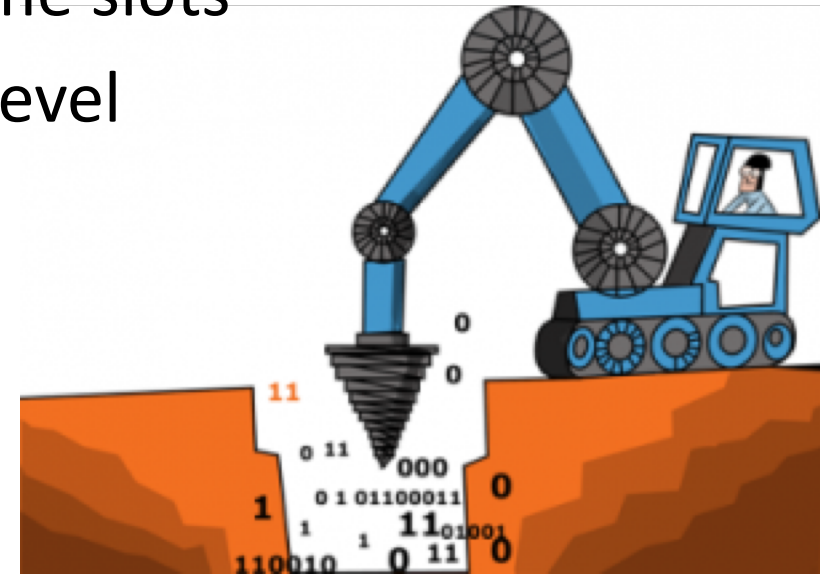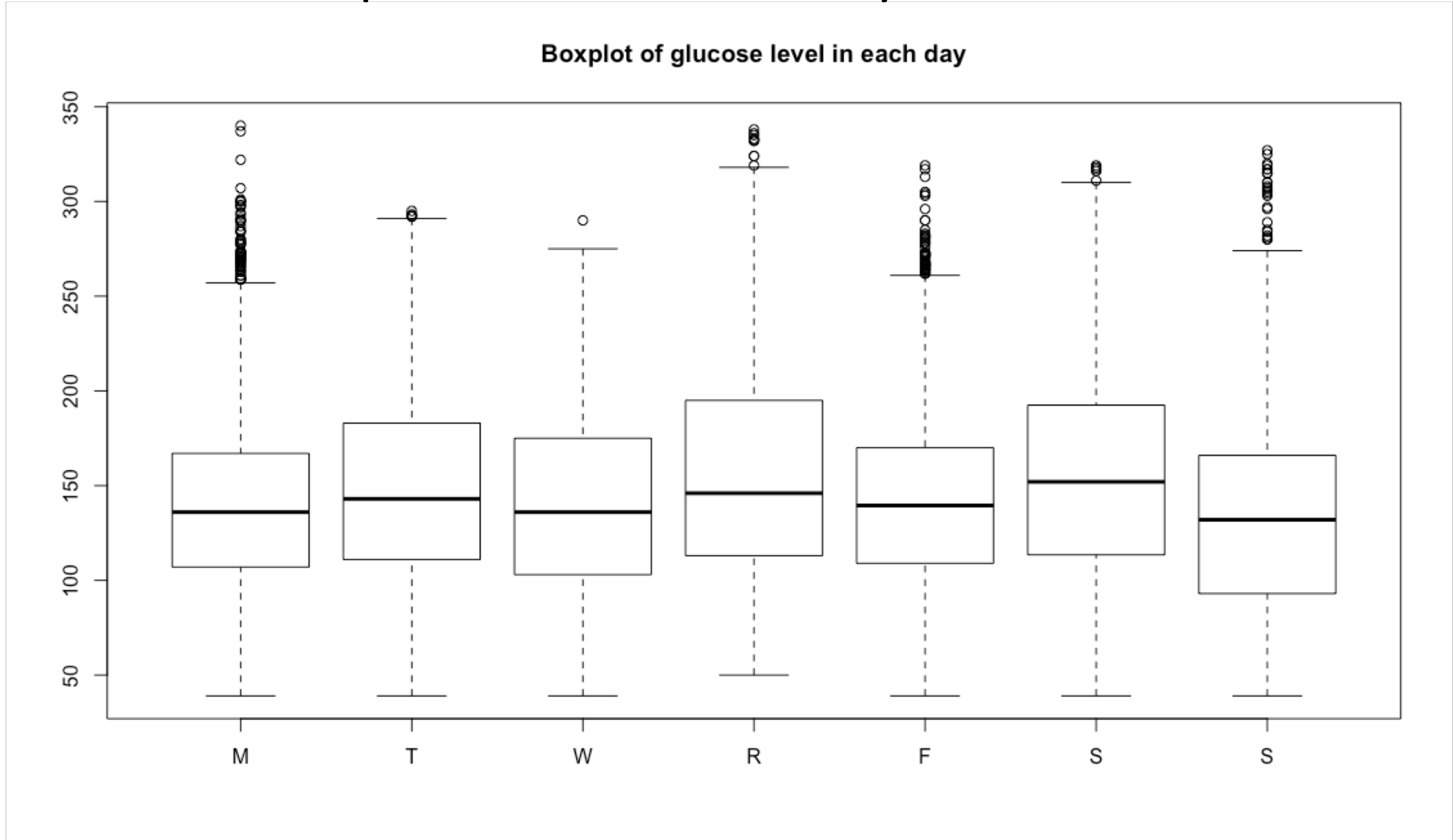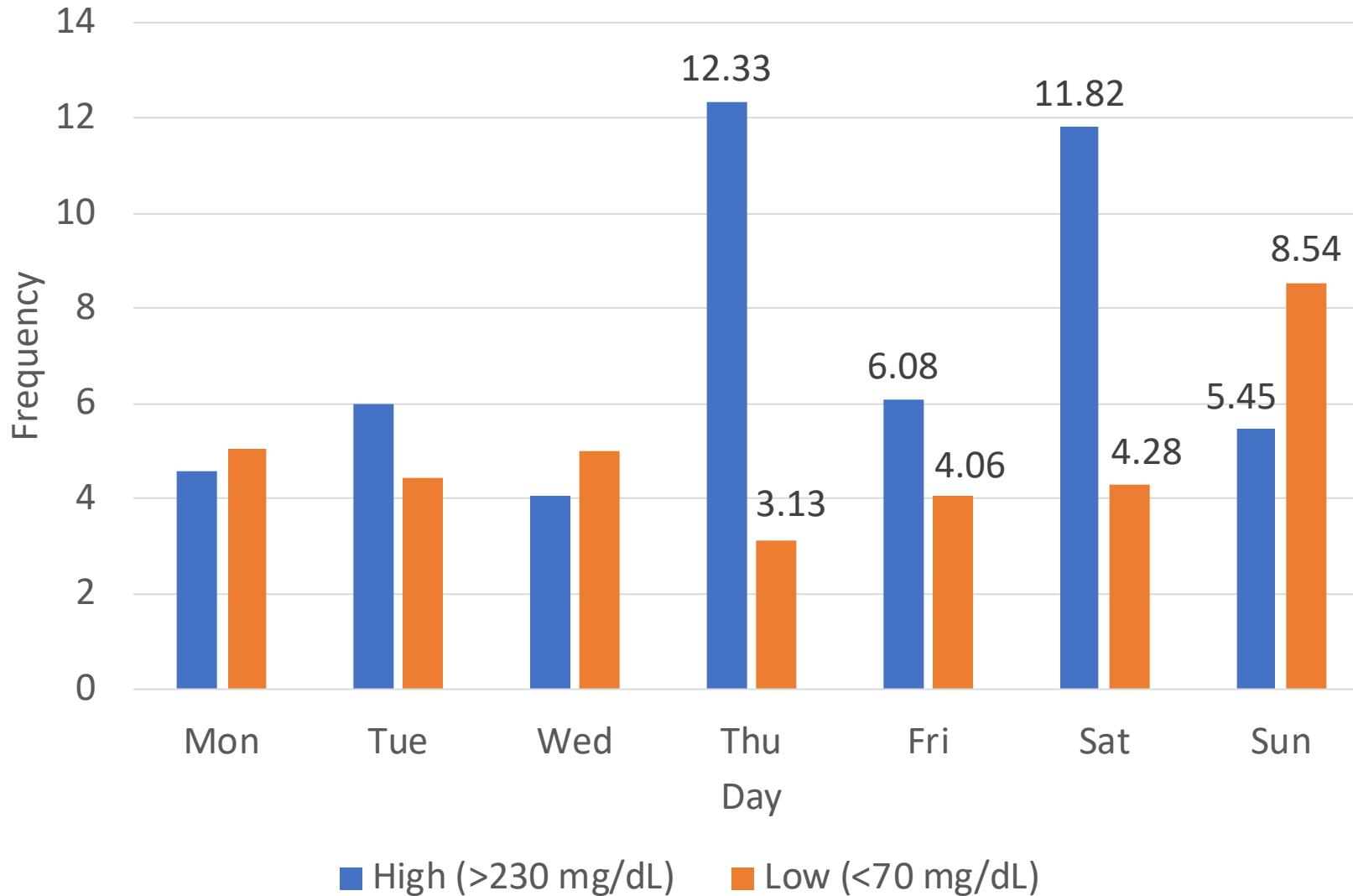# Data Mining

- Locate unique patterns for specific CGM client

  → personalized prediction

- Adjust ML algorithm based on unusual patterns

  → higher accuracy of prediction

- Suggest closer glucose level monitoring at specific time slots

  → prevent adverse effects of high/low glucose level

Abnormal data points - weekdays
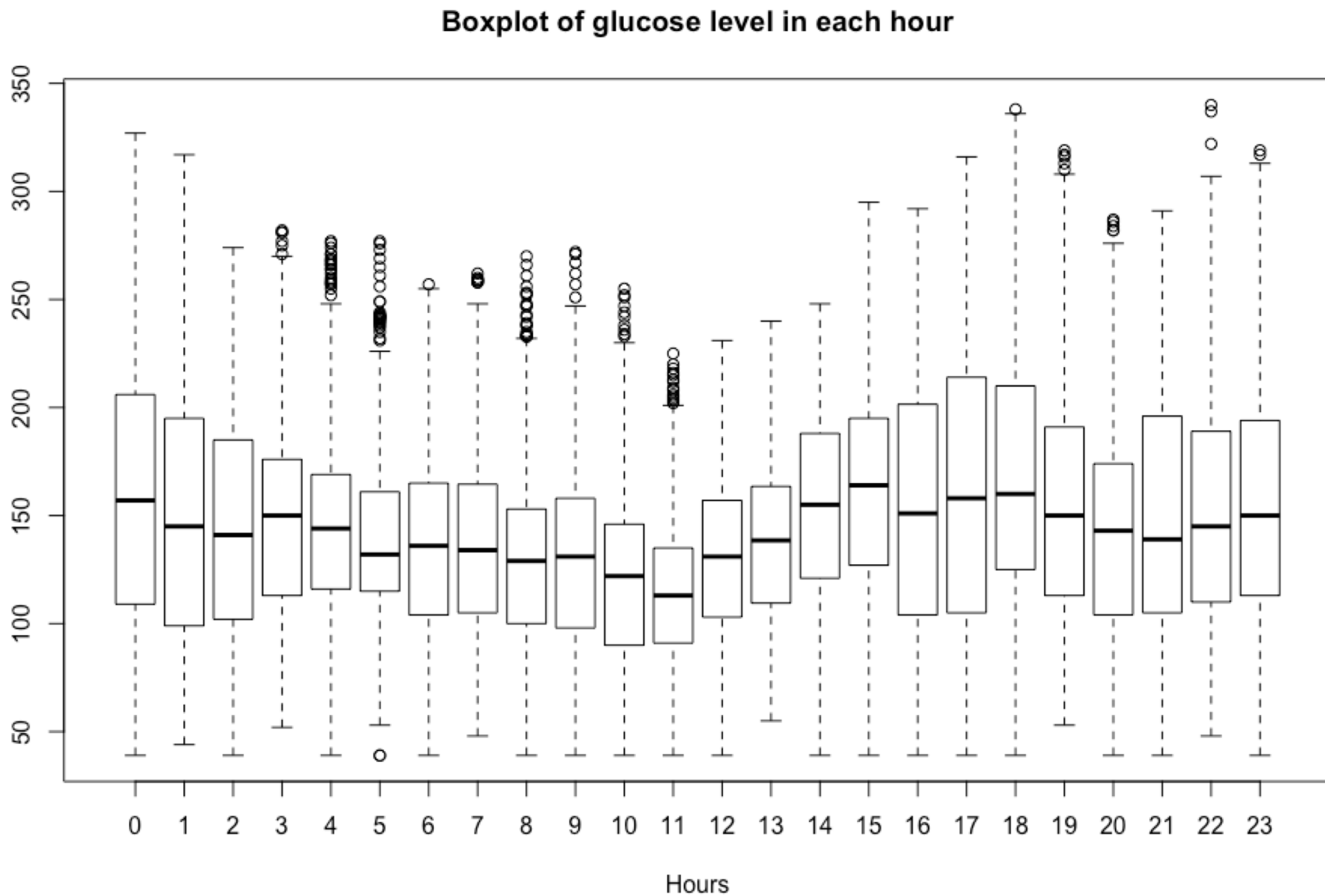

Boxplot of glucose level in each day

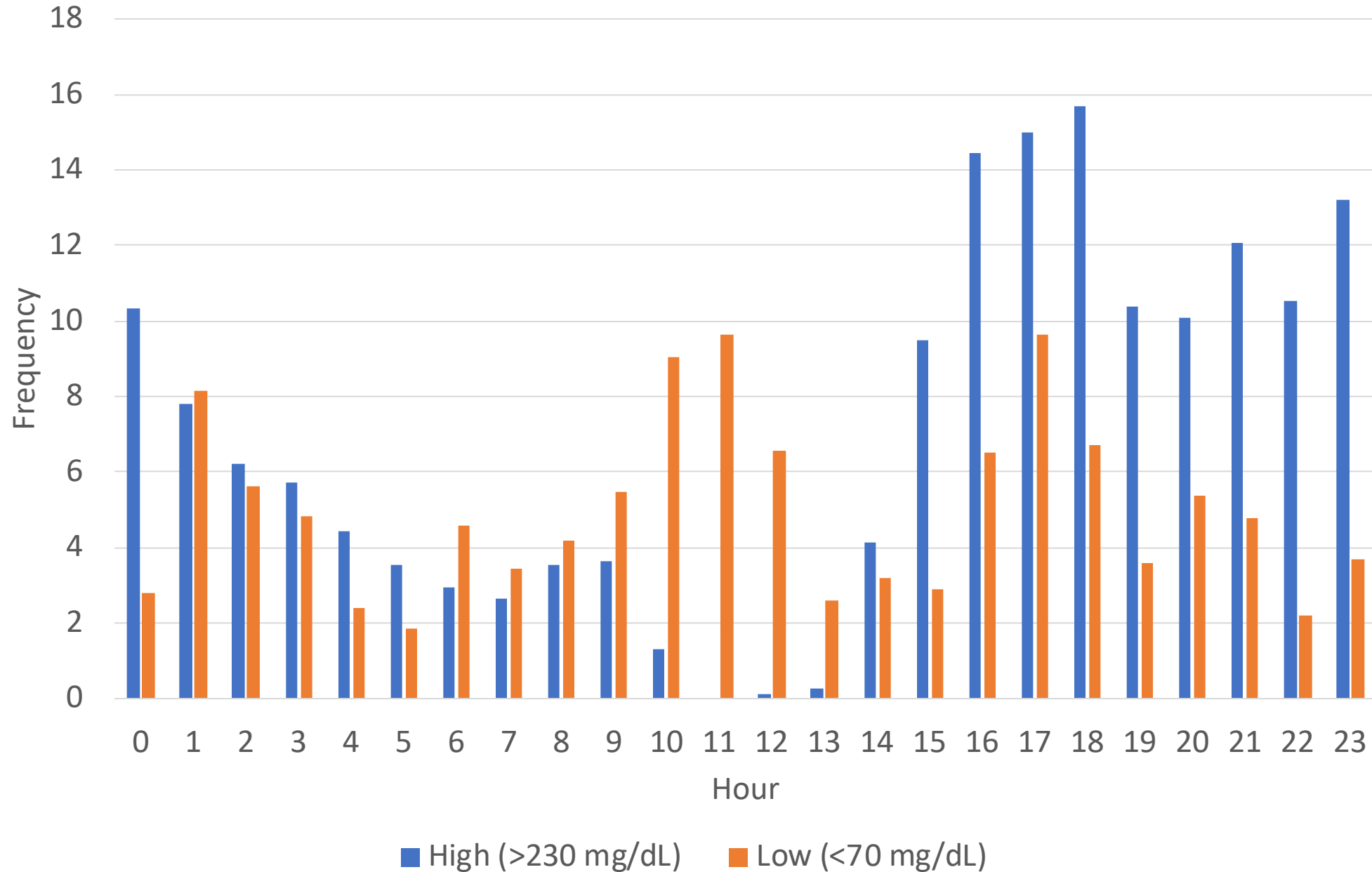% of High/Low Glucose level found in each day

- More than 10% of data points collected on Thursday and Saturday are **higher** than the upper bound

- 8.54% of data points collected on Sunday are **lower** than the lower bound

- Glucose levels are **less stable** from Thursday to Sunday compared to glucose levels collected from Monday to Wednesday

Abnormal data points – hours in a day

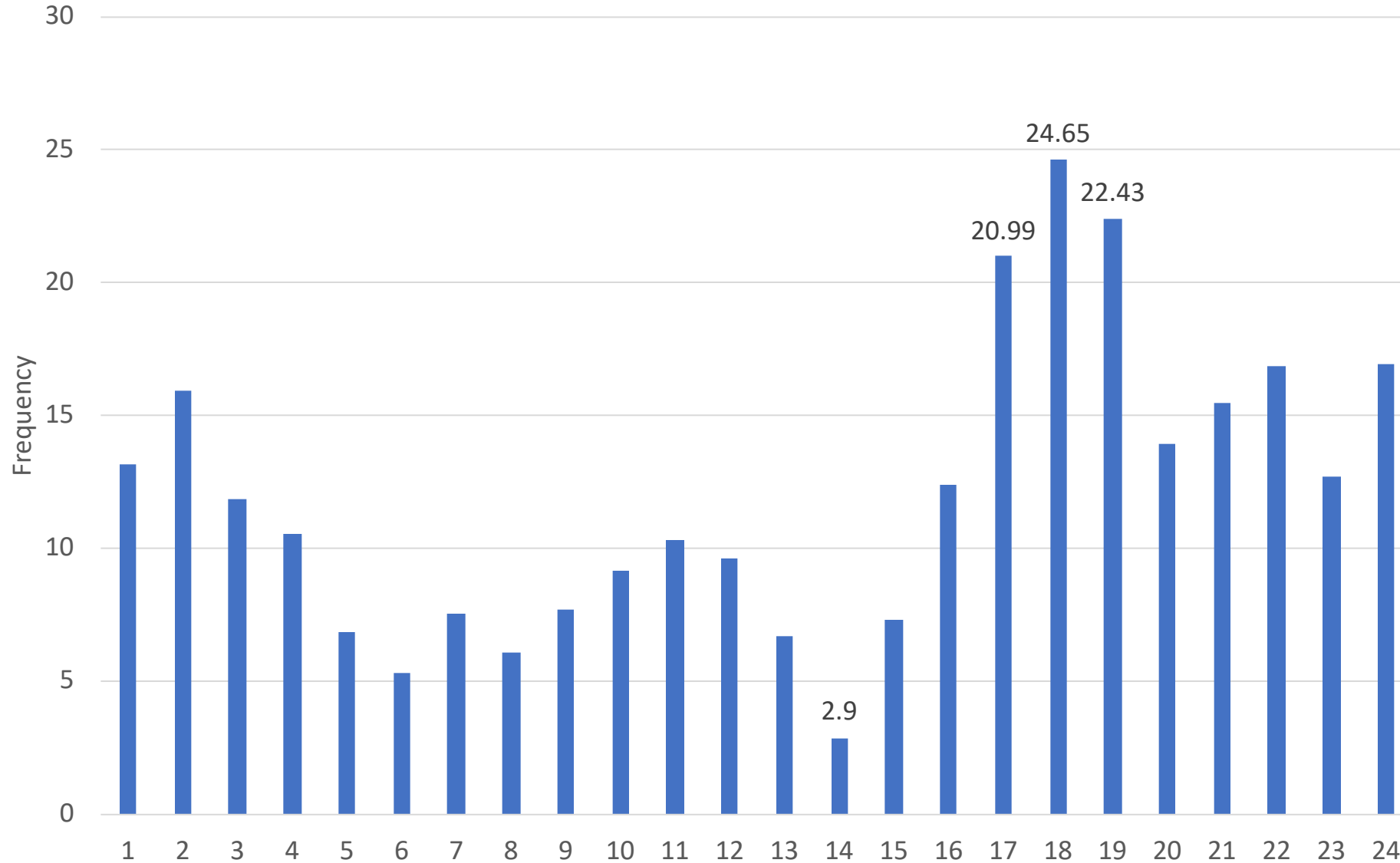Boxplot of glucose level in each hour
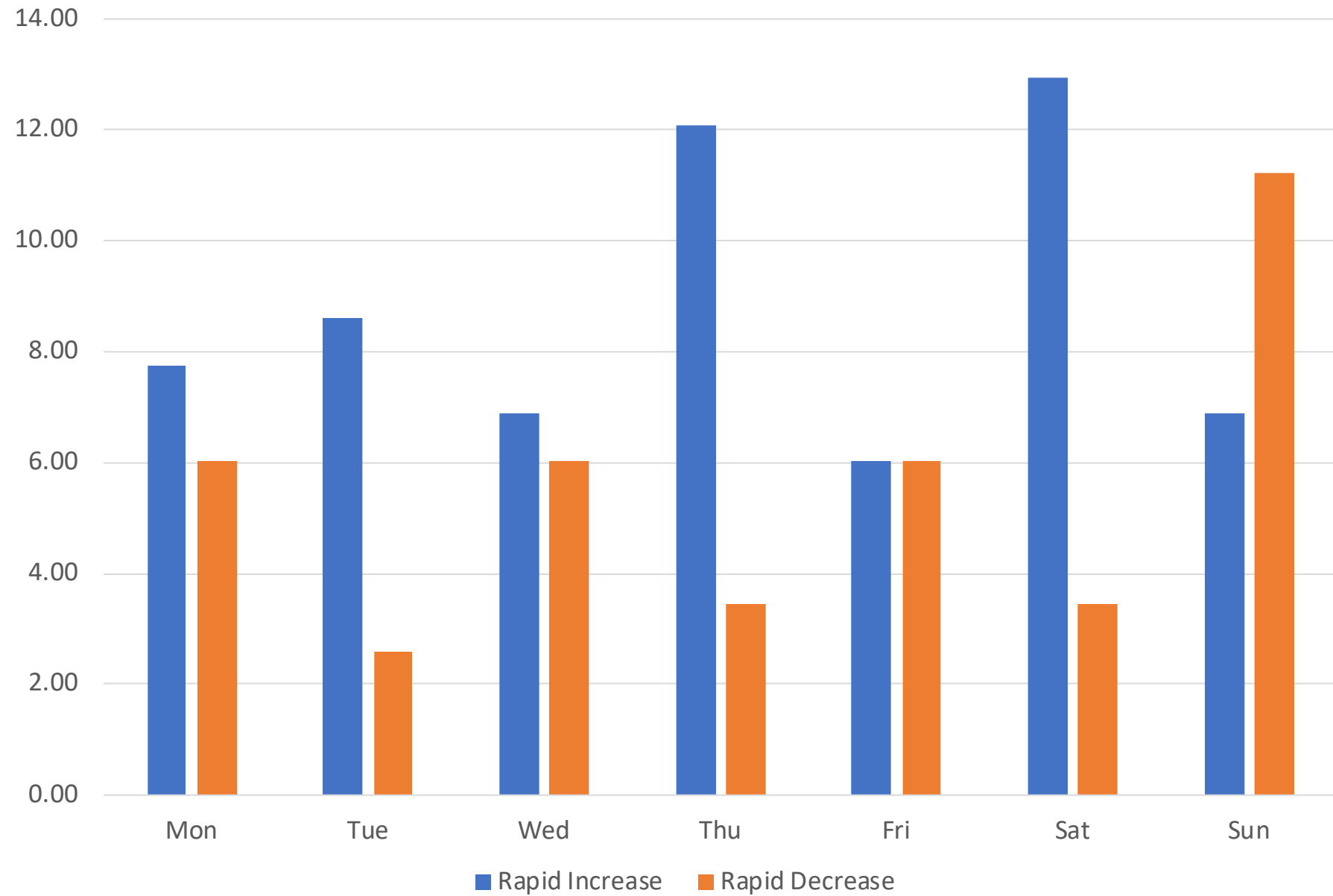
% of High/Low Glucose level found in each hour

- Almost all abnormal data points collected from 10AM to 1PM are **lower** than the lower bound

- Data points collected from 3PM to 12AM **are less stable** and glucose levels are more likely to increase above upper bound

■ High (>230 mg/dL)　■ Low (<70 mg/dL)

Frequency of abnormal glucose levels

- The most stable glucose level : 2PM

- The least stable glucose level: 5PM-7PM

Rapid increase/decrease found in each day

Increase and decrease trend found in each day

■ Increase Trend   ■ Decrease Trend