Artificial Intelligence
Midterm Exam

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1 Midterm Exam

Case Study

You are a real estate businessman. You have several units of houses, land, and shophouses spread across Malang City, and property acquisition plans are seen as future prospects. As a businessman your goal is to get good sales, and good profits.

To achieve that goal, you have several strategies that are divided into the following categories:

1. Determine the best selling price for each unit
2. Determine the target marketing on social media
3. Choose the right location for the property unit to be acquired
4. Determine the specifications for the house
5. Choose the priority of the unit owned, between a house, land, or shophouse

Your job is to choose one of the five stategies above.

Questions

1. From one of the strategies you choose, define a clear problem with machine learning as the solution approach

   We can choose the first strategy, which is to determine the best price of each unit. We can do this using machine learning by doing a regression analysis. We can use the data of the price of the unit and the specifications of the unit to determine the best price of the unit.

2. Develop a data ingestion strategy, determine what data will be processed, where it will come from

   The data that will be processed is the price of the unit and the specifications of the unit. The data could come from multiple sources, such as the previous sales data, or the data from the competitors.

3. Make a sample data, at least 20 items

No	Price	House	Land	Bedroom	Bathroom	Garage
1	3800000000	220	220	3	3	0
2	4600000000	180	137	4	3	2
3	3000000000	267	250	4	4	4
4	430000000	40	25	2	2	0
5	9000000000	400	355	6	5	3
6	4970000000	300	154	5	3	3
7	2600000000	120	150	3	2	1
8	10500000000	350	247	4	4	0
9	3250000000	125	90	3	3	0
10	4500000000	250	96	5	4	1
11	3600000000	154	110	3	3	3
12	9500000000	450	240	4	4	1
13	10500000000	218	118	3	3	2
14	12500000000	200	979	4	2	6
15	4600000000	180	137	5	4	2
16	3000000000	126	144	4	2	2
17	6000000000	400	150	5	4	1
18	7500000000	150	253	5	2	2
19	18000000000	200	251	5	3	3
20	9700000000	450	248	5	5	4

4. What kind of machine learning model / method will be used?

   The model that we can use to work with this type of data or case study is the **Linear Regression** model. We can use this model to predict the price of the unit based on the specifications of the unit.

5. Explain whether the method is supervised or unsupervised!

   The method being used is supervised learning, because we have the data of the previous sales that we can use to train the model. We can use the data to train the model to predict the best price of the house.

6. Explain why do you choose this model!

   The model was chosen because it is the most suitable model to work with and it's also one of the simplest method. The model is also easy to understand and implement.

7. Explain the machine learning method that will be used!

   The machine learning method that will be used is the **Linear Regression** method. Linear regression is a linear approach to modeling the relationship between a scalar response or dependent variables and one or more explanatory variables or independent variables. The case study that we have is a regression problem, because we want to predict the price of the unit based on the specifications of the unit.