**What is geom\_jitter()?**

* geom\_jitter() is used to **add small random noise (jitter) to the data points** when plotting them.
* This is mainly done to **avoid overlapping points** on a plot, especially in scatterplots or on top of boxplots.
* Imagine you have multiple students with the same score — without jitter, all their points would be plotted **exactly at the same spot**, so you can’t see how many points there really are.
* Jitter “nudges” each point a little bit left-right (x-axis) and/or up-down (y-axis) so you can **see individual points clearly**.

**In our code**

geom\_jitter(width=0.25, height=0.0, color="black", alpha=0.7, size=2)

Let’s go **parameter by parameter**:

1. **width=0.25**
   * This controls how much the points **move horizontally (x-axis)**.
   * 0.25 means the points can randomly shift left or right by up to 0.25 units from their original x-position.
   * In your example, this spreads the points slightly so they don’t all lie on the exact center of each box in the boxplot.
2. **height=0.0**
   * This controls how much the points **move vertically (y-axis)**.
   * 0.0 means no vertical jitter.
   * So the points stay exactly at their score value on the y-axis.
3. **color="black"**
   * The outline color of each point. Here, all points are black.
4. **alpha=0.7**
   * Transparency of the points.
   * 0 is fully transparent (invisible), 1 is fully opaque.
   * 0.7 makes points slightly see-through, which helps when points still overlap a bit.
5. **size=2**
   * The size of the points.
   * Larger numbers make the points bigger.

**Summary**

* Without jitter → all overlapping points look like one point.
* With geom\_jitter(width=0.25, height=0.0) → points spread slightly horizontally, making them visible.

So on your boxplot, you **see the actual scores of each student** on top of the boxplot, instead of all points stacked on top of each other.