Faculty of Engineering and Applied Science

SOFE 3200U Systems Programming

Lab Report 5

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Questions

1. **When working with Windows, what are the main structural differences you see that separate Windows and Linux?**

   - Windows has environment variables and a PATH where certain executable files and their .dll files are specified. Linux has a bin folder where all the programs are held – thus when you want to run, install, or update a program, they are all in one place.

   - Windows has batch files which is about the equivalent to Linux shell scripts – they contain lines with commands that get executed in sequence.

   - As Linux is based on the C programming language and assembly, it includes a C compiler (gcc) in its distributions (Ubuntu, Debian, etc.). Windows must use a gcc port.

2. **What are other types of sorts that exist? When compared to other methods, why is Bubble Sort not the most optimal?**

   Some sorting algorithm types: Quick, heap, insertion, merge, selection, etc.

   Bubble sort is not the most optimal as its worst case time complexity is $O(n^2)$. The best sorting algorithm has a time complexity of about O(n log n) as its worst case.