① Scenario - Flight Delay Analysis

⇒ Calculate percentiles Q_1-25, Q_2-50, Q_3-75, Q_4-100

$$P_K = \frac{K}{100}(N+1)$$

⇒ Calculate IQR = $Q_3 - Q_1$

⇒ calculate lower bound = $Q_1 - 1.5 * IQR$

upper bound = $Q_3 + 1.5 * IQR$

⇒ Detect outliers if value < lower bound - lower outlier

if value > upper bound - upper outlier

⇒ Distribution → use boxplot.

— x —

② Scenario - Employee Salary Analysis.

⇒ Calculate the mean, median and mode.

⇒ If mean > median > mode - Positive skew

⇒ If mean < median < mode - negative skew

⇒ If mean = median = mode - normally distributed

— x —

③ Product Sales Analysis

⇒ Divide the sales data into intervals

⇒ Count the frequency for each interval to understand the distribution.

⇒ Visualization - Histogram & Barplot

— x —

④ Student Exam performance Analysis

⇒ calculate mean, median, mode

⇒ use boxplot to detect outliers

⇒ use histogram to visualize the distribution of scores.

— x —

⑤ Clinical Trial for Diabetes Medication

⇒ Do a Independent T-test

⇒ Calculate the p-value

⇒ if p-value ≤ 0.05, it reject null hypothesis, the medicine is effective

⇒ if p-value > 0.05, it fail to reject null hypothesis, There is no significant difference.

— x —