Machine Learning Challenge: Day 4

Welcome to the fourth day of our 30 days Machine learning Challenge.

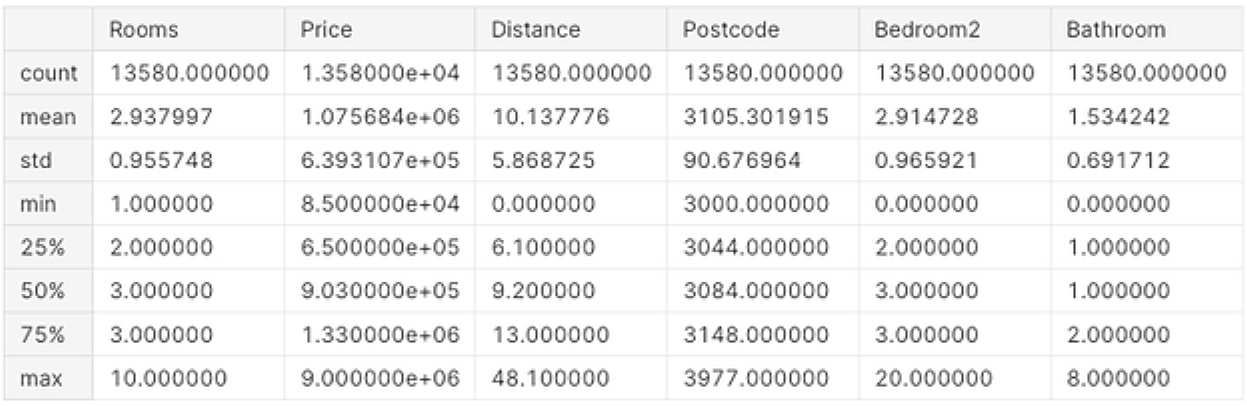
Using Pandas to Get Familiar with Your Data \

The first step in any machine learning project is to familiarize yourself with the data. You'll use the Pandas library for this. Pandas is the primary tool data scientists use for exploring and manipulating data. Most people abbreviate pandas in their code as pd. We do this with the command

```
import pandas as pd
```

The most important part of the Pandas library is the DataFrame. A DataFrame holds the type of data you might think of as a table. This is similar to a sheet in Excel, or a table in a SQL database. Pandas has powerful methods for most things you'll want to do with this type of data.
As an example, we'll look at data about home prices in Melbourne, Australia. In the hands-on exercises, you will apply the same processes to a new dataset, which has home prices in Iowa. The example (Melbourne) data can be found at
"https://github.com/Devparihar5/30-Day-Machine-Learning-Challange/blob/main/Day%203/California_housing_price_data.csv"
We load and explore the data with the following commands:

```
# save filepath to variable for easier access.
change file path accordingly
melbourne_file_path = 'housing.csv'
# read the data and store data in DataFrame titled
melbourne_data
melbourne_data = pd.read_csv(melbourne_file_path)
# print a summary of the data in Melbourne data
melbourne_data.describe()
```



	Rooms	Price	Distance	Postcode	Bedroom2	Bathroom
count	13580.000000	1.358000e+04	13580.000000	13580.000000	13580.000000	13580.000000
mean	2.937997	1.075684e+06	10.137776	3105.301915	2.914728	1.534242
std	0.955748	6.393107e+05	5.868725	90.676964	0.965921	0.691712
min	1.000000	8.500000e+04	0.000000	3000.000000	0.000000	0.000000
25%	2.000000	6.500000e+05	6.100000	3044.000000	2.000000	1.000000
50%	3.000000	9.030000e+05	9.200000	3084.000000	3.000000	1.000000
75%	3.000000	1.330000e+06	13.000000	3148.000000	3.000000	2.000000
max	10.000000	9.000000e+06	48.100000	3977.000000	20.000000	8.000000

Interpreting Data Description

The results show 8 numbers for each column in your original dataset. The first number, the **count**, shows how many rows have non-missing values.

Missing values arise for many reasons. For example, the size of the 2nd bedroom wouldn't be collected when surveying a 1-bedroom house. We'll come back to the topic of missing data.

The second value is the **mean**, which is the average. Under that, **std** is the standard deviation, which measures how numerically spread out the values are.

To interpret the **min, 25%, 50%, 75%**, and **max** values, imagine sorting each column from the lowest to highest. The first (smallest) value is the min. If you go a quarter way through the list, you'll find a number that is bigger than **25%** of the values and smaller than **75%** of the values. That is the **25%** value (pronounced "25th percentile"). The 50th and 75th percentiles are defined analogously, and the **max** is the largest number.