Q1 a:

```
[keshavmishra@Keshavs-MacBook-Air 12341140 % gcc-15 Q1_a.c -pthread
[keshavmishra@Keshavs-MacBook-Air 12341140 % ./a.out
--------Starting Part 1 (no mutex) -------
Initial value : 100
Thread 1 decremented. New value: 90
Thread 1 decremented. New value: 80
Thread 1 decremented. New value: 70
Thread 1 decremented. New value: 60
Thread 1 decremented. New value: 50
Final Value (Unsafe):    50
keshavmishra@Keshavs-MacBook-Air 12341140 %
```

Q1 b:

```
[keshavmishra@Keshavs-MacBook-Air 12341140 % gcc-15 Q1_b.c -pthread
[keshavmishra@Keshavs-MacBook-Air 12341140 % ./a.out
--------Starting Part 2 (Mutex) -------
Initial value : 100
Thread 1 decremented. New value: 90
Thread 1 decremented. New value: 80
Thread 1 decremented. New value: 70
Thread 1 decremented. New value: 60
Thread 1 decremented. New value: 50
Final Value (safe):    50
keshavmishra@Keshavs-MacBook-Air 12341140 %
```

Q2:

```
[keshavmishra@Keshavs-MacBook-Air 12341140 % gcc-15 Q2.c -pthread
[keshavmishra@Keshavs-MacBook-Air 12341140 % ./a.out
 Overall maximum(Expected : 201): 1000
 Overall minimum(Expected = 1000): 201
 keshavmishra@Keshavs-MacBook-Air 12341140 %
```

Q3:

```
[keshavmishra@Keshavs-MacBook-Air 12341140 % gcc-15 Q3.c -pthread
[keshavmishra@Keshavs-MacBook-Air 12341140 % ./a.out
 Reader 3 is reading...   Active Readers = 2 | Data Value = 0
 Reader 1 is reading...   Active Readers = 2 | Data Value = 0
 Reader 4 is reading...   Active Readers = 3 | Data Value = 0
 Reader 2 is reading...   Active Readers = 4 | Data Value = 0
 Reader 5 is reading...   Active Readers = 5 | Data Value = 0
 Writer 1 is writing | Data value = 1
 Writer 2 is writing | Data value = 2
 Writer 3 is writing | Data value = 3
 Reader 3 is reading...   Active Readers = 1 | Data Value = 3
 Reader 1 is reading...   Active Readers = 2 | Data Value = 3
 Reader 4 is reading...   Active Readers = 3 | Data Value = 3
 Reader 5 is reading...   Active Readers = 4 | Data Value = 3
 Reader 2 is reading...   Active Readers = 5 | Data Value = 3
 Reader 3 is reading...   Active Readers = 2 | Data Value = 3
 Reader 2 is reading...   Active Readers = 2 | Data Value = 3
 Reader 1 is reading...   Active Readers = 3 | Data Value = 3
 Reader 5 is reading...   Active Readers = 5 | Data Value = 3
 Reader 4 is reading...   Active Readers = 4 | Data Value = 3
 Reader 5 is reading...   Active Readers = 2 | Data Value = 3
 Reader 2 is reading...   Active Readers = 2 | Data Value = 3
 Reader 4 is reading...   Active Readers = 3 | Data Value = 3
 Reader 1 is reading...   Active Readers = 4 | Data Value = 3
 Reader 3 is reading...   Active Readers = 1 | Data Value = 3
 Writer 1 is writing | Data value = 4
 Writer 2 is writing | Data value = 5
 Writer 3 is writing | Data value = 6
 Writer 1 is writing | Data value = 7
 Writer 2 is writing | Data value = 8
 Writer 3 is writing | Data value = 9

 Final data value: 9
 Final log count (The sum of printed shared data) = 90
 keshavmishra@Keshavs-MacBook-Air 12341140 %
```

Q4:

```
[keshavmishra@Keshavs-MacBook-Air 12341140 % gcc-15 Q4.c
[keshavmishra@Keshavs-MacBook-Air 12341140 % ./a.out dim 1
 dim
 keshavmishra@Keshavs-MacBook-Air 12341140 %
```