Rental Forecast and Mispricing

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What's the project?

Profit for **real estate investors** and **potential renters**

- → Suburbs with highest predicted growth rate?
- → Current most livable and affordable suburbs?
- → Factors important for rental price?

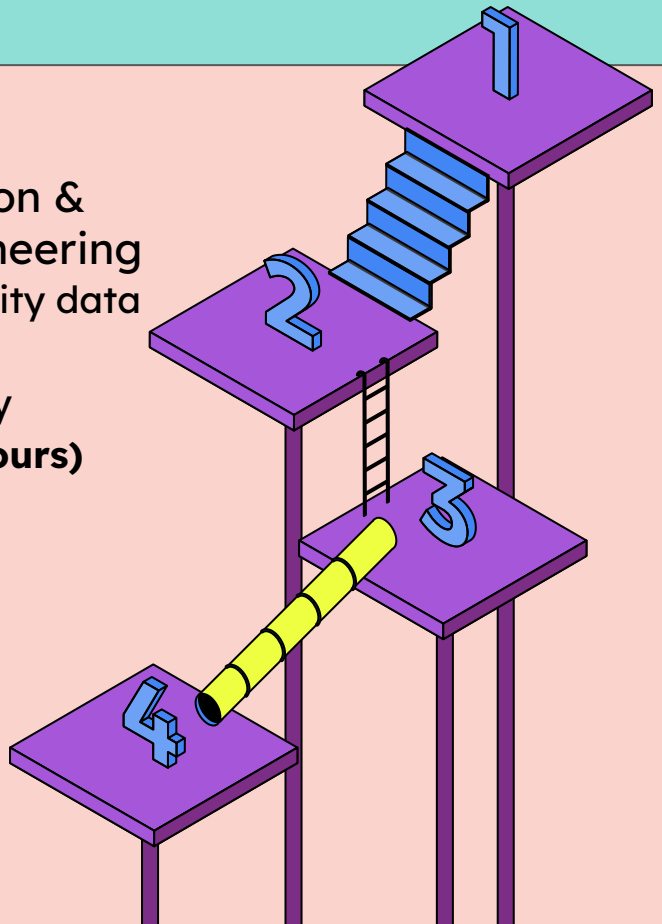
Timeline

5-7 hours/week

Visualisation & Feature Engineering

- High quality data
- Dataset uniformity

~ 1 Week (7 Hours)



Data Collection

- Web Scraping
- ABS Data Sourcing
- Public Transport
- Schools
- Supermarkets

~ 2 Weeks (15 Hours)

Results & Presentation

- Plots
- Trends
- Key Results

~ 1 Week (7 Hours)

Modelling

- Assumptions
- Training & Testing

~ 3 Weeks (20 Hours)

Two Approaches

Suburb Level

- ABS datasets
- Provided historic rental pricing
- Linear regression: growth rate

Property Level

- Scraped domain.com.au
- Public transport
- Supermarkets
- Random forest model: rental mispricing

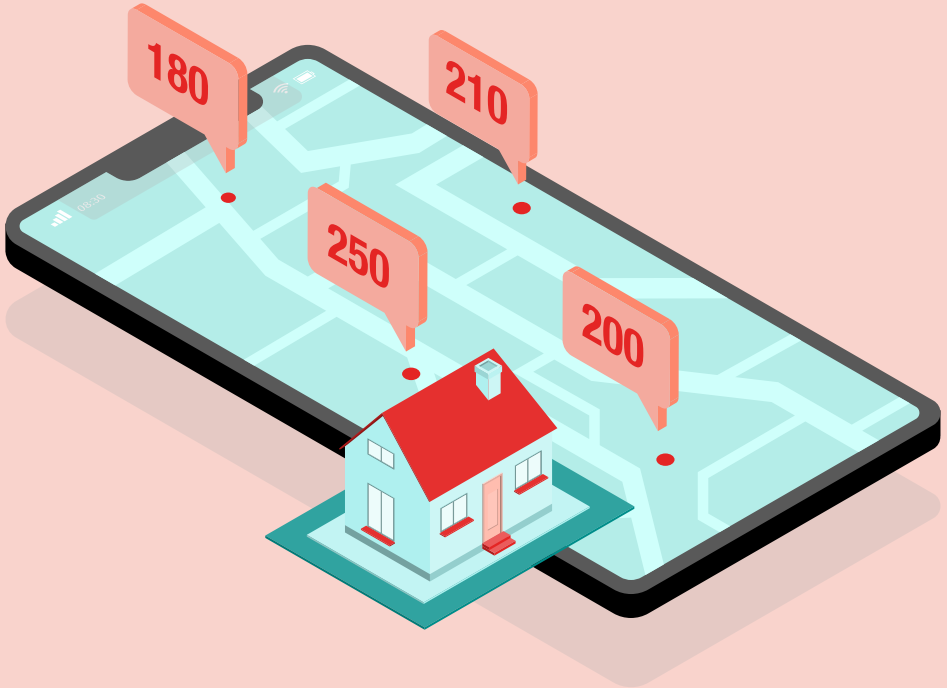
01 MODELS

Creating the Models

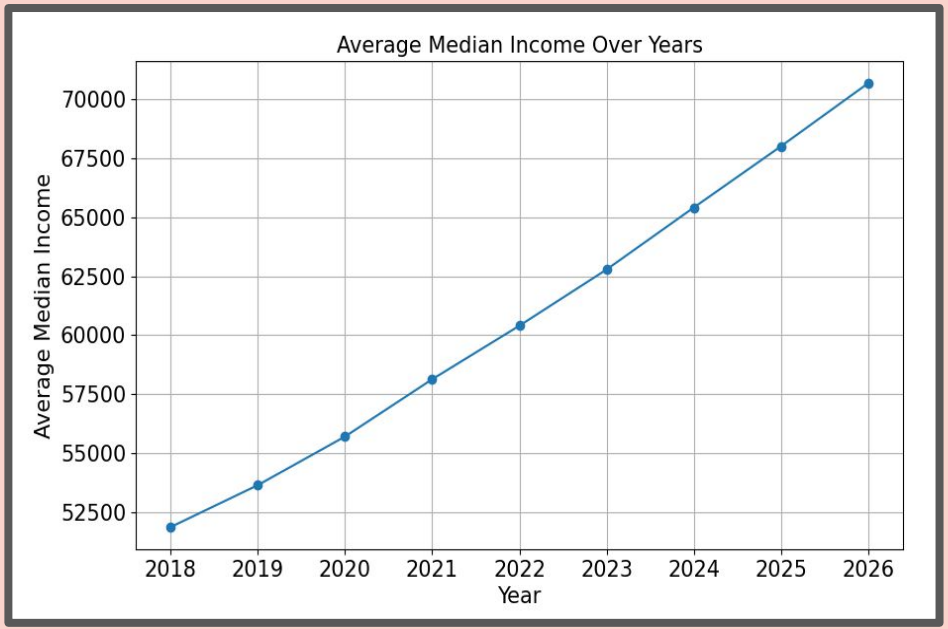
01 Data Uniformity & Engineering

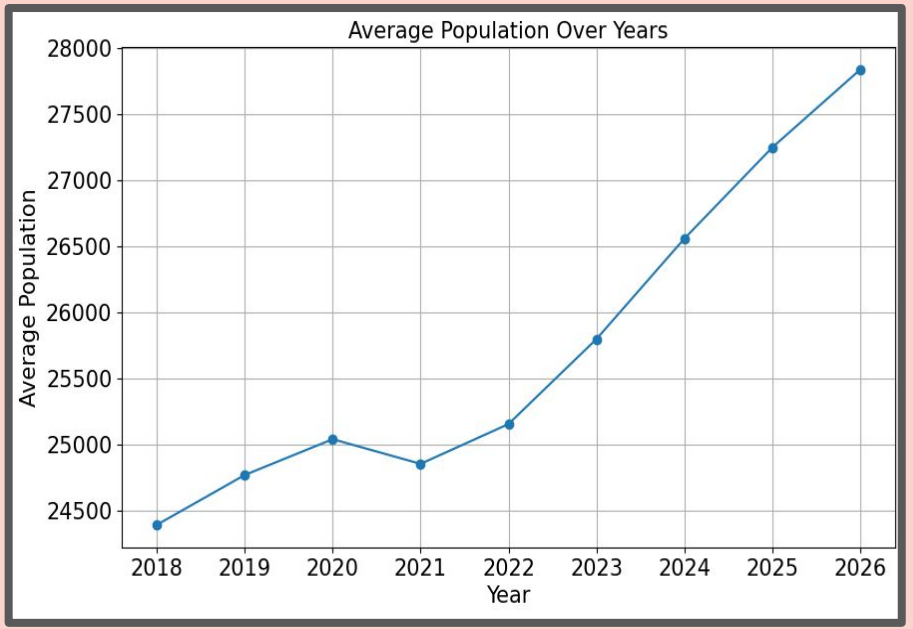
02 Visualisations & Modelling

03 Results & Recommendations

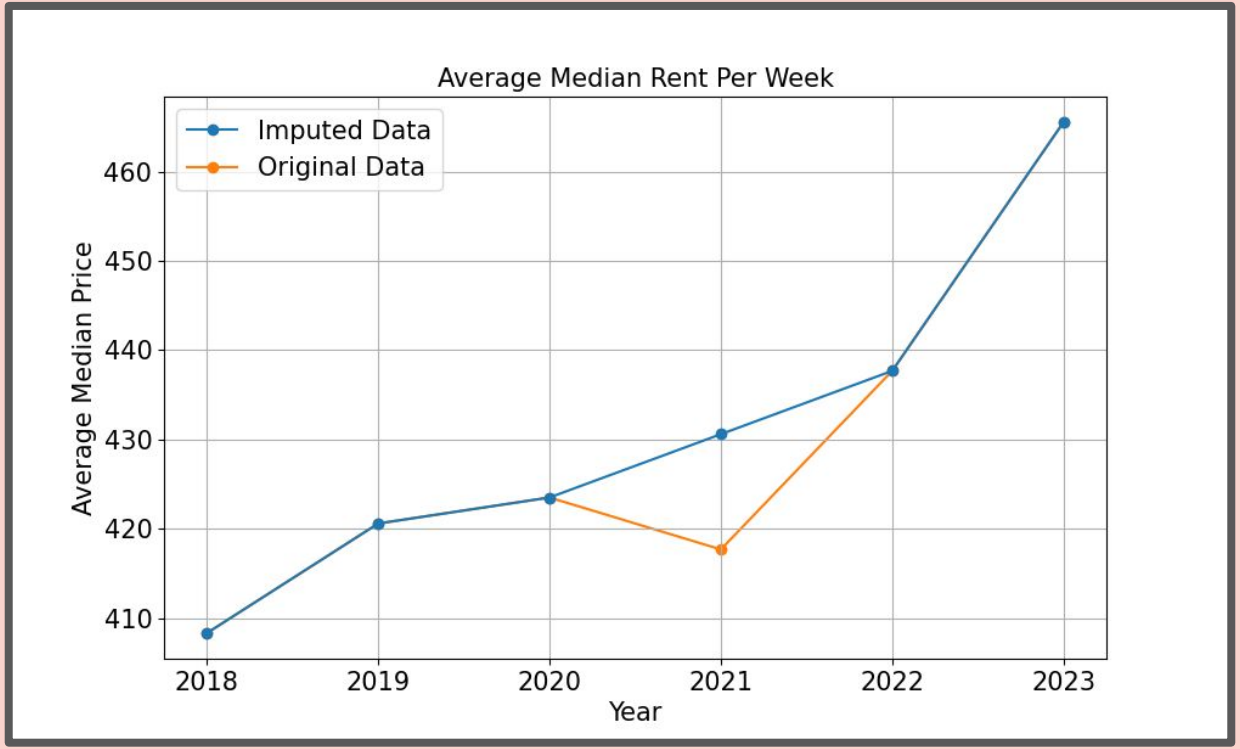


Income & Population Trends



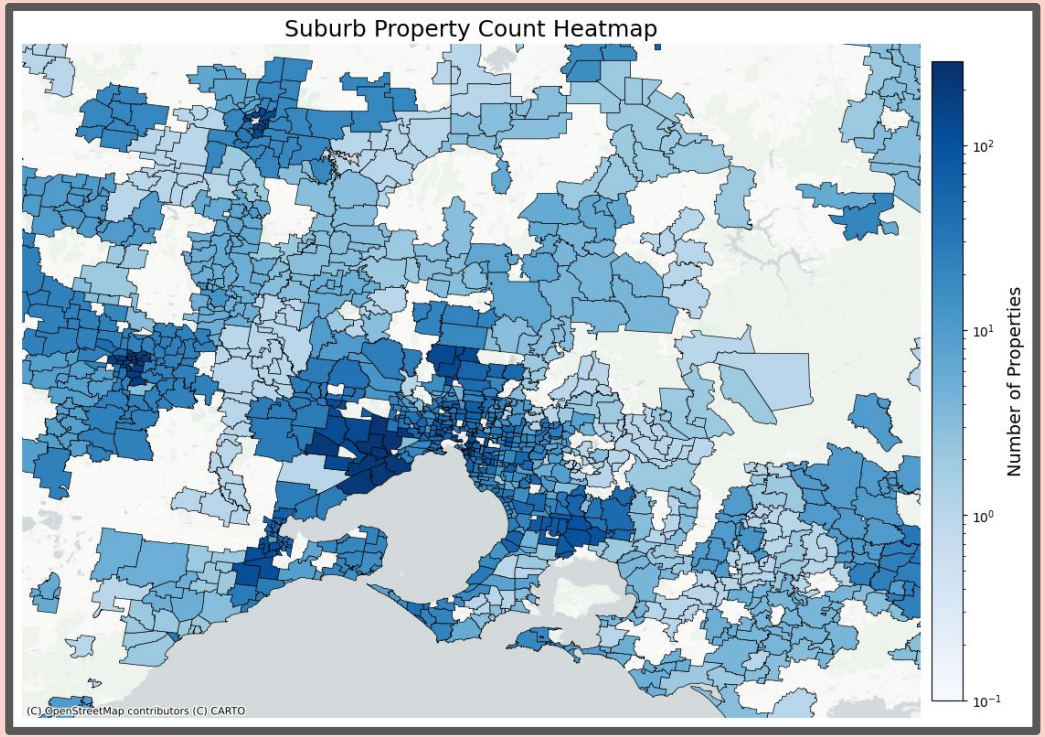


Imputing 2021 Rent Prices

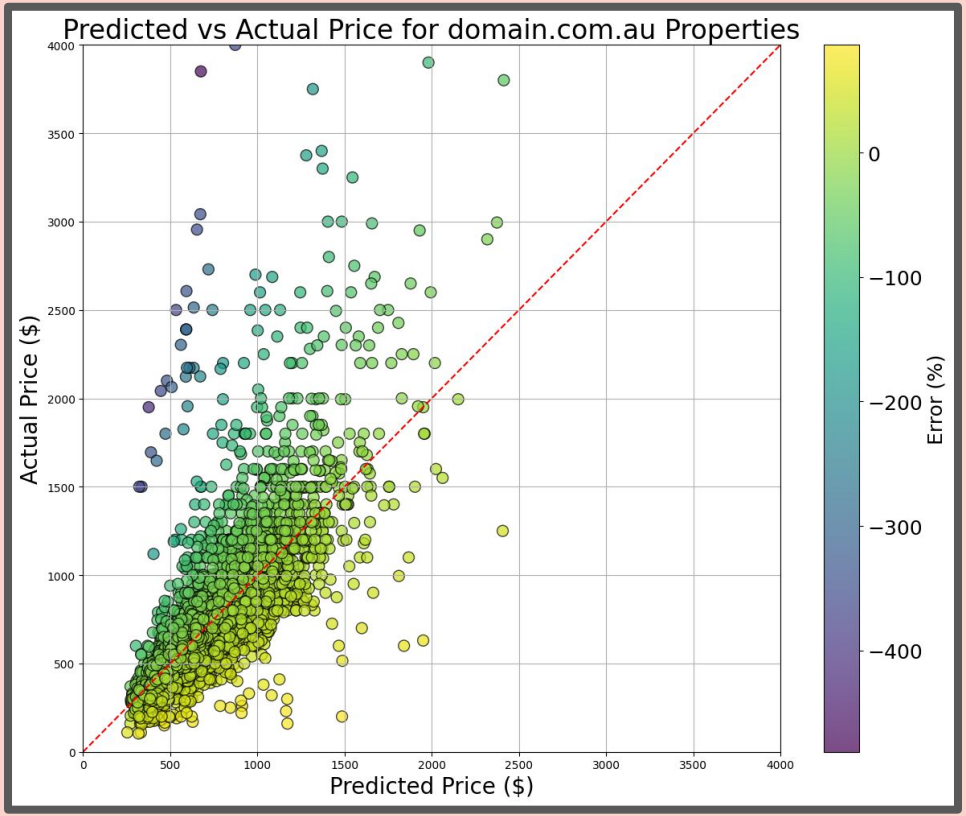


Modelling Individual Properties

- **Threaded scraping:** domain.com.au
- **PTV and Overpass API:** distances to bus, tram, train stops and supermarkets
- **Evaluated 10 Models:** Random Forest was the best performer
- **Hyperparameter tuning:** Randomised Search Cross Validation
- **Performance:**
  - Mean Absolute Error: $92.21
  - **Accuracy: 85.11%**



Price Modelling



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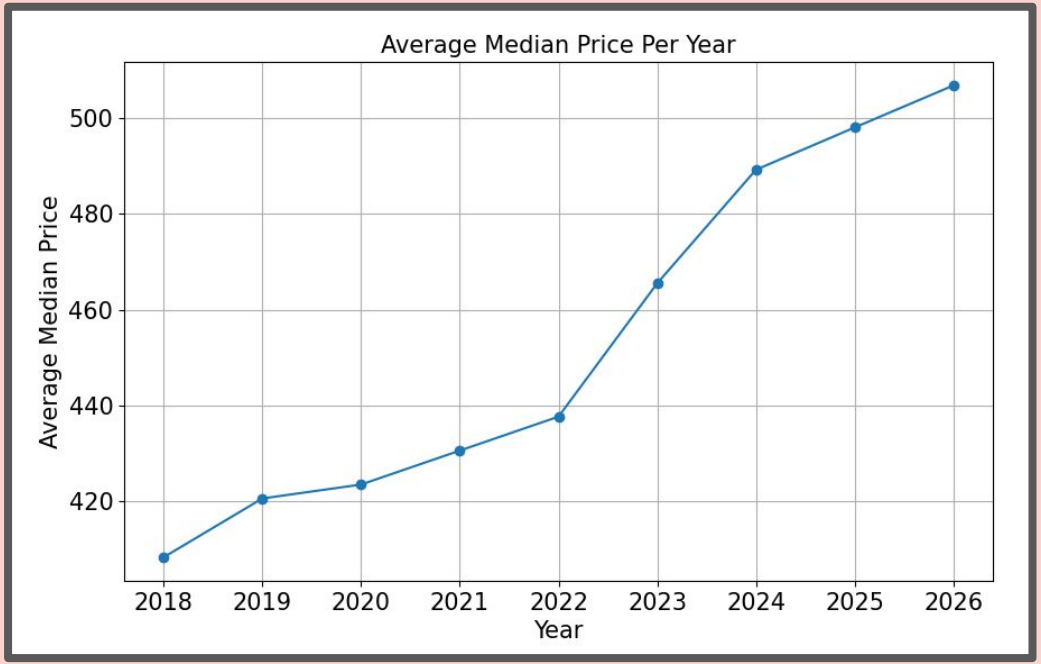
FINDINGS

Business context: best suburbs and property features in Victoria

Suburb	Median Projected Rent 2026 ($)	Projected Price Growth 2023-26 (%)
Albert Park	668	22.56
Sunshine	453	22.42
Broadmeadows	480	21.56
Swan Hill	383	19.77
Fawkner	496	19.43
Elwood	535	18.82
Hurstbridge	518	17.63
Dandenong North	468	17.10
Thomastown	449	16.63
Buninyong	435	16.54



Avg. Growth: %9.16 (2023-2026)

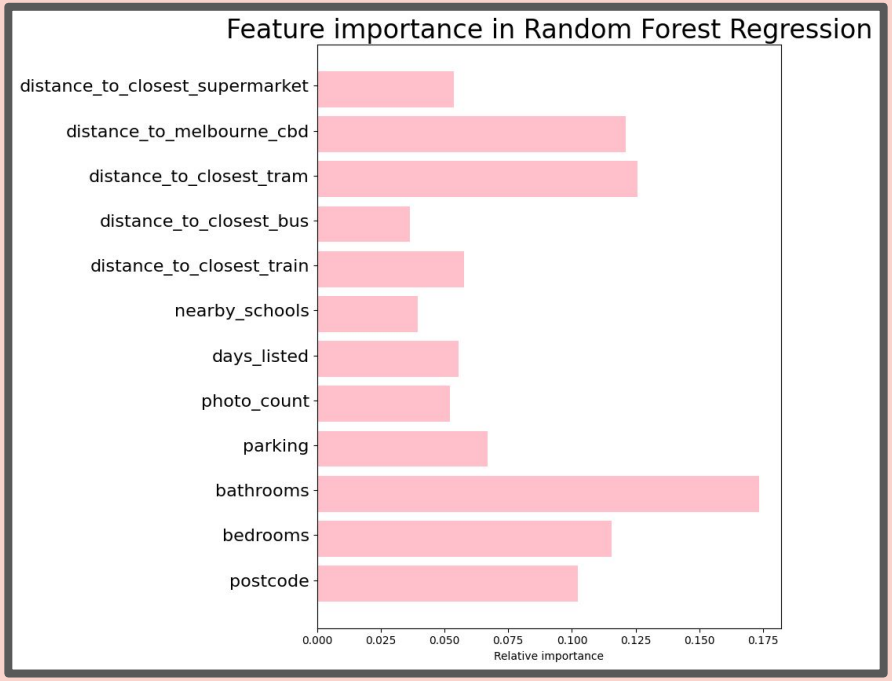
Most and Least Important Features

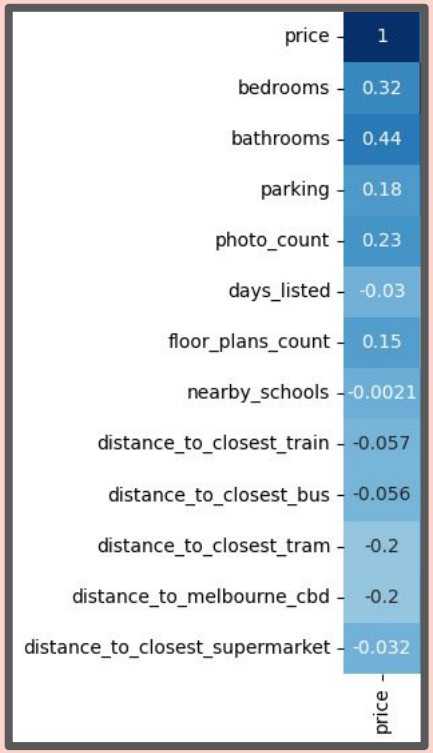
Internal:

- Bathrooms (Top 1)
- Bedrooms (Top 2)
- Parking (Least)

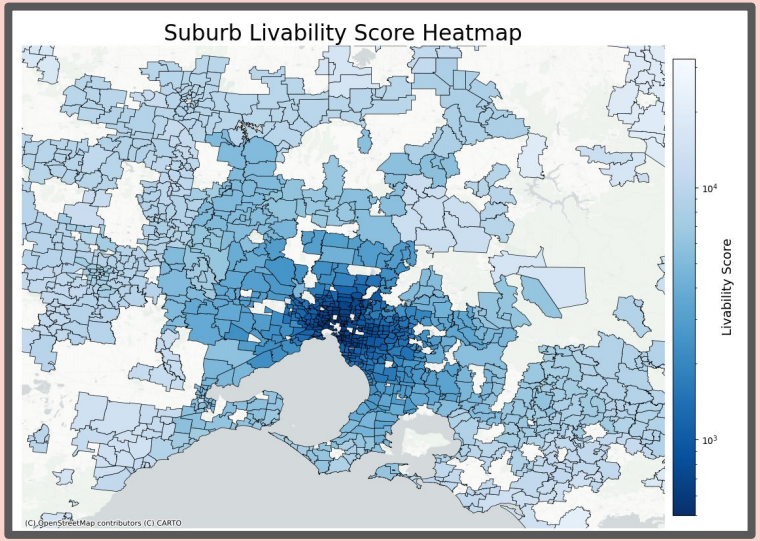
External:

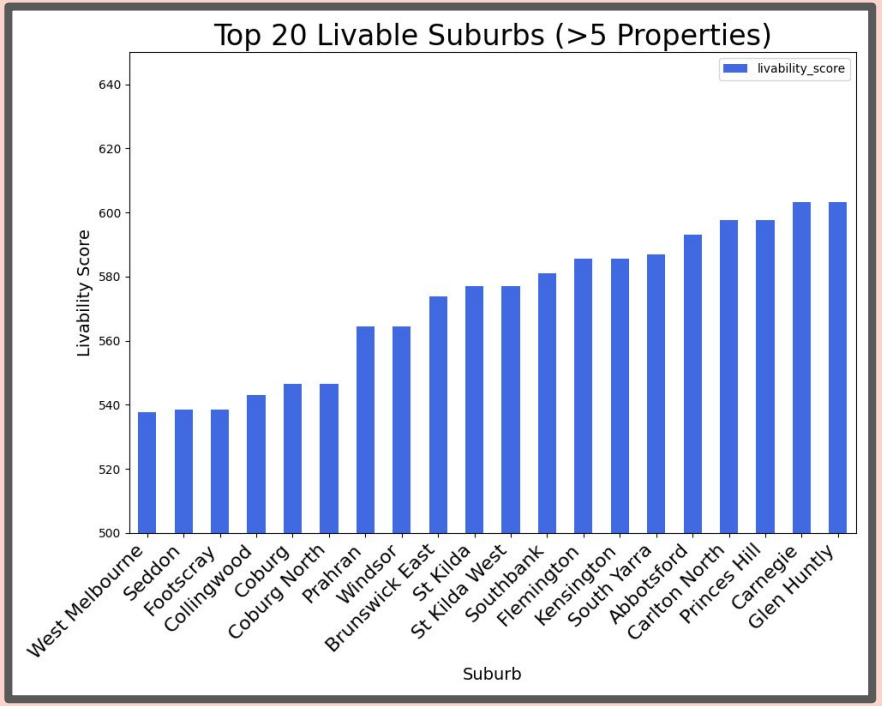
- Tram Stop (Top 1)
- CBD (Top 2)
- Bus Stop (Least)





Most Liveable Suburbs





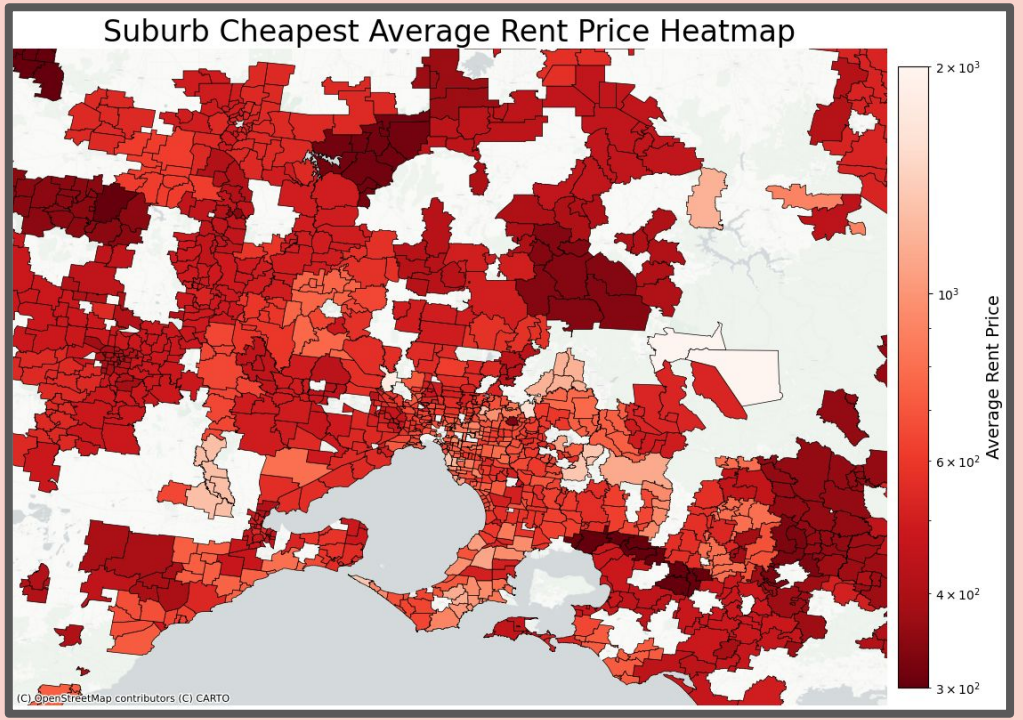
Weights:

- 50% - Avg rental price $/week
- 16.6% - PTV distance metres
- 16.6% - Supermarket distance metres
- 16.6% - School distance metres

***Lower is Better**

Most Affordable Suburbs

Suburb	Avg. Rent ($)
Byaduk North	325
Hamilton	325
Golden Point	345.5
Timor West	345.5
Craigie	345.5
Daisy Hill	345.5
Flagstaff	345.5
Cotswold	345.5
Adelaide Lead	345.5
Moolort	345.5



Mispriced Properties

13 Carlyle Street, Maidstone VIC 3012

Model Prediction: $1,383.58
Real Rent: $725.00
Similar Properties: $1300

14a Hepburn Road, Doncaster VIC 3108

Model Prediction: $820.83
Real Rent: $420.00
Similar Properties: $800

2 Clunes Street, Kingsbury VIC 3083 (1/8 Rooms)

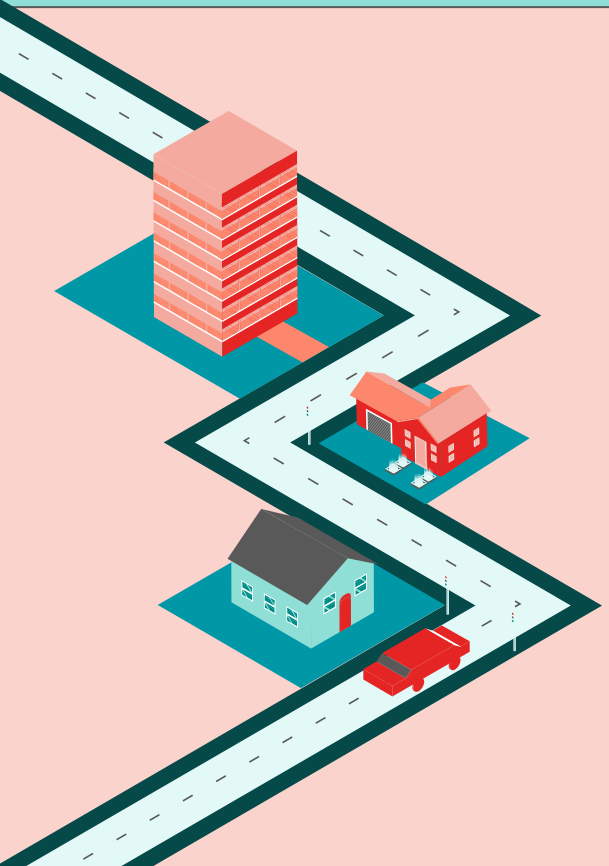
Model Prediction: $1131.325
Real Rent: $160.00
Similar Properties: $200

03

DISCUSSION

Business context, Security requirements, Worth pursuing?

Assumptions & Limitations



Domain.com.au

- Representative of real rental market in Victoria

Missing Income & Population

- Suburbs were missing income and population
- Top 10 recommendations not accounts all

Straight Line Distance

- Proportional to driving distance

Income and Population

- Only 2 limited factors to predict growth & price rate
- Static property features

Maximising Business Profit

Investors

- **Albert Park, Sunshine** and **Broadmeadows**
  - 21%+ rental growth predicted over 3 years
- Focus on Bedrooms, Bathrooms and Tram Stops. Ignore Parking and Bus Stops

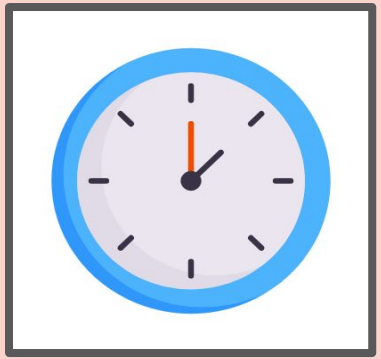
Renters

- Quality of life: West Melbourne, Seddon and Footscray
  - Near CBD
- Cheapest $325-350 per week: Byaduk North, Hamilton and Golden Point
  - North and West Victoria

Privacy and Security

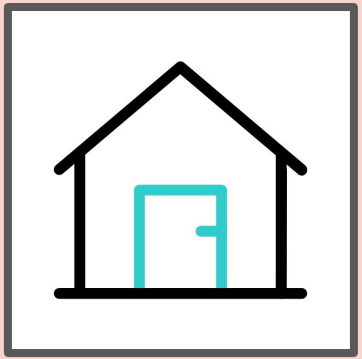
- No API keys
- Satisfied domain.com.au scraping terms of use
- Public use ABS dataset
- No data left the repository

Worth it?



TIME

~50 hours



FINDINGS

Best suburbs to invest & live

FEASIBILITY

- More depth models & consistent work,
- Less than 4 members
- Business can buy API access to realestate.com.au

Delivered 2 distinct, high-quality models

6 Weeks Part-Time