The problem

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using g++ to compile and link my class files is giving me the `undefined reference` complaint where driver.cpp calls `mergesortImproved::beginSorting(std::vector<int> &data)`. Apparently it can't find the definition for my function in mergesortImproved.cpp .

$ g++ -o msI\_out -std=c++17 \*.cpp

/tmp/ccZ0tzev.o: In function `generateTimeData(quicksort&, mergesort&, mergesortImproved&, int const&, long double&, std::vector<int, std::allocator<int> >&)':

driver.cpp:(.text+0xaac): undefined reference to `void mergesortImproved::beginSorting<int>(std::vector<int, std::allocator<int> >&)'

collect2: error: ld returned 1 exit status

Side note, msI is how I've been abbreviating mergesortImproved. This is the required file name from the instructor, but seeing as it's a bit cumbersome I've taken to calling it msI.

I say this just in case msI pops up somewhere and I forget to correct the name back to mergesortImproved in this post.

The specific details of this situation

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All files are in the same folder, and I've been sure to include all files in my attempts to compile and link.

I've also tried to compile on both a Windows 10 machine and on a Linux machine.

I've read many of the other similar questions, and it seems that 9 out of 10 times this problem comes from the programmer not compiling all of the files for the program like the should. So...

Here are the different g++ calls I've tried:

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Note on the console output lines shown below:

All error responses were originally very long single lines of output. I've taken the liberty breaking that output into multiple lines for the sake of easier readability.

ie., no having to search for where the `undefined reference` is, along with other visual cues in terms of repeating format.

\*\*Linux attempts\*\*

- Linux-1:

$ g++ -o msI\_out -std=c++17 \*.cpp

In function `generateTimeData(quicksort&, mergesort&, mergesortImproved&, int const&, long double&, std::vector<int, std::allocator<int> >&)':

driver.cpp:(.text+0xaac): undefined reference to `void mergesortImproved::beginSorting<int>(std::vector<int, std::allocator<int> >&)'

collect2: error: ld returned 1 exit status

\*(Same error as I showed in my problem statement above)\*

- Linux-2:

$ g++ -o msI\_out -std=c++17 driver.cpp quicksort.cpp mergesortImproved.cpp mergesort.cpp WorkDir.cpp

/tmp/ccQzfFiq.o: In function `generateTimeData(quicksort&, mergesort&, mergesortImproved&, int const&, long double&, std::vector<int, std::allocator<int> >&)':

driver.cpp:(.text+0xaac): undefined reference to `void mergesortImproved::beginSorting<int>(std::vector<int, std::allocator<int> >&)'

collect2: error: ld returned 1 exit status

\*(Same error as I showed in my problem statement above)\*

- Linux-3:

$ g++ -c -std=c++17 driver.cpp quicksort.cpp mergesortImproved.cpp mergesort.cpp WorkDir.cpp

$ g++ -o -std=c++17 driver.o quicksort.o mergesortImproved.o mergesort.o WorkDir.o

driver.o: In function `generateTimeData(quicksort&, mergesort&, mergesortImproved&, int const&, long double&, std::vector<int, std::allocator<int> >&)':

driver.cpp:(.text+0xaac): undefined reference to `void mergesortImproved::beginSorting<int>(std::vector<int, std::allocator<int> >&)'

collect2: error: ld returned 1 exit status

\*\*Windows 10 attempts\*\*

\* Windows-1:

>g++ -o msI\_out -std=c++17 \*.cpp

\cc1alJ9m.o:driver.cpp:(.text+0x94f): undefined reference to `void mergesortImproved::beginSorting<int>(std::vector<int, std::allocator<int> >&)'

collect2.exe: error: ld returned 1 exit status

\* Windows-2:

>g++ -o msI\_out -std=c++17 driver.cpp mergesort.cpp quicksort.cpp mergesortImproved.cpp WorkDir.cpp

\ccGBGXAX.o:driver.cpp:(.text+0x94f): undefined reference to `void mergesortImproved::beginSorting<int>(std::vector<int, std::allocator<int> >&)'

collect2.exe: error: ld returned 1 exit status

\* Windows-3:

>g++ -c -std=c++17 driver.cpp quicksort.cpp mergesortImproved.cpp mergesort.cpp WorkDir.cpp

>g++ -o -std=c++17 driver.o quicksort.o mergesortImproved.o mergesort.o WorkDir.o

driver.o:driver.cpp:(.text+0x94f): undefined reference to `void mergesortImproved::beginSorting<int>(std::vector<int, std::allocator<int> >&)'

collect2.exe: error: ld returned 1 exit status