REPORT

AI Internship Assignment Report
Title: Animated Math Equation Videos Using Python
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Objective

The objective of this assignment was to illustrate the capability to produce short, informative animations based on frame-by-frame reasoning for simple arithmetic problems including addition, subtraction, and multiplication. The animations emulate an actual equation-solving situation in real time, complete with optional AI-created voiceovers.

Tools & Libraries Used

- Python – Core programming language used.

- Pillow (PIL) – For image/frame generation.

- MoviePy – For creating videos from frames.

- pyttsx3 / gTTS (optional) – For text-to-speech voiceover generation.

- Google Drive – To store and share the final videos.

- Google Colab – For coding and testing.

Frame Design & Logic

Each equation animation was divided into sequential frames that are pieces of the equation leading up to the end result. As an example:

Equation: $1 + 2 = 3$

Frames:

"1"

"1 +"

"1 + 2"

"1 + 2 ="

"1 + 2 = 3"

Each frame was created as a picture by PIL, and then put together as a quick video through MoviePy, so there was a smooth flow from one stage of the equation to another.

Example Equations

1 + 2 = 3

4 × 3 = 12

7 – 5 = 2

9 × 8 = 72

Each of these equations was animated using 4–6 frames and saved as .mp4 videos of 2–4 seconds in duration.

Challenges Encountered

- **Font Compatibility**: Custom fonts were hard to load on different systems. Used default system font to match.

- **Frame Sync**: Required precise timing to ensure each segment of the equation was displayed clearly.

- **MoviePy Warning**: SyntaxWarning was encountered and fixed by exchanging is with ==.

- **Voiceover Sync**: Syncing sound with vision was slightly hard, but achieved.

Future Enhancements

- Insert smoother transitions (such as fade-in/out).

- Employ animations (such as moving symbols or sliding numbers).

- Insert background audio or sound effects.

- Employ AI to automatically render equations and sound.

Video Link: *Videos_link_mp4*