HW1

1. Psuedocode here
2. Psuedocode here
   1. I modified the code to collect running times by using numpy’s randint function to generate arrays of given sizes with numbers from 0 to 10000. I then timed the sorting functions with the time.time function. This section of code was placed inside of a for loop to collect a specific number of trial data and print out the average sorting time for each list size.
3. Analysis
   1. Average running time data from 3 trials (seconds). This data should be an average case for the algorithms since multiple trials were conducted.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n = | 500 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | 5000 |
| Insert Sort | 0.0793 | 0.3230 | 0.4844 | 0.9584 | 1.0800 | 1.6381 | 2.5636 | 2.8877 | 3.5715 | 4.6643 |
| Merge Sort | 0.0058 | 0.0125 | 0.0197 | 0.0272 | 0.0348 | 0.0429 | 0.0679 | 0.0943 | 0.1056 | 0.0625 |