



# **OpenMp-Loop Scheduling**



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## Overview:

The objective of this exercise was to observe the scheduling of loop iterations using static and dynamic schedules in OpenMp.

## Outcome :

The given code in the assignment that printed ‘\*’ in a pattern was implemented by using 10 threads of a node in Ulysses. The outcome of the run has been attached below:

```
Executed with 10 Threads
-----
serial:
0: *****
*****
schedule(static):
0: *****

1:          *****
2:              *****
3:                  *****
4:                      *****
5:                          *****
6: *****
7: *****
8:          *****
9:              *****

schedule(static, 1):
0: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
1: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
2: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
3: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
4: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
5: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
6: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
7: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
8: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *
9: *      *      *      *      *      *      *      *      *      *      *      *      *      *      *

schedule(static, 10):
0: *****
*****
1:          *****
*****
2:              *****
*****
3:                  *****
*****
4:                      *****
*****
5: *****
*****
6: *****
*****
7: *****
*****
8: *****
*****
9: *****
*****
```

```

schedule(dynamic, 1):
0:  *
1:  *
2:  *
3:  *
4:  *
5:  *
6:  *
7:  *
8:  *
9:  *

schedule(dynamic, 10):
0:  *****
1:  *****
2:  *****
3:  *****
4:  *****
5:  *****
6:  *****
7:  *****
8:  *****
9:  *****

```

**Fig 1 : Output of patterns using schedules for loop iterations in OpenMp**

As seen in the figure above , dynamic schedules splits the iteration more evenly across the threads.

## Build Instructions:

The file named '**OMP\_Exercise\_1.2.c**' available in github repo can be executed with the help of the attached **makefile** and the result can be obtained by submitting the code in Ulysses's node with the following command line:

**qsub -l nodes=1:ppn=20,walltime=3600 -q regular print\_usage.sh**