TEST PLAN

Read Request from L1 cache (n==0 or n==2).

1. Increase the Cache Read counter by 1.

2. If there is a HIT,

- Send L2 to L1 message as SENDLINE.
- Call UpdatePLRU function.
- No change in MESI bits.
- No bus operation needed.
- Increase Hit counter by 1.

3. If Miss,

1. check if there is a vacancy in the set.
    - Send BusRd operation.
    - Display the Snooped Results returned by other processors due to bus operation.
    - Change the MESI bits based on the snoop results returned by other processors.
    - Change the TAG address with the incoming TAG address.
    - Send L2 to L1 message as SENDLINE.
    - Call UpdatePLRU function.
    - Increase Miss counter by 1.
2. If Miss and no vacancy,
    - Send BusRd Operation.
    - Change the MESI bits according to snoop results returned by processors.
    - Evict a line using victim_cache function. Then after finding the way in the set then overwrite the TAG address with our incoming Request TAG address.
    - Send L2 to L1 message as SENDLINE.
    - Increase the Miss counter by 1.

Write Request from L1 cache (n==1).

1. Increase the write counter by 1.

2. If HIT

- Send the Bus Operation based on the MESI state.
- Display the Snooped Results returned by other processors due to bus operation.
- Call the UpdateLRU function.
- send L2 to L1 messages as SENDLINE.
- Change the MESI state to M.
- Increase the HIT counter by 1.

3. If Miss

- Send BusRdx Operation.
- Display the Snooped Results returned by other processors due to bus operation.
- Call the UpdatePLRU function.
- If collision miss call the victim_cache function and based on the way to be evicted evict the way and follow the remaining process as same.
- Send L2 to L1 message as SENDLINE.
- Change the MESI state to M.

- Increase the Miss counter by 1.

Snooped Read Request, Write Request and Read With Intent to Modify, Invalidate (n==3,4,5,6).

1. Change the MESI state according to the Bus Operation and return the Snoop Result (HIT, NO HIT, HITM) based on the current MESI state.

Clearing the contents in the cache and Reset all the states (n==8).

Print the contents and states of cache (n==9).