https://github.com/Uzma-Jawed

1D and 2D Kinematic Motion Simulator Project

PYTHON +STREAMLIT

PANDAS & NUMPY + MATPLOTLIB

About Project

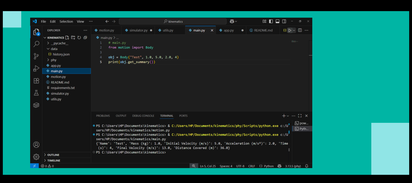
This is a Physics Motion Simulator, a Python-based web app that lets users explore and visualize 1D and 2D motion using kinematic equations.

The goal was to turn dry formulas into interactive simulations that show how objects move over time, with animations, charts, and user controls.

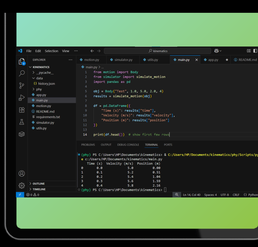
Initial Setup

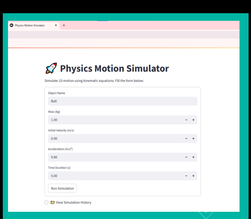
"Building the core logic first..."

Test 1 (motion.py)



Test 2 (simulator.py)



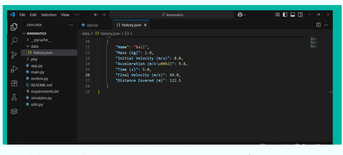


Streamlit App Screenshot!

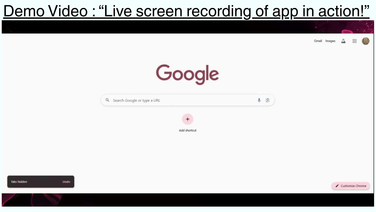
(initial version)

"Tested the UI with basic inputs"

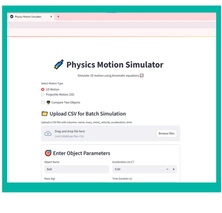
data/ history.json

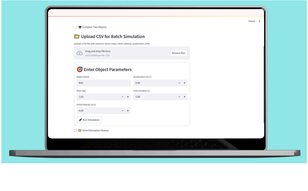


Demo Video : "Live screen recording of app in action!"



Upgraded version (animation, compare, CSV upload)





What I Learned

GITHUB REPO

Uzma

- building interactive data apps
- Science+Programming
- Structured project
- Git & GitHub
- debug, test, and upgrade features
- Python + Streamlit
- kinematic equations using OOP
- real-time graphs and 1D animation
- CSV upload, comparison mode
- history tracking
- Matplotlib and Pandas for simulation + visualization