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PDF Header and Footer Generation Guidelines (Antigravity Standard)

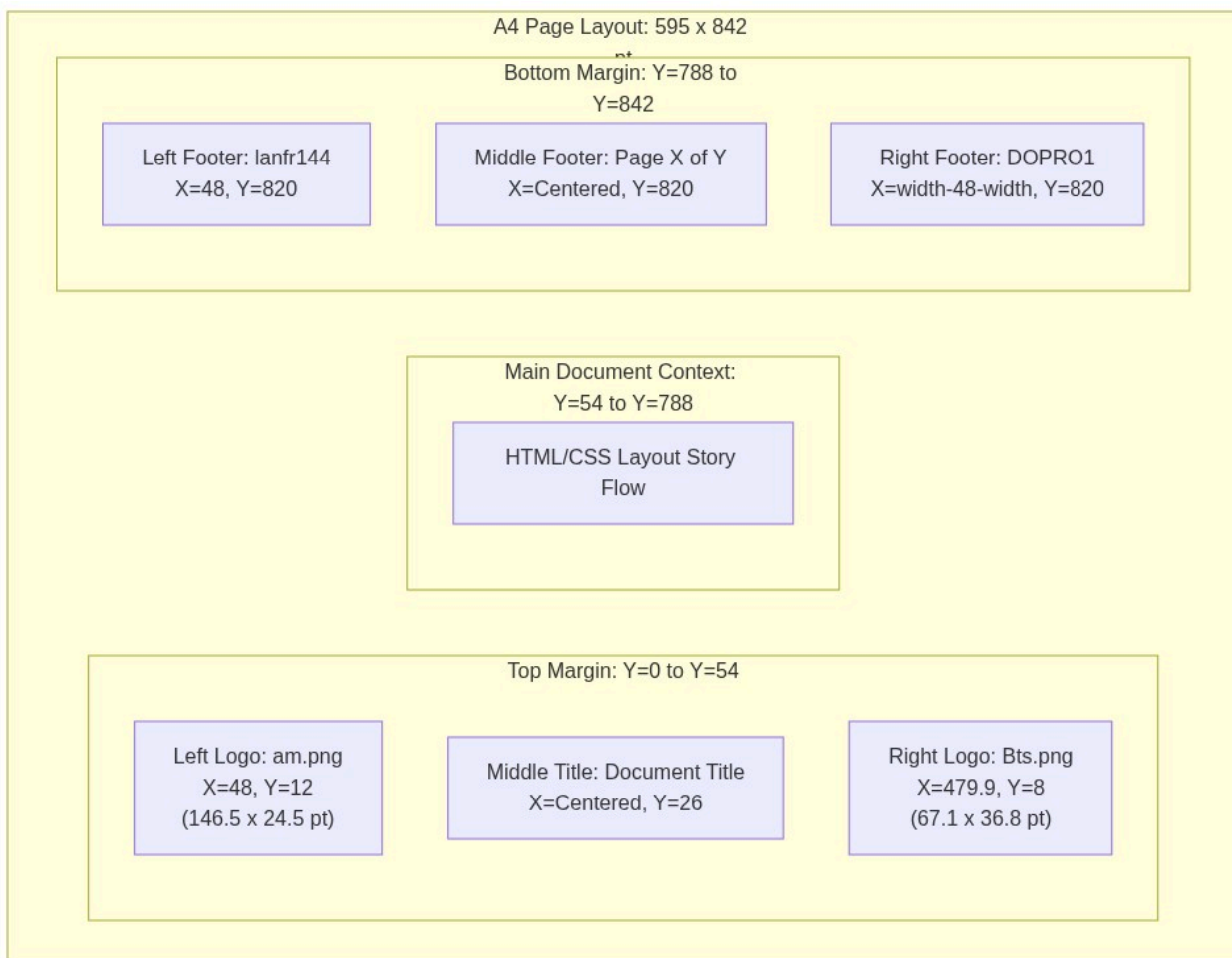
This document provides guidelines on how to programmatically inject institutional headers and footers into compiled PDF documents using Python and PyMuPDF (*fitz*).

1. Concept

Instead of relying on fragile HTML/CSS page rendering contexts that vary across layout engines, the Antigravity approach compiles standard Markdown to a clean, margin-compliant intermediate PDF. We then perform a post-processing pass using PyMuPDF to draw vector logos, document title headers, and footer blocks on every page at absolute coordinates.

2. Layout Structure

The layout bounds on a standard A4 page (595 x 842 points) are mapped as follows:



3. High-Quality Scaled Drawing

To ensure maximum visual fidelity when zoomed, follow these steps:

- **Load PNGs as Pixmaps:** Read the image size using PyMuPDF `fitz.Pixmap`.
- **Compute 10% Bounds:** Scale the pixel width and height to 10% for layout dimensions in points.
- **Draw Bounds:** Insert the image using `page.insert_image(rect, filename)`. The full resolution is embedded in the PDF, keeping quality high when zoomed.
- **Optimized Saving:** Always save the PDF with deflate compression, garbage collection, and linearization:

```
doc.save(pdf_file, clean=True, garbage=3, deflate=True)
```