Assessment Brief – Debugging Task

Notes on Assessment Task:

This brief has been designed around the specific, cumulative evidence you must prepare for and present by your assessment milestone to demonstrate you have achieved competency in the requisite knowledge and skills for this subject. Submissions conforming to this brief will provide the specific evidence listed in the table titled *Assessment and Competency Requirements* within the Subject and Assessment guide for this subject.

You may present additional, or other evidence of competency, but this should be as a result of individual negotiation with your teacher.

For specific competency requirements and evidence needed for assessment submission, always consult the [Subject and Assessment Guide](https://aie.instructure.com/courses/9/pages/subject-guides) for this subject.

Debugging Task:

You have received the following email from your supervisor:

Hi,

I have a problem with a bit of code one of the other interns has made.

The designers wanted a simple program to let them double-check the NPC data stored in the game’s data file.

In the *AIEYear1Samples* git repo you’ll find the project *IntroCPP\_BinaryFileIO\_NPCData*.

There are a few problems I have with this program:

* + - The designers tell me when they run this program on their real data files it takes way too long to load.   
      It seems the program reads the whole data file and stores the whole thing in memory – this is bad!  
      I need it to only load the current record. You’ll need to create a random-access algorithm to jump directly to the required record. DON’T sequentially read the file!
    - For some reason the NPC’s name isn’t being read in correctly. Can you fix this?
    - I get a crash when pressing the right arrow to go the next record while I’m on the last one (there are only 5 records in the sample file).
    - And finally, the most annoying thing is the whole program has no comments! Please add comments so the next intern knows what they’re doing.

When you’re done with your fixes I want you to really *TEST* your work. Give me a brief report of how you tested your work – including what tests you ran and their results (I’m expecting at least 3 or 4 tests).

I also need to make sure you know what you’re doing in Visual Studio, so give me a few screenshots of you using the debugger. Show me:

* + - Some breakpoints you’ve placed in the code,
    - Some auto and custom watch variables displayed while debugging, and
    - The callstack while your debugging the program

Oh, and tell me the keyboard shortcuts for stepping through code in the debugger.

Do a good job and I’ll recommend you to the boss!

Cheers,  
Sam

Fix the problems described in the email above. Your final program must resolve all bugs, and use a random-access algorithm to read and load a single record at a time from the data file.

Submission:

You will need to submit the following:

* A Release build of your application that can execute as a stand-along program
* Your complete Visual Studio project
  + Be sure to remove any temporary build folders (i.e., the Debug and Release folders). Only project files, source code files, and any resource files used should be included in your submission.

Package all files in a single compressed archive file (.zip, .7z, or .rar)