Colin Morris-Moncada

Professor Sanders

Operating Systems

January 30, 2021

HW #1

1. System Properties and OS Information
   1. What operating system(s) are you running? CPU chip information, and physical memory information.
      1. Operating System: Microsoft Windows 10 Pro
         1. Version: 10.0.19042 ***AND*** 20H2
         2. OS Build: 19042.746
         3. Installed on‎ 11/‎29/‎2020
         4. Experience: Windows Feature Experience Pack 120.2212.551.0
         5. Bit: 64-bit operating system, x64-based processor
      2. Ubuntu 20.04 LTS
   2. CPU Chip, CPU cores in chip, what levels of cache does it have and how much of each?
      1. CPU Chip: Intel(R) Core (TM) i7-6820HQ CPU @ 2.70GHz 2.71 GHz
      2. CPU Cores: 4 Core(s), 8 Logical Processor(s)
      3. GPU: Intel HD Graphics 530
      4. RAM: 24.0 GB (23.8 GB usable)
      5. Cache: 8MB
         1. L1 Data Cache
            1. 4 x 32 KBytes, 8-way set associative, 64-byte line size
         2. L1 Instructions Cache
            1. 4 x 32 KBytes, 8-way set associative, 64-byte line size
         3. L2 Cache
            1. 4 x 256 KBytes, 4-way set associative, 64-byte line size
         4. L3 Cache
            1. 8192 KBytes, 16-way set associative, 64-byte line size
2. What do you, as a user, perceive as “quality” of an operating system – what makes one good or bad? Describe a time that you had an impression of the quality of the OS that you were using –either good or bad – and why? Is there any way to measure the effect that you were observing?
   1. X
3. Consider the memory hierarchy shown in lecture 1 and discussed in class. Build a table showing, for each level of the five levels of the hierarchy, the following characteristics: - a couple of specific examples (so, for the lowest level of off-line storage, one example is "the cloud")

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Level 0 | Level 1 | Level 2 | Level 3 | Level 4 |
| Specific examples at this level |  |  |  |  |  |
| Typical amount available in modern personal computer |  |  |  |  |  |
| Typical cost per byte |  |  |  |  |  |
| Typical speed (amount of time required to read a value and, if different, to write a value) |  |  |  |  |  |