Cache Assignment

A cache of size S with CL as the number of cache lines and block size B is to be built. S, CL, and B are in powers of 2. Write a program that allows loading into cache and searching cache using:

1. Direct mapping
2. Associative memory
3. n-way set associative memory where n is a power of 2.

Any programming language (of your choice) can be used.

Bonus task - (Applicable only for Section B)   Weightage - 12%

[NOTE- This task is completely OPTIONAL.]

Task - Build a 2 level cache. The size of the level 1 cache is S/2 and the size of level 2 cache is S. All the other parameters are to be decided accordingly. This will also be a standalone cache without the intervention of the main memory.