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Quiz 1

1. When perform with an input of 1, the program demo_fast.cpp was much faster by 24 milliseconds.

demo_slow.cpp:

```
root@DESKTOP-GD5IUB3:/mnt/c/Users/alvar/CSE30/searchDemoWindowsUbuntuShell# g++ -std=c++11 demo_slow.cpp -o slow
root@DESKTOP-GD5IUB3:/mnt/c/Users/alvar/CSE30/searchDemoWindowsUbuntuShell# ./slow
Generated 10000000 random numbers in 505 ms

Enter number of searches to perform (-1 to stop): 1
0 searches were successful
Took 24 ms.

Enter number of searches to perform (-1 to stop): -1
```

demo_fast.cpp:

```
root@DESKTOP-GD5IUB3:/mnt/c/Users/alvar/CSE30/searchDemoWindowsUbuntuShell# g++ -std=c++11 demo_fast.cpp -L. -lcool -o fast
root@DESKTOP-GD5IUB3:/mnt/c/Users/alvar/CSE30/searchDemoWindowsUbuntuShell# ./fast
Generated 10000000 random numbers in 1799 ms

Enter number of searches to perform (-1 to stop): 1
0 searches were successful
Took 0 ms.

Enter number of searches to perform (-1 to stop): -1
```

2. The program demo_fast.cpp took longer to generate the random numbers by 1799 milliseconds. This is because the program demo_fast.cpp is focusing most of its processing power on performing searches.

3. When the user inputs the value 1000, the difference in speed between the two programs is about 24,626 milliseconds. With `demo_fast.cpp` having an average speed of 1 millisecond and `demo_slow.cpp` having an average speed of 24,627 milliseconds.
4. The maximum input value for the program `demo_slow.cpp` is 41 with a search time of about 989 milliseconds. The maximum input value for the program `demo_fast.cpp` is 12,000,000 with a search time of about 990 milliseconds.