

## 1. Grouped Bar with Proportions

Create a grouped bar chart of diamond cut vs. clarity. Instead of raw counts, display proportions within each cut. Add percentage labels on each bar.

## 2. Boxplot + Jitter Overlay

Plot the distribution of diamond prices across different cuts using a boxplot. Overlay jittered points (with transparency) for better visualization. Format the y-axis with currency labels.

## 3. Density Plot with Fill

Make a density plot of diamond prices (log scale) with fill based on `cut`. Use semi-transparent fills, add a custom color palette, and facet by `clarity`.

## 4. Carat vs. Price Smoothing

Plot carat vs. price with scatter points. Add a log10 transformation on both axes. Fit both a linear regression line and a loess smooth curve for comparison.

## 5. Heatmap of Cut & Color

Create a heatmap showing the average diamond price by `cut` and `color`. Use `geom\_tile()` with a gradient color scale and annotate each tile with the mean price.

## 6. Ridgeline Plot

Using the `ggridges` package, create a ridgeline plot of the distribution of diamond carats for different cuts. Add custom axis labels and a title.

## 7. Facet Grid with Scales

Make a scatterplot of carat vs. price, faceted by both `cut` (rows) and `clarity` (columns). Allow each panel to have its own y-axis scale.

## 8. Polar Coordinates

Create a bar chart of clarity proportions and then transform it into a circular bar chart using `coord\_polar("y")`. Add percentage labels inside the bars.

## 9. Custom Annotation

Plot price vs. carat with points. Highlight diamonds with carat > 3 and price > 15,000 in a different color, and add a text annotation pointing to this cluster.

## 10. Dual Encoding

Create a scatterplot of carat vs. price, encoding color by diamond color (fill scale) and size by depth. Add a smooth line to see the general trend.

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