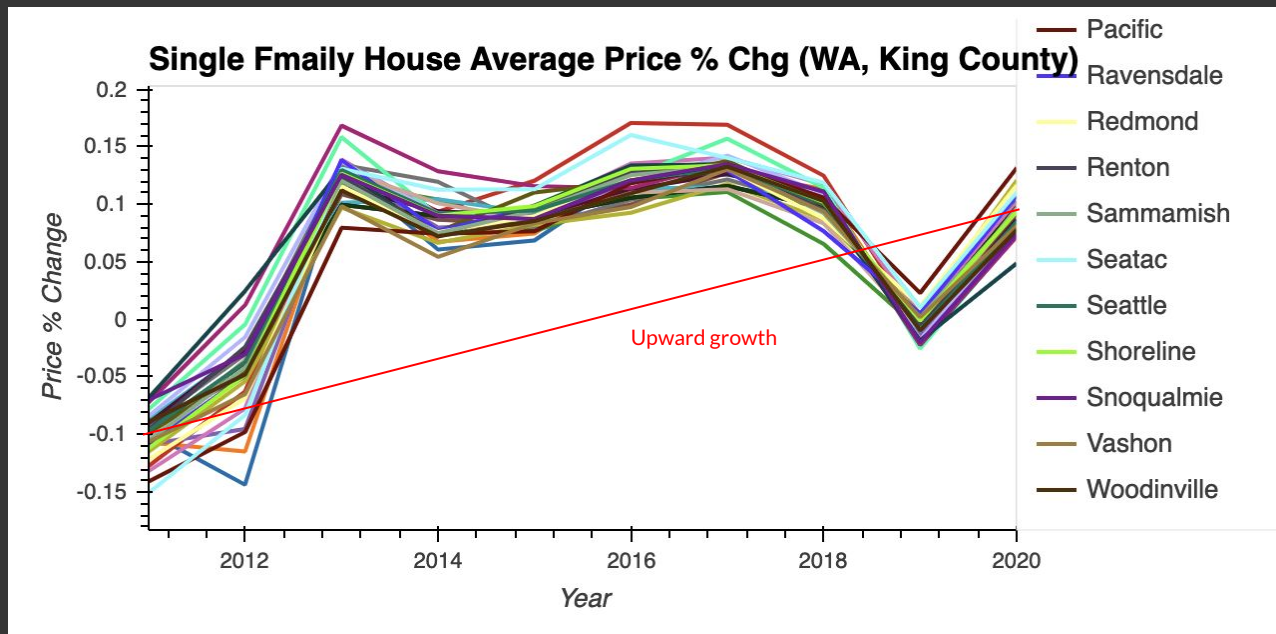
Single Family House Sales & Growth Trend

- **Bellevue, Redmond and Kirkland** are the main customer base for PurpleSky.
- Data was downloaded from Zillow:
 - 10 years monthly average sales
 - YoY forecast
- Challenge: Zillow data is in a different orientation (i.e. index in rows instead of columns). We had to transpose it to continue analysis in Panda.



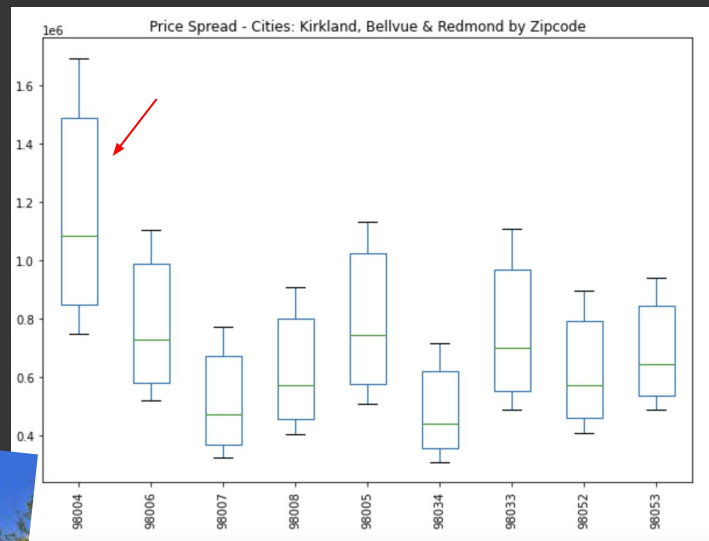
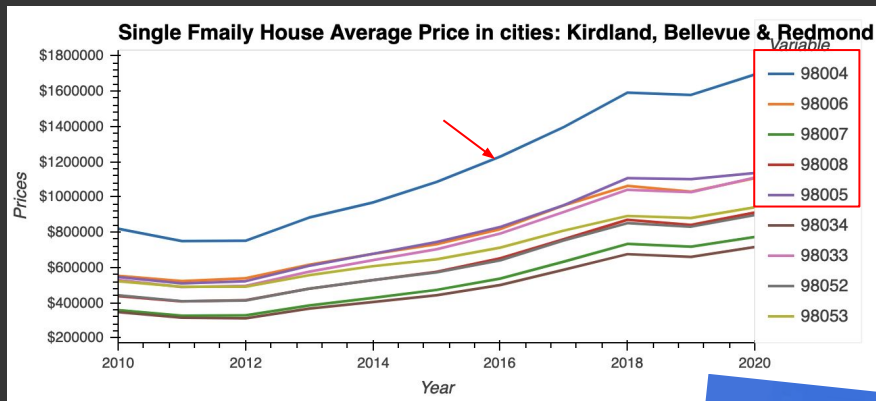
Single Family House Sales & Growth Trend

Overall single family houses in King County have steady increases at an average of 5% YoY over the last 10 years.



Single Family House Sales & Growth Trend

Among the zip codes in **Kirkland, Bellevue & Redmond**, **Bellevue** has the highest price growth and most volatilities.



Growth Trend in Bellevue, Redmond & Kirkland

Redmond & Kirkland - stead YoY growth at 6.5%

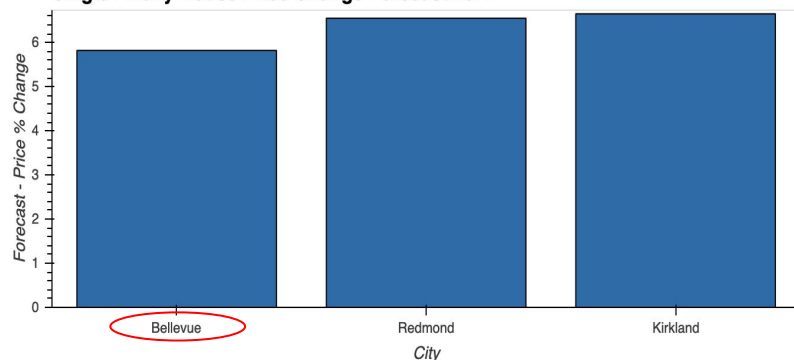
Bellevue - slightly slower YoY growth at 5.8%

Provided Bellevue has already experienced a pricing spike in the past years, we believe the slightly slower growth compare to its neighbor areas is expected.

Average sales price in 2020:

- **Bellevue:** \$1, 12 mil
- **Redmond:** \$900k
- **Kirkland:** \$915k

Single Family House Price Change Forecast 2021



Overall Recommendation

Keypoint #1

Bellevue is the city in Seattle we would recommend for PurpleSky to open up its first store outside California.

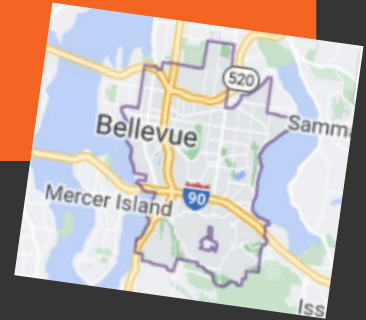
Keypoint #2

Sustainable housing market ensures stable customer base.

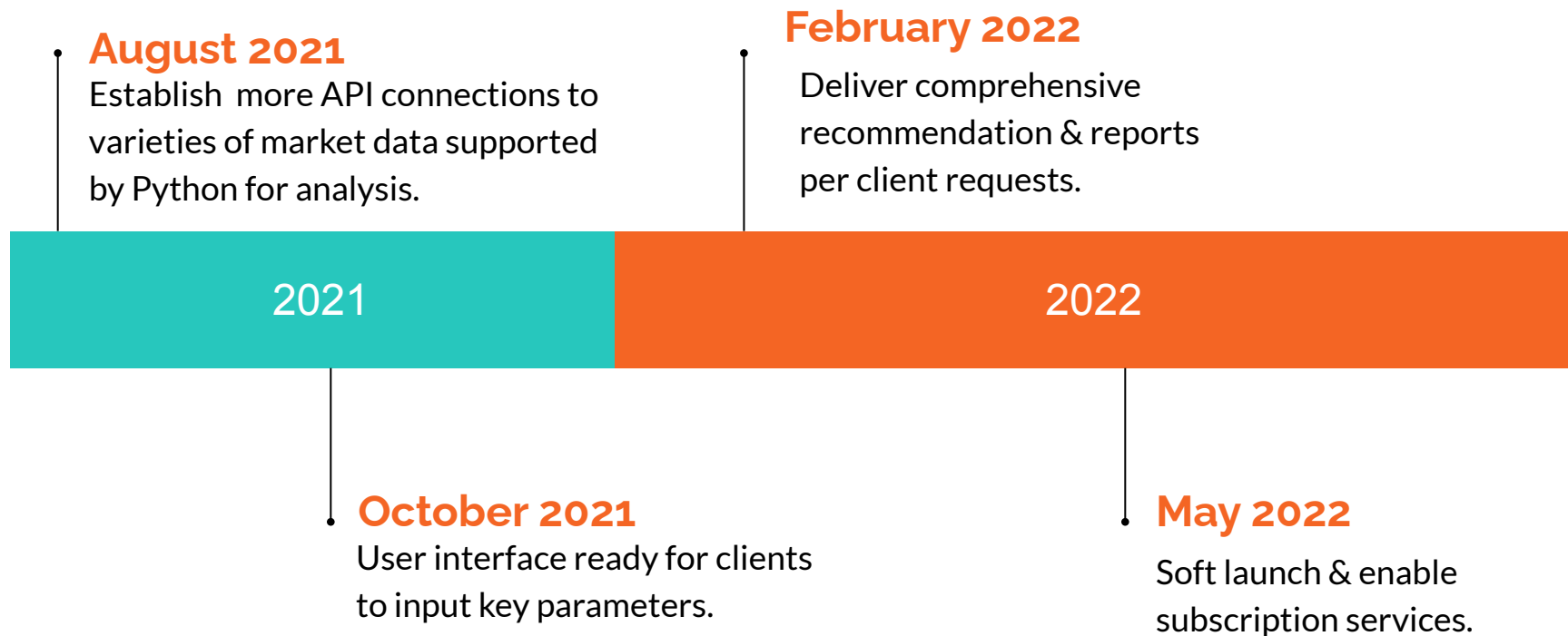
Booming retail business with high volume of foot traffic, demand & accessibility.

Keypoint #3

Regional growth points to Bellevue as one of the transit center with proximity to local business and commercial activities.



Project HotSpot - Future Milestones



*sample datasets are: demographic, competing facilities, geo-spatial relationships, bike paths, and more...

Project Takeaways...

- Challenges we faced:
 - API access restrictions:
 - Requires paid subscriptions
 - Lots of open government data sites
 - Integrating GIS data
 - Data cleaning & formatting
 - Data in csv files have different orientation
 - Different data types in source file cause issues during data summarization

Beyond the MVP

- If we had more time for the project, we would like to:
 - Build command line interface (CLI), illustrate user input of parameters.
 - Import all datasets into database, link tables, conduct all analysis using SQL queries.
 - Develop comprehensive and presentable market analysis reports to illustrate our recommendation.
 - Add cannabis competitor data in the neighborhood we recommended.
 - Create an custom index based on our data collected to track the overall retail locations supply and demand



We hope you enjoyed our presentation :-)

Q & A