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Sec - CSE C

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Distributed System (CS17201)
B.Tech (CSE) – VII Sem Lab 3

1. Simulate the functioning of Lamport's Logical Clock.

Code :

```
#include <stdio.h>
struct Event
{
    int process_id;
    int logical_clock;
};

void incrementLogicalClock(int *logical_clock)
{
    (*logical_clock)++;
}

int compareEvents(struct Event event1, struct Event event2)
{
    if (event1.logical_clock < event2.logical_clock)
        return -1;

    else if (event1.logical_clock > event2.logical_clock)
        return 1;

    else
    {
        if (event1.process_id < event2.process_id)
            return -1;
        else if (event1.process_id > event2.process_id)
            return 1;
        else
            return 0;
    }
}

int main()
{
    struct Event eventA, eventB;

    int logicalClockA = 0;
    int logicalClockB = 0;
    eventA.process_id = 1;
```

```

eventA.logical_clock = logicalClockA;
incrementLogicalClock(&logicalClockA);

eventB.process_id = 2;
eventB.logical_clock = logicalClockB;
incrementLogicalClock(&logicalClockB);

int result = compareEvents(eventA, eventB);
if (result < 0)
    printf("Event A happened before Event B.\n");

else if (result > 0)
    printf("Event B happened before Event A.\n");

else
    printf("Event A and Event B are concurrent.\n");
return 0;
}

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Code - Assignment-3 + ▾

- PS C:\Users\sumit\Desktop\DS-lab> cd "c:\Users\sumit\Desktop\DS-lab\Assignment-3\" ; if (\$?) { gcc q1.c -o q1 } ; if (\$?) { .\q1 }
Event A happened before Event B.
- PS C:\Users\sumit\Desktop\DS-lab\Assignment-3>