Assignment:2

Instructor:

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Problem statement:

In the domain of weather forecasting, accurately predicting rainfall is a critical and complex task. Accurate rainfall predictions have far-reaching impact on agriculture, urban planning, disaster management, and various other sectors. However, the existing rainfall prediction models often face challenges in terms of accuracy and reliability.
The primary problem addressed by this data science project is to design and build a precise rainfall prediction model that can reliably forecast rainfall patterns in a given geographical area (Australia, for now).

Source of the dataset:

https://www.kaggle.com/code/sinanbavli04/rain-prediction-in-australia-with-ann/

Brief description about the dataset:

This dataset contains a decade of daily weather records from multiple weather stations across Australia. The target variable to forecast is "RainTomorrow," denoting whether it will rain on the next day. Specifically, "RainTomorrow" is coded as "Yes" if there will be 1mm or more of rainfall the following day, and "No" if not. In summary, this task involves binary classification, where the objective is to predict whether substantial rainfall (1mm or more) will occur on the next day.

Description of the attributes/variables/columns of the dataset:

- minTemp: Minimum temperature (°C)
- maxTemp: Maximum temperature (°C)
- Rainfall (mm): Measurement of rainfall in millimeter
- Evaporation (mm): Amount of water evaporated
- Sunshine (hours)
- windGustDir: Direction of wind gust
- windGustSpeed: Speed of wind gust (km/h)
- windDir9am: Wind direction at 9am
- windDir3pm: Wind direction at 3pm
- windSpeed9am: Wind speed at 9am (km/hr)
- windSpeed3pm: Wind speed at 3pm (km/hr)
- Humidity 9am: Humidity at 9am
- Humidity 3pm: Humidity at 3pm

- Pressure 9am: Atmospheric pressure at 9am (hpa)
- Pressure 3pm: Atmospheric pressure at 3pm (hpa)
- Cloud 9am: Fraction of sky obscured by cloud at 9am (oktas)
- Cloud 3pm: Fraction of sky obscured by cloud at 3pm (oktas)
- Temp 9am: Temperature at 9am (°C)
- temp3pm: Temperature at 3pm (°C)
- raintoday: Rain today (yes/no)