**A) Calculate Probabilities**

**Step 1: Calculate P(Class)**

1. **Count each class**:

Diabetes: 2 occurrences

No Diabetes: 4 occurrences

1. **Total data**: 6 records

P(Diabetes)=2 / 6=0.33

P(No Diabetes)=4 / 6=0.67

**Step 2: Calculate P(Feature Value∣Class)**

**For P(BMI∣Class)**

1. **Diabetes Class**:
   * High BMI: 1 occurrence
   * Low BMI: 1 occurrence
   * Total: 2
   * P(High BMI∣Diabetes)=1 / 2=0.5
   * P(Low BMI∣Diabetes)=1 / 2=0.5
2. **No Diabetes Class**:
   * High BMI: 1 occurrence
   * Low BMI: 3 occurrences
   * Total: 4
   * P(High BMI∣No Diabetes)=1 / 4=0.25
   * P(Low BMI∣No Diabetes)=3 / 4=0.75

**For P(Glucose∣Class)**

1. **Diabetes Class**:
   * High Glucose: 2 occurrences
   * Low Glucose: 0 occurrences
   * Total: 2
   * P(High Glucose∣Diabetes)=2 / 2=1.0
   * P(Low Glucose∣Diabetes)=0 / 2=0.0
2. **No Diabetes Class**:
   * High Glucose: 1 occurrence
   * Low Glucose: 3 occurrences
   * Total: 4
   * P(High Glucose∣No Diabetes)=1 / 4=0.25
   * P(Low Glucose∣No Diabetes)=3 / 4=0.75

**B) Find the Most Probable Class for Test Data (Low BMI, High Glucose)**

To find the most probable class, use:

Most Probable Class=max{P(Class)×P(BMI Value∣Class)×P(Glucose Value∣Class)}

1. **For Diabetes**:
   * P(Diabetes)=0.33
   * P(Low BMI∣Diabetes)=0.5
   * P(High Glucose∣Diabetes)=1.0

**P(Diabetes∣Low BMI, High Glucose)=0.33×0.5×1.0=0.165**

1. **For No Diabetes**:
   * P(No Diabetes)=0.
   * P(Low BMI∣No Diabetes)=0.75
   * P(High Glucose∣No Diabetes)=0.25

**P(No Diabetes∣Low BMI, High Glucose)=0.67×0.75×0.25=0.126**

**Conclusion**

The probability for **Diabetes (0.165)** is higher than for No Diabetes (0.126), so **the most probable class for the test data with Low BMI and High Glucose is Diabetes.**