Homework

The program `relocation.py` allows you to see how address translations are performed in a system with base and bounds registers. See the README for details.

Questions

- Run with seeds 1, 2, and 3, and compute whether each virtual address generated by the process is in or out of bounds. If in bounds, compute the translation.
- Run with these flags: `-s 0 -n 10`. What value do you have set `-l` (the bounds register) to in order to ensure that all the generated virtual addresses are within bounds?
- Run with these flags: `-s 1 -n 10 -l 100`. What is the maximum value that bounds can be set to, such that the address space still fits into physical memory in its entirety?
- Run some of the same problems above, but with larger address spaces (`-a`) and physical memories (`-p`).
- What fraction of randomly-generated virtual addresses are valid, as a function of the value of the bounds register? Make a graph from running with different random seeds, with limit values ranging from 0 up to the maximum size of the address space.