1. Explain Time series Forecasting and Data sets for Toy (Unreastically Simple) and Realistic Problems?
2. A. Differentiate Machine Learning and Data Mining.

B. Explain basic Linear Algebra in Machine Learning Techniques?

1. Describe Occam’s Razor Principle and Overfitting Avoidance?
2. Explain Bayes Theorem with an example?
3. Describe Reinforcement Learning and its applications with advantages and disadvantages.
4. Explain Cross-validation and Bootstrapping?
5. A. Describe Metrics for Assessing Regression (Numeric Prediction) Accuracy?

B. Contrast Mean Square and Mean absolute Error?

1. Describe Naive Bayes Classifier. Calculate Today= (Sunny, Hot, Normal, Flase) using Navie Bayes theorem.

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| --- | --- | --- | --- | --- | --- |
| **S.no** | **Outlook** | **Temperature** | **Humidity** | **Windy** | **Play Golf** |
| 0 | Rainy | Hot | High | FALSE | No |
| 1 | Rainy | Hot | High | TRUE | No |
| 2 | Overcast | Hot | High | FALSE | Yes |
| 3 | Sunny | Mild | High | FALSE | Yes |
| 4 | Sunny | Cool | Normal | FALSE | Yes |
| 5 | Sunny | Cool | Normal | TRUE | No |
| 6 | Overcast | Cool | Normal | TRUE | Yes |
| 7 | Rainy | Mild | High | FALSE | No |
| 8 | Rainy | Cool | Normal | FALSE | Yes |
| 9 | Sunny | Mild | Normal | FALSE | Yes |
| 10 | Rainy | Mild | Normal | TRUE | Yes |
| 11 | Overcast | Mild | High | TRUE | Yes |
| 12 | Overcast | Hot | Normal | FALSE | Yes |
| 13 | Sunny | Mild | High | TRUE | No |