**Test Plan:**

1. **Read, Write (Hit and Miss Test):**

* Read an address from the trace file. It will be a compulsory miss.
* Read from the same address again. Now it has to be a hit.
* Give a different address to write to a cache line. It should be a miss.
* Write to the same address. Now it should be a hit.

1. **Testing PLRU:**

* Read from 16 addresses such that all those point to the same index. All of them will be compulsory misses.
* Read from same 16 addresses, but now all of them will be hit.
* Now perform a read with an address such that it goes to the same index but with a different tag. Now it will be a miss.
* Now way 0 has to be evicted because it was least recently used with respect to PLRU.
* Now read from way 7 address.
* Now give a new address with same index but different tag.
* According to PLRU, way 8 should be evicted.
* Now read way 13 address.
* Give an address again with same index but different tag, Way 2 will evicted.

1. **Testing Mode 8 and 9:**

* Give a set of address with different operation codes.
* Give the command with operation code 9, see if the contents of caches are printed.
* To clear the cache, we give command with operation code 8.
* Now give command with operation code 9 again, nothing should be printed, because we cleared the cache.

1. **We have to also write a test case for the correct implementation of MESI protocol for all the caches.**
2. **We have to write a test case for the Snoop results, and if MESI protocol is observed after snooping.**