

Project 169



**Coding
School**

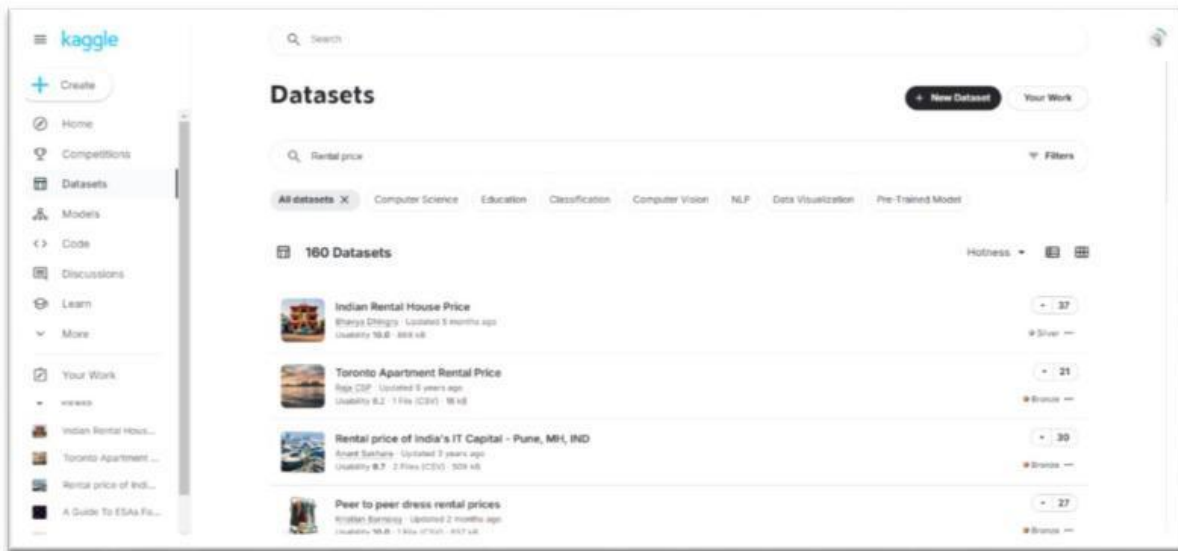


AI and Machine Learning

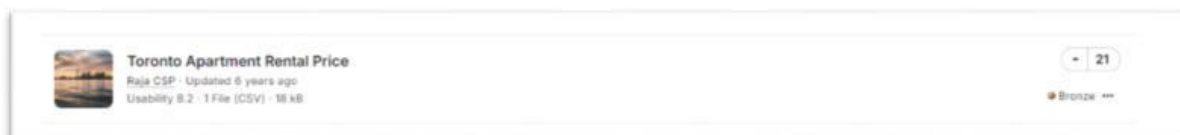


Start here

- ❖ In this homework, let's train a machine learning model using a dataset from the kaggle website and use that model to create a mobile app through the App lab.
- ❖ Let's create an app to calculate the rental price of houses or apartments.
- ❖ First log into your kaggle website account.
- ❖ Now click on the Datasets tab in the side bar.
- ❖ Search as rental price.



- ❖ Select the dataset as Toronto Apartment Rental Price among them.
- ❖ Click on Download and download the dataset and extract the dataset.





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New Notebook

Download (18 kB)



Toronto Apartment Rental Price

Apartment Rental price list - Toronto



Data Card Code (4) Discussion (0) Suggestions (0)

About Dataset

Context

I have collected the Toronto Apartment Rental prices from various sources in local websites.

Content

There are 7 columns in the dataset.

Bedroom - How many bedrooms available

Bathroom - How many bathrooms available

Den - Whether den is available or not

Address - Location

Usability

8.24

License

CC0: Public Domain

Expected update frequency

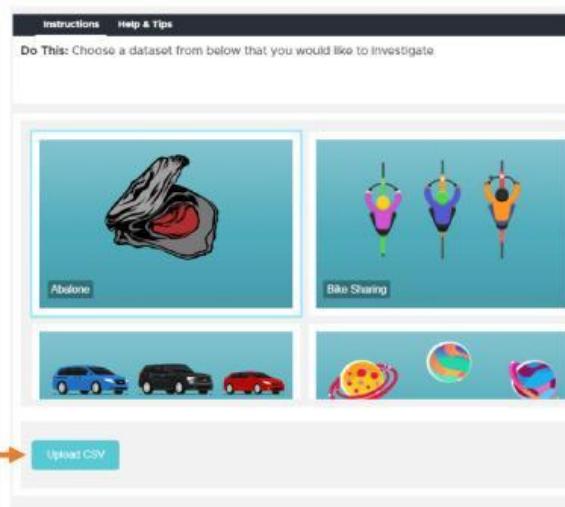
Quarterly

Tags

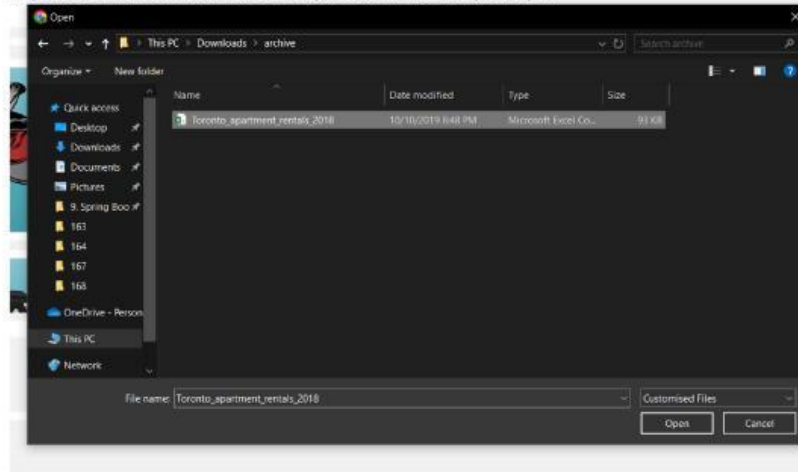
Business

Internet

- ❖ Now click on the start button in the homework and open the AI and machine learning lab.
- ❖ Click on the Upload CSV button and upload the downloaded Toronto_apartment_rentals_2018 dataset to AI and machine learning lab..



urvey data, or choose from a dataset below that you would like to use for your project.



- ❖ There are 1124 rows in that data set.
- ❖ Now click on the Continue button.
- ❖ What is done here is to measure an app to predict the rental price of apartments.
- ❖ To predict the rental price, the price column should be selected.
- ❖ But here the price column cannot be selected.

Predict based on

Bedroom	Bathroom	Den	Address	Lat	Long	Price
2	2	0	3985 Grand Park Drive, 3985 Grand Park Dr, Mississauga, ON L5B 0H8, Canada	43.5816391	-79.648193	\$2,450.00
1	1	1	361 Front St W, Toronto, ON M5V 3R5, Canada	43.6430505	-79.3916429	\$2,150.00
1	1	0	89 McCall Street, Toronto, ON, M5B 0B1	43.6606054	-79.3786354	\$1,950.00
2	2	0	10 York Street, Toronto, ON, M5J 0E1	43.6410868	-79.3814048	\$2,900.00
1	1	0	80 St Patrick St, Toronto, ON M5T 2X6, Canada	43.6524873	-79.3886219	\$1,500.00
1	1	0	87 Jameson Avenue, Toronto, ON, M8K 2W8	43.6349903	-79.4349541	\$1,729.00
2	1	0	700 Ross Street, Burlington, ON, L7S 1S2	43.3289655	-79.8066183	\$1,588.00
1	1	0	25 Telegram Mews, Toronto, ON, M5V 3Z2	43.6409179	-79.3939821	\$1,900.00
1	1	0	560 Front St W, Toronto, ON, M5V 0L5	43.6413078	-79.4003933	\$1,900.00
1	1	1	70 Queens Wharf Rd 33rd Floor, Toronto, ON M5V 0J2, Canada	43.6400685	-79.3899804	\$2,400.00
1	1	0	545 - 555 Sherbourne Street, Toronto, ON, M4X 1W5	43.6684679	-79.3748336	\$1,750.00
2	1	0	545 - 555 Sherbourne Street, Toronto, ON, M4X 1W5	43.6684679	-79.3748336	\$2,000.00

There are 1124 rows of data. (Showing first 100 rows)

Price

Data Type
categorical

Column Information
168 values were found in this column. A graph is only shown when there are 5 or fewer.

Note
Categorical columns with more than 50 unique values can not be selected as the label or a feature.

- ❖ Here the price column cannot be selected because there are values in the price column with the \$ symbol. Therefore, the AI lab cannot identify the values in the price column as numbers.

- ❖ Open the dataset Toronto_apartment_rentals_2018 in Excel.

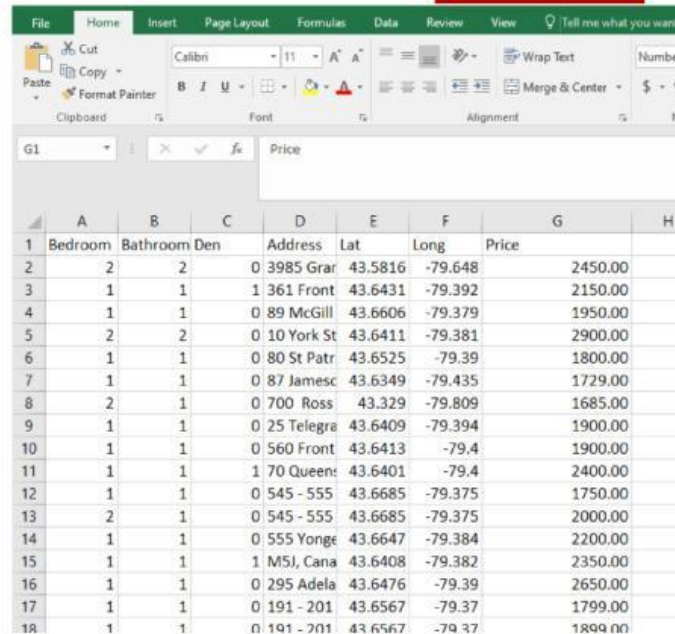
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Bedroom	Bathroom	Den	Address	Lat	Long	Price									
2	2	2	0	3985 Gran	43.58164	-79.6482	\$2,450.00									
3	1	1	1	1361 Front	43.64305	-79.3916	\$2,150.00									
4	1	1	1	089 McGill	43.66061	-79.3786	\$1,950.00									
5	2	2	0	10 York St	43.64109	-79.3814	\$2,900.00									
6	1	1	1	080 St Patri	43.65249	-79.3896	\$1,800.00									
7	1	1	1	087 James	43.63489	-79.4347	\$1,729.00									
8	2	1	1	0700 Ross	43.32899	-79.8086	\$1,685.00									
9	1	1	1	025 Telegra	43.64092	-79.394	\$1,900.00									
10	1	1	1	0560 Front	43.64131	-79.4001	\$1,900.00									
11	1	1	1	170 Queens	43.64007	-79.4	\$2,400.00									
12	1	1	1	0545 - 555	43.66847	-79.3748	\$1,750.00									
13	2	1	1	0545 - 555	43.66847	-79.3748	\$2,000.00									
14	1	1	1	0555 Yonge	43.66472	-79.3841	\$2,200.00									
15	1	1	1	1 M5J, Cana	43.64082	-79.3818	\$2,350.00									
16	1	1	1	0295 Adela	43.64763	-79.3904	\$2,650.00									
23	1	1	1	07934 Kipli	43.78319	-79.5986	\$1,750.00									
26	2	2	0	York St, Tc	43.64231	-79.3812	\$3,100.00									
27	2	2	0	10 Park La	43.62329	-79.4837	\$2,999.00									
28	1	1	1	0, Toronto	43.75989	-79.4431	\$1,250.00									
29	1	1	1	033 Gamble	43.68936	-79.3528	\$1,825.00									

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Bedroom	Bathroom	Den	Address	Lat	Long	Price									
2	2	2	0	3985 Gran	43.5816	-79.6482										
3	1	1	1	1361 Front	43.6431	-79.3916										
4	1	1	1	089 McGill	43.6606	-79.3786										
5	2	2	0	10 York St	43.6411	-79.3814										
6	1	1	1	080 St Patri	43.6525	-79.3896										
7	1	1	1	087 James	43.6349	-79.4347										
8	2	1	1	0700 Ross	43.329	-79.8086										
9	1	1	1	025 Telegra	43.6409	-79.394										
10	1	1	1	0560 Front	43.6413	-79.4001										
11	1	1	1	170 Queens	43.6401	-79.4										
12	1	1	1	0545 - 555	43.6685	-79.3748										
13	2	1	1	0545 - 555	43.6685	-79.3748										
14	1	1	1	0555 Yonge	43.6647	-79.3841										

- ❖ Now click on g column and go to home tab.
- ❖ Now click on the drop down in the red box above.

❖ Select Number from the drop down.

❖ Then the \$ symbol in the price column will be removed. Now save this excel file.



	A	B	C	D	E	F	G	H
1	Bedroom	Bathroom	Den	Address	Lat	Long	Price	
2	2	2	0	3985 Grand Park Drive, 3985 Grand Park Dr, Mississauga, ON L5B 0H6, Canada	43.5816	-79.648	2450.00	
3	1	1	1	361 Front St W, Toronto, ON M5V 3R5, Canada	43.6431	-79.392	2150.00	
4	1	1	0	89 McGill Street, Toronto, ON, M5G 0B1	43.6606	-79.379	1950.00	
5	2	2	0	10 York Street, Toronto, ON, M5J 0E1	43.6411	-79.381	2900.00	
6	1	1	0	80 St Patrick St, Toronto, ON M5T 2K6, Canada	43.6525	-79.39	1800.00	
7	1	1	0	87 Jameson Avenue, Toronto, ON, M8K 2W8	43.6349	-79.435	1729.00	
8	2	1	0	700 Ross Street, Burlington, ON, L7S 1S2	43.329	-79.809	1685.00	
9	1	1	0	25 Telegram Mews, Toronto, ON, M6V 3Z2	43.6409	-79.394	1900.00	
10	1	1	0	560 Front St W, Toronto, ON, M5V 0L5	43.6413	-79.4	1900.00	
11	1	1	1	70 Queens Wharf Rd 33rd Floor, Toronto, ON M5V 0J2, Canada	43.6401	-79.4	2400.00	
12	1	1	0	545 - 555 Sherbourne Street, Toronto, ON, M4X 1W5	43.6685	-79.375	1750.00	
13	2	1	0	545 - 555 Sherbourne Street, Toronto, ON, M4X 1W5	43.6685	-79.375	2000.00	
14	1	1	0	555 Yonge	43.6647	-79.384	2200.00	
15	1	1	1	M5J, Canada	43.6408	-79.382	2350.00	
16	1	1	0	295 Adelaide	43.6476	-79.39	2650.00	
17	1	1	1	0 191 - 201	43.6567	-79.37	1799.00	
18	1	1	1	0 191 - 201	43.6567	-79.37	1899.00	

❖ Now upload the saved dataset to AI and machine learning lab.

❖ Click on the Continue button.

❖ Now the price column can be selected to predict the rental price.

Predict  based on 

Bedroom	Bathroom	Den	Address	Lat	Long	Price
2	2	0	3985 Grand Park Drive, 3985 Grand Park Dr, Mississauga, ON L5B 0H6, Canada	43.5816391	-79.648193	2450.00
1	1	1	361 Front St W, Toronto, ON M5V 3R5, Canada	43.6430505	-79.3816429	2150.00
1	1	0	89 McGill Street, Toronto, ON, M5G 0B1	43.6606054	-79.3786354	1950.00
2	2	0	10 York Street, Toronto, ON, M5J 0E1	43.6410888	-79.3814048	2900.00
1	1	0	80 St Patrick St, Toronto, ON M5T 2K6, Canada	43.6524873	-79.3896218	1800.00
1	1	0	87 Jameson Avenue, Toronto, ON, M8K 2W8	43.6348903	-79.4348541	1729.00
2	1	0	700 Ross Street, Burlington, ON, L7S 1S2	43.3288895	-79.8086183	1685.00
1	1	0	25 Telegram Mews, Toronto, ON, M6V 3Z2	43.6408179	-79.3939821	1900.00
1	1	0	560 Front St W, Toronto, ON, M5V 0L5	43.6413078	-79.4000833	1900.00
1	1	1	70 Queens Wharf Rd 33rd Floor, Toronto, ON M5V 0J2, Canada	43.6400895	-79.3999804	2400.00
1	1	0	545 - 555 Sherbourne Street, Toronto, ON, M4X 1W5	43.6684679	-79.3748336	1750.00
2	1	0	545 - 555 Sherbourne Street, Toronto, ON, M4X 1W5	43.6684679	-79.3748336	2000.00

There are 1124 rows of data. (Showing first 100 rows)

Price

Data Type
numerical

Column information
min 65
max 535000
range 534935

Select label

- ❖ දැන් continue button එක මත click කරන්න.
- ❖ දැන් base on සඳහා column select කර ගන්න.

Predict **Price** based on **Bedroom**, **Bathroom**, **Den**, **Lat**, **Long**

Bedroom	Bathroom	Den	Address	Lat	Long	Price
2	2	0	3985 Grand Park Drive, 3985 Grand Park Dr, Mississauga, ON L5B 0H8, Canada	43.5816391	-79.848193	2450.00
1	1	1	361 Front St W, Toronto, ON M5V 3R5, Canada	43.6430505	-79.3916429	2150.00
1	1	0	89 McGill Street, Toronto, ON, M5B 0B1	43.6606054	-79.3786354	1950.00
2	2	0	10 York Street, Toronto, ON, M5J 0E1	43.6410868	-79.3814048	2900.00
1	1	0	80 St Patrick St, Toronto, ON M5T 2X6, Canada	43.6524873	-79.3896218	1800.00
1	1	0	87 Jameson Avenue, Toronto, ON, M6K 2W8	43.6348903	-79.4346541	1729.00
2	1	0	700 Ross Street, Burlington, ON, L7S 1S2	43.3289855	-79.8086183	1685.00
1	1	0	25 Telegram Mews, Toronto, ON, M5V 3Z2	43.6409179	-79.3939821	1900.00
1	1	0	560 Front St W, Toronto, ON, M5V 0L5	43.6413078	-79.4000933	1900.00
1	1	1	70 Queens Wharf Rd 33rd Floor, Toronto, ON M5V 0J2, Canada	43.6400685	-79.3999604	2400.00
1	1	0	545 - 555 Sherbourne Street, Toronto, ON, M4X 1W5	43.6684679	-79.3748336	1750.00
2	1	0	545 - 555 Sherbourne Street, Toronto, ON, M4X 1W5	43.6684679	-79.3748336	2000.00

There are 1124 rows of data. (Showing first 100 rows)

- ❖ Now click on train.
- ❖ Then when the rent price was predicted according to the number of bedrooms, number of bathrooms, number of storage rooms and location in the apartment, a good value accuracy of 98.23% was obtained.

Result

Accuracy

Predict **Price** based on **Bedroom**, **Bathroom**, **Den**, **Lat**, **Long**

98.23%

[Details](#)

Try it out!

Bedroom

Bathroom

Den

Lat

Long

[Predict](#)



A.I. predicts

Price
4000

- ❖ Now let's save the model.
- ❖ Now click on the continue button.
- ❖ Give apartmentRentPriceModel for the name of the model.

Predict **Price** based on **Bedroom**, **Bathroom**, **Den**, **Lat**, **Long**

Model name (required)

- ❖ Now click on the save button.
- ❖ Then the details of the model we created will be displayed as below.
- ❖ The details of the model we created are displayed as follows.



apartmentRentPriceModel	
Accuracy	98.23%
Intended Use	
Limitations and Warnings	
About the Data	Dataset size 1124 rows
Features and Label	Predict Price based on Bedroom, Bathroom, Den, Lat, Long
Label	Price Possible Values min 65 max 535000
Features	Bedroom Possible Values min 1 max 3 Bathroom

- ❖ Now click on Finish button.