I decided to use a dictionary to represent the PCB structure without using a linked list, or as C++ calls them, a map. While this did prove to be easy to do upon writing, the ease came with a small problem, the efficiency. My test case added 1,000 items to each list type and measure the time it would take to do so depending on the loop. With one loop, the linked list method only took 29 microseconds at 100 elements, and 330 at 1,000 elements, a roughly 10 times increase. Seemingly making the linked list method linear.

The dictionary method, with one loop at 100 elements took a staggering 20,961 microseconds to complete, with 1,000 taking 499,846 microseconds. A 20 times increase in time for a 10 times increase in data to process.

Running the tests again for 10,000 elements, linked lists using pointers completed in 1,143 microseconds, while dictionaries took almost a whole minute.