DAT200 – Applied Machine Learning I

Raw Data Inspection

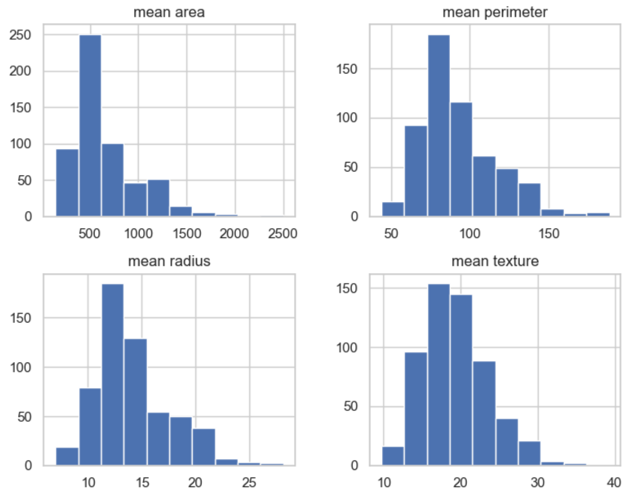
Raw data inspection

- Understand your data if you want to obtain best possible results with your machine learning models
- Visualise your data – the most effective way to learn more about your data
- Absolutely necessary to do this before training your machine learning models
- NOTE: your compulsory assignment submissions will not be accepted without raw data inspection at the beginning of your Juptyer Notebook
- BEWARE: The teachers might include one or more rows with fictious data that produces outliers and will lead you poorer models

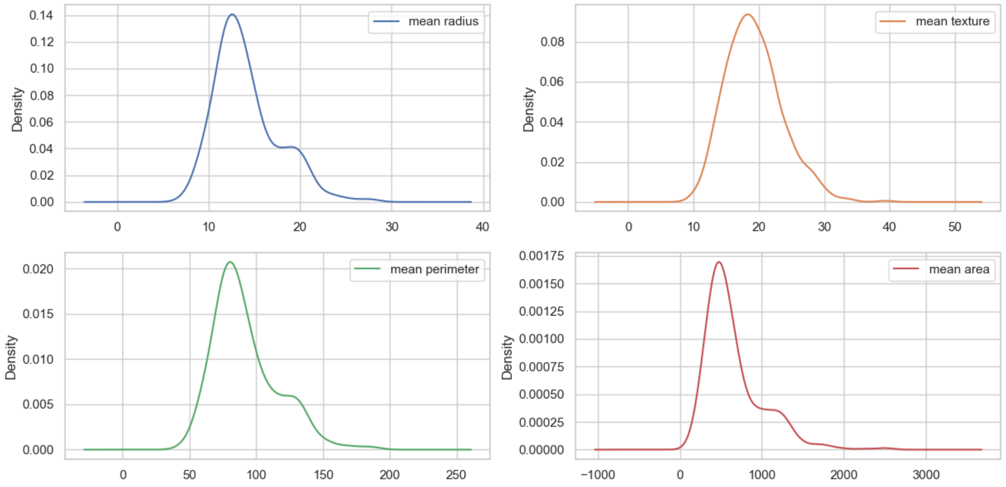
- See python script: «Ch00 – 2 - raw data inspection.py»

Raw data inspection – univariate plots

- Compute descriptive statistics
- Histograms
  - Inspect distribution of each attribute
  - Groups data into bins
  - Count number of observations in each bin

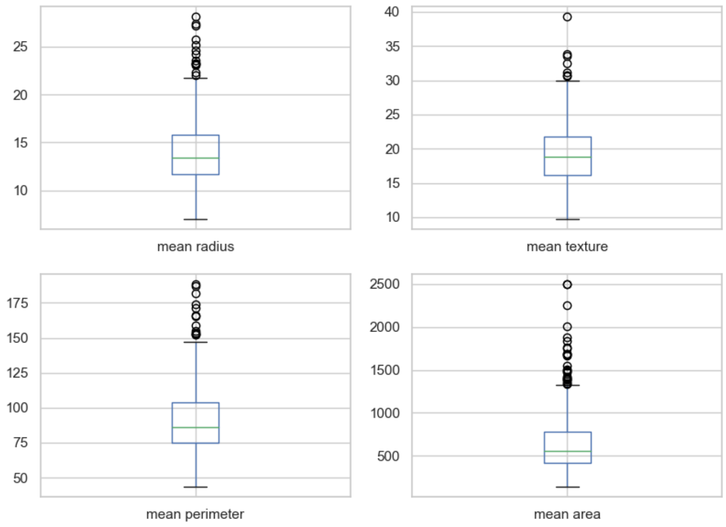


- Density plots
  - Another way of inspecting distributions
  - Smoothed curve



Raw data inspection – univariate plots

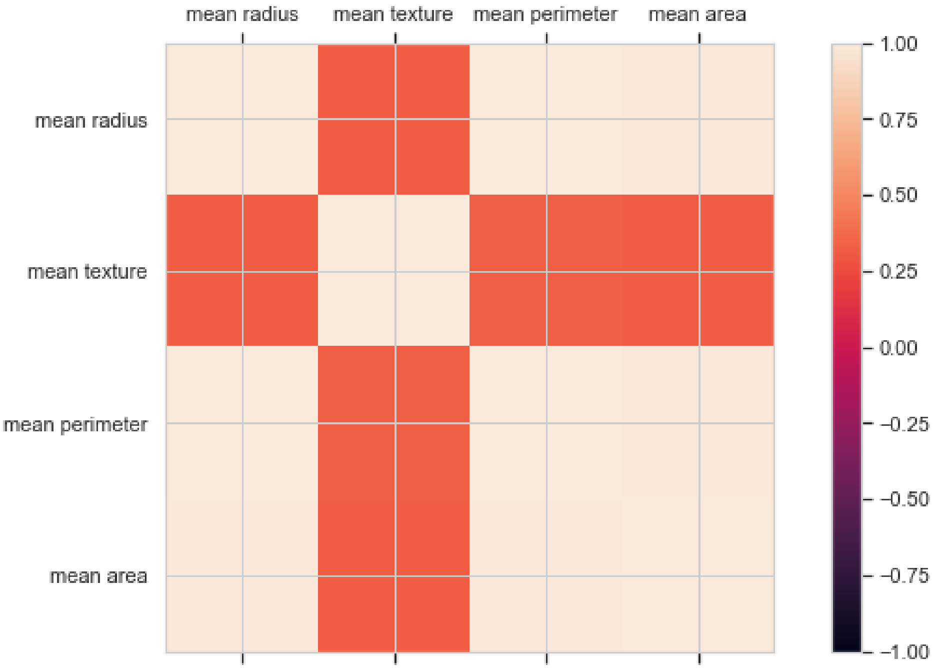
- Box and Whisker plots
    - Inspect distribution of each attribute
    - Boxplots summarise the distribution
        - Line for the median
        - Box around 25th and 75th percentile (middle 50% of the data)
        - Whiskers: 1.5 greater than size of spread ot the middle 50% of the data
        - Dots outside whiskers show candidate outlier values



- Violin plots: a better alternative to Box and Whisker plots
    - Another version/aspect of density plots
    - Give a more complete/precise description of the data
    - Examples: https://www.autodeskresearch.com/publications/samestats

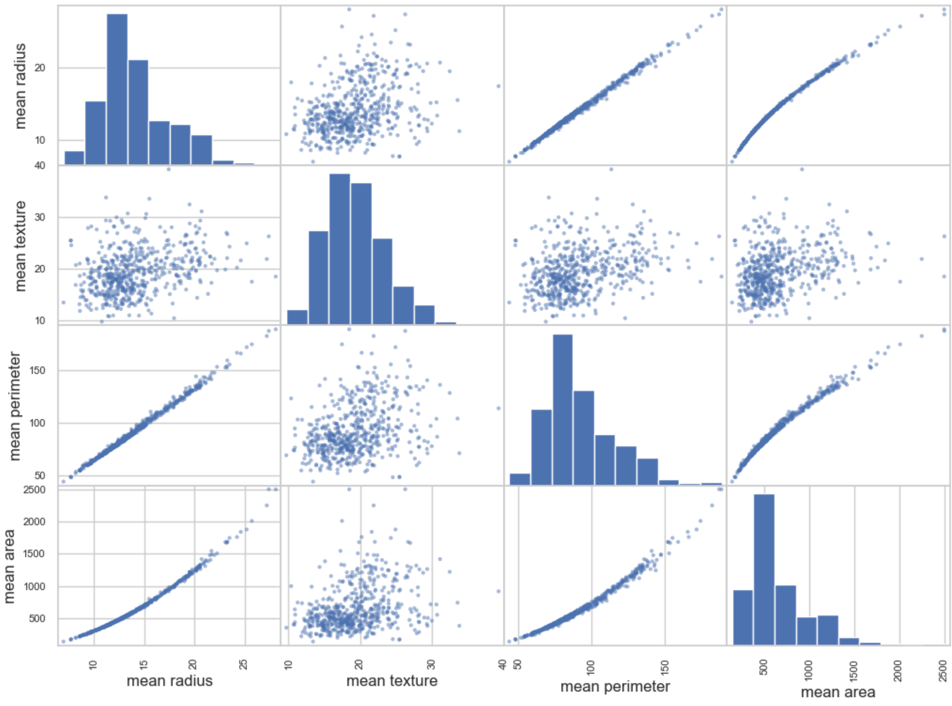
Raw data inspection – multivariate plots

- Correlation Matrix Plot
    - Gives indication of how related changes of two variables are (pairs of variables)
    - Two variables change in same direction: positive correlation
    - Two variables change in opposite direction: negative correlation



Raw data inspection – multivariate plots

- Scatter Plot Matrix
  - Shows relationship between two variables as dots in two dimensions
  - Useful for spotting structured relationships between variables
  - Structural relationships may also be correlalated and good candidats for removal from the dataset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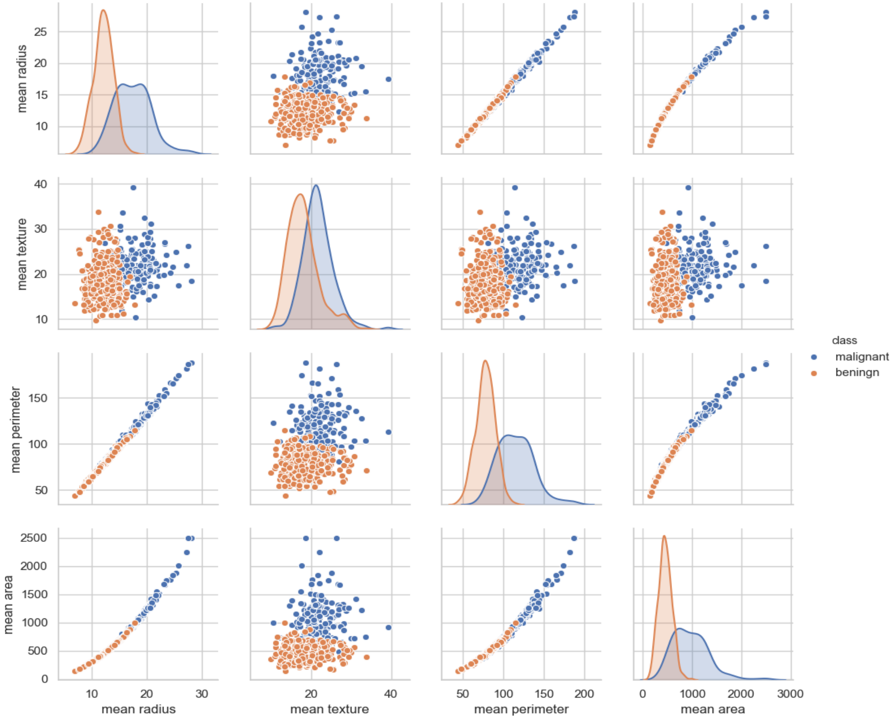
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