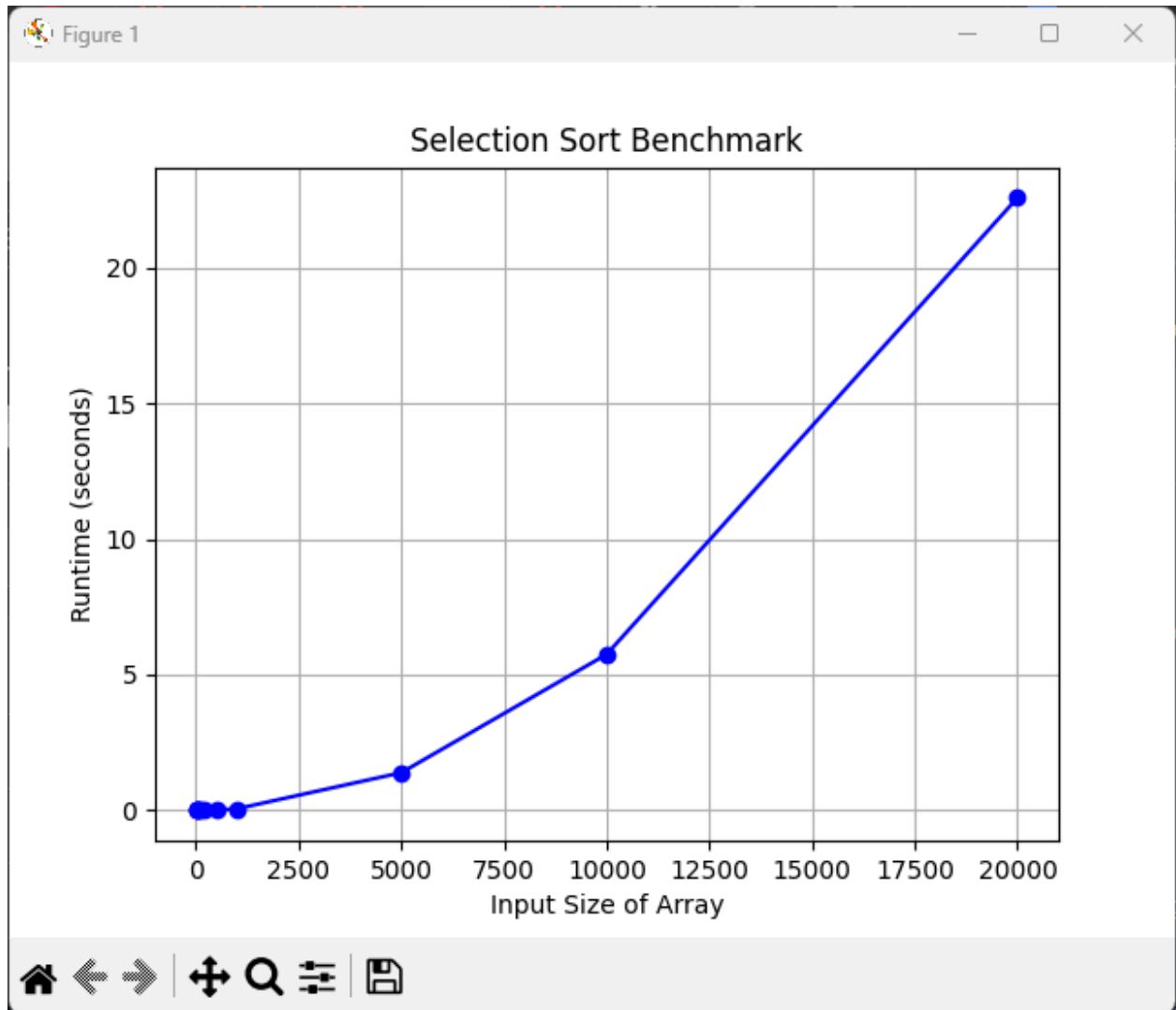


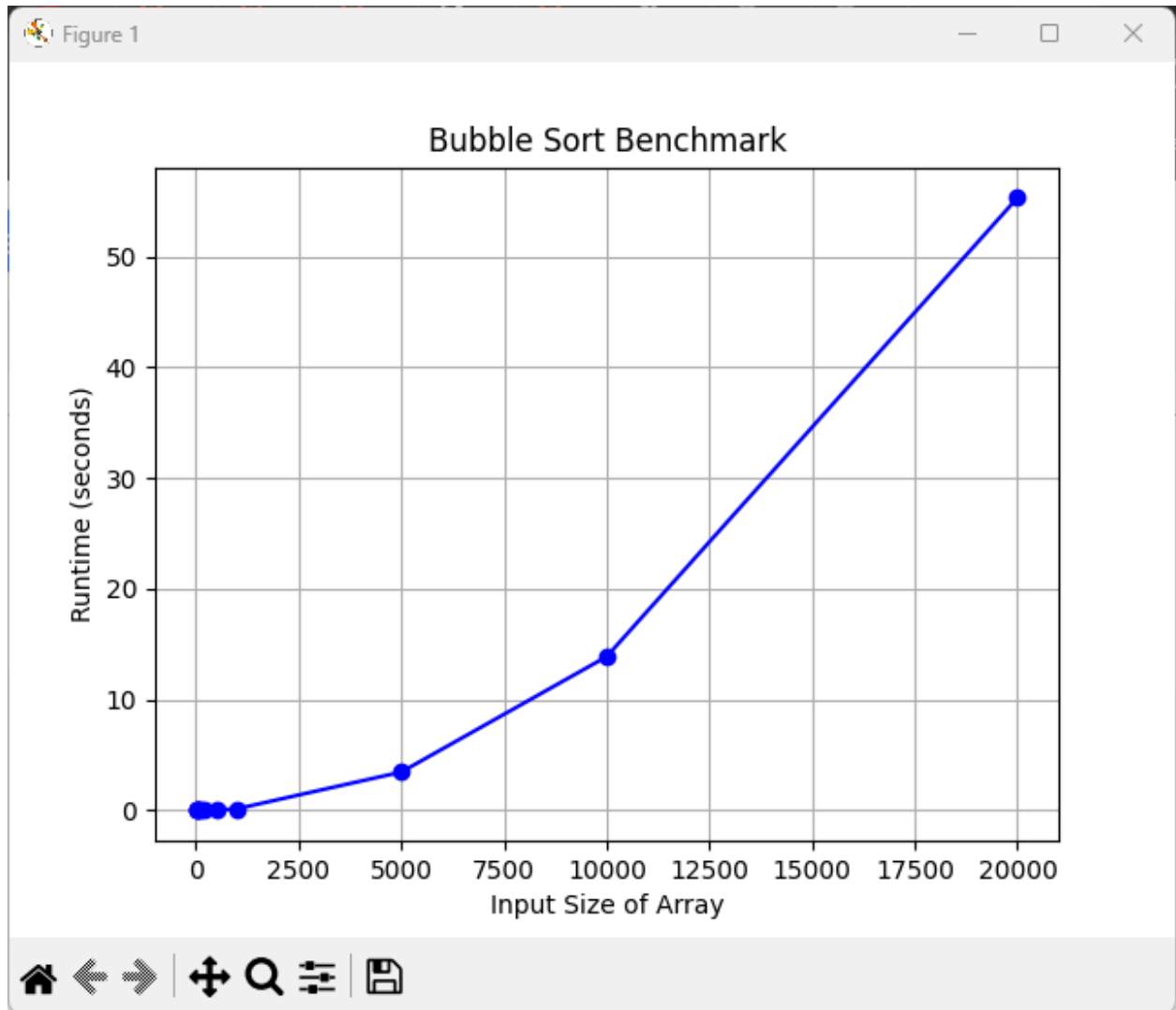
Benchmark Testing:

```
Input Size: 5, Execution Time: 0.000004 seconds
Input Size: 10, Execution Time: 0.000010 seconds
Input Size: 20, Execution Time: 0.000024 seconds
Input Size: 50, Execution Time: 0.000139 seconds
Input Size: 100, Execution Time: 0.000425 seconds
Input Size: 200, Execution Time: 0.001742 seconds
Input Size: 500, Execution Time: 0.012663 seconds
Input Size: 1000, Execution Time: 0.054864 seconds
Input Size: 5000, Execution Time: 1.402593 seconds
Input Size: 10000, Execution Time: 5.703739 seconds
Input Size: 20000, Execution Time: 22.829757 seconds
```



Benchmark Testing:

```
Input Size: 5, Execution Time: 0.000006 seconds
Input Size: 10, Execution Time: 0.000012 seconds
Input Size: 20, Execution Time: 0.000029 seconds
Input Size: 50, Execution Time: 0.000131 seconds
Input Size: 100, Execution Time: 0.000481 seconds
Input Size: 200, Execution Time: 0.001740 seconds
Input Size: 500, Execution Time: 0.014463 seconds
Input Size: 1000, Execution Time: 0.058076 seconds
Input Size: 5000, Execution Time: 1.388071 seconds
Input Size: 10000, Execution Time: 5.751118 seconds
Input Size: 20000, Execution Time: 22.578276 seconds
```



Benchmark Testing:

```
Input Size: 5, Execution Time: 0.000007 seconds
Input Size: 10, Execution Time: 0.000019 seconds
Input Size: 20, Execution Time: 0.000046 seconds
Input Size: 50, Execution Time: 0.000258 seconds
Input Size: 100, Execution Time: 0.001023 seconds
Input Size: 200, Execution Time: 0.003952 seconds
Input Size: 500, Execution Time: 0.033220 seconds
Input Size: 1000, Execution Time: 0.139268 seconds
Input Size: 5000, Execution Time: 3.455622 seconds
Input Size: 10000, Execution Time: 13.874747 seconds
Input Size: 20000, Execution Time: 55.284514 seconds
```