

draw confusion matrix and calculate Accuracy, precision, recall, specificity, and error rate for temperature predicted as High, Medium, and Low



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To create a confusion matrix and calculate the metrics like accuracy, precision, recall, specificity, and error rate, you'll need some data. However, without specific numbers, I can guide you through the process.

Confusion Matrix Structure

Assuming you have a confusion matrix for three classes: High, Medium, and Low, it might look like this:

	Predicted High	Predicted Medium	Predicted Low
Actual High	TP_H	FP_H	FN_H
Actual Medium	FP_M	TP_M	FN_M
Actual Low	FP_L	FP_L	TP_L

Where:

- **TP** = True Positive
- **FP** = False Positive
- **FN** = False Negative

Metrics Calculation

1. Accuracy:

$$\text{Accuracy} = (\text{TP}_H + \text{TP}_M + \text{TP}_L) / \text{total samples}$$

2. Precision for each class:

$$\text{PrecisionHigh} = \text{TP}_H / (\text{TP}_H + \text{FP}_H)$$

$$\text{PrecisionMedium} = \text{TP}_M / (\text{TP}_M + \text{FP}_M)$$

$$\text{PrecisionLow} = \text{TP_L} / (\text{TP_L} + \text{FP_L})$$

3. **Recall** for each class:

$$\text{RecallHigh} = \text{TP_H} / (\text{TP_H} + \text{FN_H})$$

$$\text{RecallMedium} = \text{TP_M} / (\text{TP_M} + \text{FN_M})$$

$$\text{RecallLow} = \text{TP_L} / (\text{TP_L} + \text{FN_L})$$

4. **Specificity** for each class (True Negative Rate):

$$\text{SpecificityHigh} = \text{TN_H} / (\text{TN_H} + \text{FP_H})$$

$$\text{SpecificityMedium} = \text{TN_M} / (\text{TN_M} + \text{FP_M})$$

$$\text{SpecificityLow} = \text{TN_L} / (\text{TN_L} + \text{FP_L})$$

5. Error Rate:

$$\text{Error Rate} = (\text{FP_H} + \text{FP_M} + \text{FP_L} + \text{FN_H} + \text{FN_M} + \text{FN_L}) / \text{total samples}$$