Computer Architecture Lab (CS 341)

Assignment 9: Cache Simulator Due Date: 17/11/20
(Lab Assignment 5)

For Assignments 7, 8 and 9, you are free to work individually or in a team. Ideally, if you work in a team, it would be the same team (or subteam) as in the course project. In any case, clearly spell out the team members involved in this assignment.

Refer to the recording of the demo in Thursday's lab session since this assignment is very similar to it. Also refer to the lecture slides (Modules 6.1 and 6.2) for cache basics such as hits/misses, block size, associativity, category-wise misses (Compulsory/Capacity/Conflict) misses, etc.

Use the same example, i.e., multiplication of two matrices of size n X n to study the effect of cache size (c), block size (b) and associativity (a) on miss rate.

Choose appropriate values of n, c, b and a. Report the values of miss rate obtained from the Cache Simulator including the proportion of misses in each category.

Repeat above for different values of the above parameters (4 – 7 different parameter sets) so that the number of misses and proportion of misses in each category are different.

Explain the differences in the miss rates and in the proportion of misses in each category as a function of the chosen parameter values.