ADVANCED COMPUTER ARCHITECTURE

LAB : 08

AIM: To study the core features of openMP

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EXERCISES :

1. Write an OpenMP program using 4 threads, each thread calculates factorial of its id and then all the factorials respective to threads need to be added to get on final sum. Use shared and private clauses.
Output: Individual threads factorial result with their respective ids and the final sum of all the factorials.

```
#include<stdio.h>
#include<omp.h>
#define NUM_THREADS 4

void main(){
    int id,total=0, fact;
    omp_set_num_threads(NUM_THREADS);

    #pragma omp parallel private(id) private(fact)
    {
        fact=1;
        id = omp_get_thread_num();
        for(int i=1;i<=id;i++){
            fact *= i;
        }
        printf("factorial by thread %d : %d\n",id,fact);
        #pragma omp critical
            total += fact;
    }
```

```
    printf("final sum : %d\n", total);
}
```

OUTPUT :

```
factorial by thread 0 : 1
factorial by thread 3 : 6
factorial by thread 1 : 1
factorial by thread 2 : 2
final sum : 10
```