Christopher Lebovitz

CSC 306: Operating Systems-G001

Programming Assignment 2 – Project 2

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For this project I choose to go with python since I handles creating and handling the parameters given to the threads behind the scenes. For sorting I decide to go with the built in .sort() function in python which uses the TimSort algorithm with is a hybrid algorithm that uses merger sort and insertion sort. This program has two function. The first, sort, takes in two lists one containing half of the unsorted list and the second is for saving the state of the sorted list. The second function is the merge function that takes both halves of the sorted lists and merges them into one list.

Python has a build in module call threading which constructs higher-level threading interface on top of the lower level _thread. The _thread module provides low-level primitives for working with multiple threads. I created three separate threads to accomplish the merge sort, the first thread call I give it the sort function which contains the numbers list split in half form the first index to the midpoint and an empty list to store the sorted list. The second does the same but from the midpoint to the end of the list. The last thread call uses the merge function which takes in the left, right, and whole lists and combines left and right and saves it to whole. To have each thread run I use the .start() function and then use the .join() function to make sure that the thread has finished running before running the next thread.