

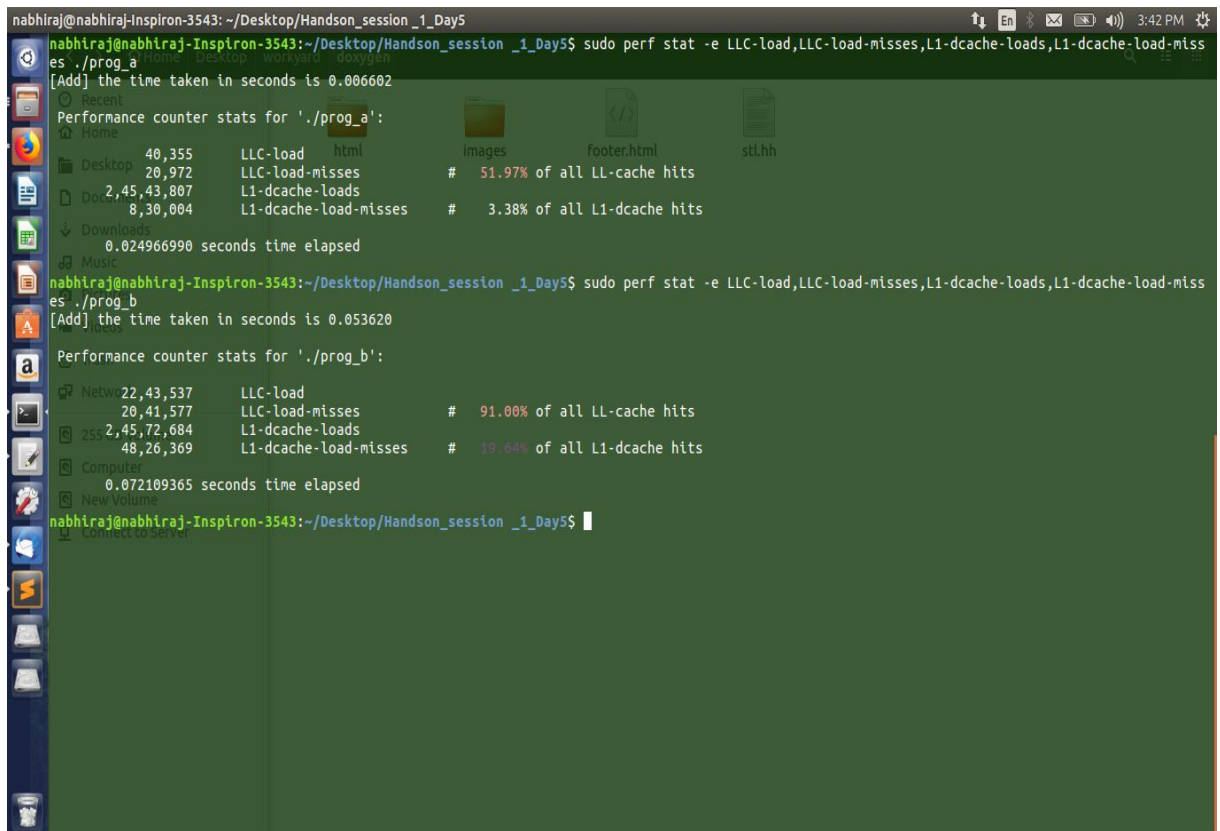
BOOTCAMP-2018@DAY-5: Writing Cache Efficient Code

(Courtesy: [CAR3S@CSE](#))

Practice Assignments [easy peasy lemon peasy :)]:

- In practice-exercises folder there are toy programs **prog_a**, **prog_b**, **AOS**, and **SOA**. **Progs a and b**, both do **matrix addition** but one does it by row wise and other does it by column wise. Difference in their cache performance can be seen by the tools mentioned above.
- You can use **perf** and **cachegrind** to see the effects of changing the loop order or the order of the variable accesses.

Example:



```
nabhiraj@nabhiraj-Inspiron-3543: ~/Desktop/Handson_session_1_Day5
nabhiraj@nabhiraj-Inspiron-3543:~/Desktop/Handson_session_1_Day5$ sudo perf stat -e LLC-load,LLC-load-misses,L1-dcache-loads,L1-dcache-load-misses ./prog_a
[Add] the time taken in seconds is 0.006602
Performance counter stats for './prog_a':
   Desktop 40,355      LLC-load      html
            20,972      LLC-load-misses # 51.97% of all LL-cache hits
   Downloads 2,45,43,807    L1-dcache-loads
            8,30,004    L1-dcache-load-misses # 3.38% of all L1-dcache hits
0.024966990 seconds time elapsed

nabhiraj@nabhiraj-Inspiron-3543:~/Desktop/Handson_session_1_Day5$ sudo perf stat -e LLC-load,LLC-load-misses,L1-dcache-loads,L1-dcache-load-misses ./prog_b
[Add] the time taken in seconds is 0.053620
Performance counter stats for './prog_b':
   Netw 22,43,537      LLC-load
        20,41,577      LLC-load-misses # 91.00% of all LL-cache hits
   25: 2,45,72,684    L1-dcache-loads
        48,26,369    L1-dcache-load-misses # 19.64% of all L1-dcache hits
0.072109365 seconds time elapsed

nabhiraj@nabhiraj-Inspiron-3543:~/Desktop/Handson_session_1_Day5$
```