**Memo: PDF Margin Annotator Updates**

**Executive Summary**

This script automates page-layout quality checks. It takes measurement data from an Excel file and uses it to insert color-coded sticky-note comments into the matching PDF. Each color in Excel signals a different kind of issue: red and yellow are already supported, and now purple and orange need to be added. The output is a duplicate of the original PDF with annotations over the affected spots, making layout problems visible directly inside the PDF instead of having to interpret them only from the Excel sheet.

**Current Script Behavior**

* The script pairs **PDFs and Excels** with the same base filename.
* It reads **measurement data** from the Excel file and compares them against baseline reference values from margin\_baseline\_reference.txt.
* When it finds cells colored **red** or **yellow** in the Excel, it writes sticky-note annotations into the corresponding PDF at the correct position.
  + **Red** = highlights a serious issue.
  + **Yellow** = highlights a caution or warning.
* Notes are positioned based on whether the measurement is from the **top or bottom** of the page and nudged left/right depending on whether the column relates to Column 1 or Column 2.
* The output is a new annotated PDF named with \_annotated.pdf.

**New Requirements**

The Excel files now include two more colors that should also trigger annotations in the PDF:

1. **Purple**
   * Comment text:  
     *“The two columns on this page do not align and they are not at their typical location.”*
   * Placement:
     + Horizontal axis: same as existing behavior (over Column 1, Column 2, or centered depending on the measurement).
     + Vertical axis: the distance (in inches) should match the cell value, measured from the **top** if the metric is top-based, or from the **bottom** if it is bottom-based.
   * Annotation color: purple.
2. **Orange**
   * Comment text:  
     *“this column is not algined with the other column. The other column is in the correct position”*
   * Placement:
     + Must appear over the column that is orange (Column 1 or Column 2).
     + Vertical placement follows the same top/bottom rule as above.
   * Annotation color: orange.

With this update, the script should handle **four colors in total: red, yellow, purple, and orange**, each with its specific meaning and placement rules.

## Comparison Check (All Colors)

* After processing, the script must **count how many annotations of each color exist in the Excel** and compare against the number of annotations actually written into the PDF.
* If the counts **don’t match** for a color, a sticky-note comment should be added to the **top of the first page** stating how many annotations are missing for that color.
  + Example: “3 RED annotations expected, 2 written. 1 missing.”
* If all annotations are present, then only a single note should be added at the top of the first page confirming that **all comments were successfully written into the PDF**.