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<div align="center">Enrichment Activity: Stern-Gerlach Experiment Applet</div>

For the enrichment activity, I chose to recreate a probabilistic simulation of Stern-Gerlach's initial experiment which revealed the spin property of electrons. I wrote my applet in Python, in an attached script, which can be run with "python main.py" and which uses the built-in Python tkinter, random, and time modules. I have also attached an image showing the applet in action.

To use the applet, simply click the "Heat!" button which represents heating the block of silver and causing electrons to be boiled off and projected into the environment. Upon clicking the button, a particle is generated with a 50-50% chance of having a positive spin 1/2 or negative spin -1/2. The particle will travel to the right through the slit, and upon reaching the two magnetic blocks will start traveling either upwards or downwards depending on if the particle has a positive or negative spin. The path taken also incorporates a Gaussian distribution bias factor to introduce a little randomness into the trajectory.

I chose this experiment as it was one of the preliminary and revolutionary experiments that introduced the concept of spin to modern physics. The block of silver was ingeniously chosen by the experimenters for its unpaired electrons and charge neutral atoms so that the Lorentz force wouldn't dominate in the magnetic field. Passing through the magnetic field gradient resulted in two distinct peaks due to the two possible values of spin, which illuminated to Stern and Gerlach of this property of electrons.