

Part (i)

```
L: 16
K: 1
N: 8
Size: 128
Offset: 4
Set selector bits length: 3.0
tag bits length: 9.0

0x0000 0000000000 000 0000 was a MISS
0x0004 0000000000 000 0100 was a HIT
0x000c 0000000000 000 1100 was a HIT
0x2200 001000100 000 0000 was a MISS
0x00d0 0000000001 101 0000 was a MISS
0x00e0 0000000001 110 0000 was a MISS
0x1130 000100010 011 0000 was a MISS
0x0028 0000000000 010 1000 was a MISS
0x113c 000100010 011 1100 was a HIT
0x2204 001000100 000 0100 was a HIT
0x0010 0000000000 001 0000 was a MISS
0x0020 0000000000 010 0000 was a HIT
0x0004 0000000000 000 0100 was a MISS
0x0040 0000000000 100 0000 was a MISS
0x2208 001000100 000 1000 was a MISS
0x0008 0000000000 000 1000 was a MISS
0x00a0 0000000001 010 0000 was a MISS
0x0004 0000000000 000 0100 was a HIT
0x1104 000100010 000 0100 was a MISS
0x0028 0000000000 010 1000 was a MISS
0x000c 0000000000 000 1100 was a MISS
0x0084 0000000001 000 0100 was a MISS
0x000c 0000000000 000 1100 was a MISS
0x3390 001100111 001 0000 was a MISS
0x00b0 0000000001 011 0000 was a MISS
0x1100 000100010 000 0000 was a MISS
0x0028 0000000000 010 1000 was a HIT
0x0064 0000000000 110 0100 was a MISS
0x0070 0000000000 111 0000 was a MISS
0x00d0 0000000001 101 0000 was a HIT
0x0008 0000000000 000 1000 was a MISS
0x3394 001100111 001 0100 was a HIT
HIT COUNT: 9
MISS COUNT: 23
```

woodse07@Seamus-Computer: ~/code/Computer_architecture/Assignment_5\$

Part (ii)

```
Stack Overflow
L: 16
K: 2
N: 4
Size: 128
Offset: 4
Set selector bits length: 2.0
tag bits length: 10.0

0x0000 000000000000 00 0000 was a MISS
0x0004 000000000000 00 0100 was a HIT
0x000c 000000000000 00 1100 was a HIT
0x2200 0010001000 00 0000 was a MISS
0x00d0 0000000011 01 0000 was a MISS
0x00e0 0000000011 10 0000 was a MISS
0x1130 0001000100 11 0000 was a MISS
0x0028 0000000000 10 1000 was a MISS
0x113c 0001000100 11 1100 was a HIT
0x2204 0010001000 00 0100 was a HIT
0x0010 0000000000 01 0000 was a MISS
0x0020 0000000000 10 0000 was a HIT
0x0004 0000000000 00 0100 was a HIT
0x0040 0000000001 00 0000 was a MISS
0x2208 0010001000 00 1000 was a MISS
0x0008 0000000000 00 1000 was a MISS
0x00a0 0000000010 10 0000 was a MISS
0x0004 0000000000 00 0100 was a HIT
0x1104 0001000100 00 0100 was a MISS
0x0028 0000000000 10 1000 was a HIT
0x000c 0000000000 00 1100 was a HIT
0x0084 0000000010 00 0100 was a MISS
0x000c 0000000000 00 1100 was a HIT
0x3390 0011001110 01 0000 was a MISS
0x00b0 0000000010 11 0000 was a MISS
0x1100 0001000100 00 0000 was a MISS
0x0028 0000000000 10 1000 was a HIT
0x0064 0000000001 10 0100 was a MISS
0x0070 0000000001 11 0000 was a MISS
0x00d0 0000000011 01 0000 was a MISS
0x0008 0000000000 00 1000 was a HIT
0x3394 0011001110 01 0100 was a HIT
HIT COUNT: 13
MISS COUNT: 19
woodse07@Seamus-Computer: ~/code/Computer_architecture/Assignment_5$
```

Or if you want to make commits while you're there, go ahead and make a commit.

```
git checkout -b old-state 0d1d7fc32
```

To go back to where you were, just check out the branch you were on before. Always when switching branches, you'll have to deal with the changes you have in the current branch. You can stash them away; you could stash, checkout, stash pop to take them back. Or you could just check out the branch you were on if you want a branch there.)

Hard delete unpublished commits

On the other hand, you want to really get rid of everything. One, if you haven't published any of these commits, you can just do a hard reset. This will destroy any local modifications. Do it if you have uncommitted work you want to keep. If not, just do a hard reset. `git reset --hard 0d1d7fc32`

Alternatively, if there's work to keep: `git reset --hard 0d1d7fc32` `git stash pop` This gives the modifications, then reapplies them. You might get merge conflicts, if you've modified files since the commit you reset to.

If you mess up, you've already thrown away your local changes. You can't get them back before by resetting again.

Undo published commits with new commit

On the other hand, if you've published the work, you probably don't want to rewrite history. In that case, you could indeed reverse the commit. This means: create a commit with the reverse patch to the previous commit.

```
# This will create three separate revert commits
git revert a867b4af 25eee4ca 0766c053
```

It also takes ranges. This will revert the last commit.

Part (iii)

```
L: 16
K: 4
N: 2
Size: 128
Offset: 4
Set selector bits length: 1.0
tag bits length: 11.0

0x0000 000000000000 0 0000 was a MISS
0x0004 000000000000 0 0100 was a HIT
0x000c 000000000000 0 1100 was a HIT
0x2200 00100010000 0 0000 was a MISS
0x00d0 00000000110 1 0000 was a MISS
0x00e0 00000000111 0 0000 was a MISS
0x1130 00010001001 1 0000 was a MISS
0x0028 00000000001 0 1000 was a MISS
0x113c 00010001001 1 1100 was a HIT
0x2204 00100010000 0 0100 was a HIT
0x0010 00000000000 1 0000 was a MISS
0x0020 00000000001 0 0000 was a HIT
0x0004 00000000000 0 0100 was a HIT
0x0040 00000000010 0 0000 was a MISS
0x2208 00100010000 0 1000 was a HIT
0x0008 00000000000 0 1000 was a HIT
0x00a0 00000000101 0 0000 was a MISS
0x0004 00000000000 0 0100 was a HIT
0x1104 00010001000 0 0100 was a MISS
0x0028 00000000001 0 1000 was a MISS
0x000c 00000000000 0 1100 was a HIT
0x0084 00000000100 0 0100 was a MISS
0x000c 00000000000 0 1100 was a HIT
0x3390 00110011100 1 0000 was a MISS
0x00b0 00000000101 1 0000 was a MISS
0x1100 00010001000 0 0000 was a HIT
0x0028 00000000001 0 1000 was a HIT
0x0064 00000000011 0 0100 was a MISS
0x0070 00000000011 1 0000 was a MISS
0x00d0 00000000110 1 0000 was a MISS
0x0008 00000000000 0 1000 was a HIT
0x3394 00110011100 1 0100 was a HIT
HIT COUNT: 15
MISS COUNT: 17
```

woodse07@Seamus-Computer: ~/code/Computer_architecture/Assignment_5\$

Part (iv)

```
L: 16
K: 8
N: 1
Size: 128
Offset: 4
Set selector bits length: 0.0
tag bits length: 12.0

0x0000 00000000000000 0 0000 was a MISS
0x0004 00000000000000 0 0100 was a HIT
0x000c 00000000000000 0 1100 was a HIT
0x2200 00100010000000 0 0000 was a MISS
0x00d0 00000000110100 0 0000 was a MISS
0x00e0 00000000111000 0 0000 was a MISS
0x1130 00010001001100 0 0000 was a MISS
0x0028 00000000000100 0 1000 was a MISS
0x113c 00010001001100 0 1100 was a HIT
0x2204 00100010000000 0 0100 was a HIT
0x0010 00000000000001 0 0000 was a MISS
0x0020 00000000000100 0 0000 was a HIT
0x0004 00000000000000 0 0100 was a HIT
0x0040 00000000001000 0 0000 was a MISS
0x2208 00100010000000 0 1000 was a HIT
0x0008 00000000000000 0 1000 was a HIT
0x00a0 00000000101000 0 0000 was a MISS
0x0004 00000000000000 0 0100 was a HIT
0x1104 00010001000000 0 0100 was a MISS
0x0028 00000000000100 0 1000 was a HIT
0x000c 00000000000000 0 1100 was a HIT
0x0084 00000000100000 0 0100 was a MISS
0x000c 00000000000000 0 1100 was a HIT
0x3390 00110011100100 0 0000 was a MISS
0x00b0 00000000101100 0 0000 was a MISS
0x1100 00010001000000 0 0000 was a HIT
0x0028 00000000000100 0 1000 was a HIT
0x0064 00000000001100 0 0100 was a MISS
0x0070 00000000001110 0 0000 was a MISS
0x00d0 00000000110100 0 0000 was a MISS
0x0008 00000000000000 0 1000 was a HIT
0x3394 00110011100100 0 0100 was a HIT
HIT COUNT: 16
MISS COUNT: 16
woodse07@Seamus-Computer: ~/code/Computer_architecture/Assignment_5$
```

Question 3 output:

```
Seamus-Computer(22-Nov-2018 13:29:07) *1000)
RELEASE break;
Linux 4.15.0-39-generic 64 bit exe
Intel64 family 6 model 78 stepping 3 Intel(R) Core(TM) i5-6267U CPU @ 2.90GHz NCPUS=4 RAM=8GB L2 cacheSz=256K
256K printf("%ux%u matrix multiplication using matB_transposed\n", N, N);
L1 D 32K L 64 K 8 N 8.264 op/s\n\n", cnt1, (double) cnt1*1000.0/(t99 - t0));
L1 I 32K L 64 K 8 N 64
L2 U 256K L 64 K 4 N 1024
L3 U 4096K L 64 K 16 N 4096 matD identical
133 //
50x50 matrix multiplication
cnt=225311 22528.85 op/s
136 for (UINT row = 0; row < N; row++) {
50x50 matrix multiplication using matB_transposed
cnt=268742 26871.51 op/s [row][col] != matD[row][col]) {
139 err = 1;
OK 1.19 time faster
```