Report on output of K-means and Parallel K-means algorithm:

Sequential K-Means algorithm:

```
dharani@dharani:~/Downloads/parallel-kmeans$ ./seq_main  -o -n 4 -i OUTPUT/test1.txt
reading data points from file OUTPUT/test1.txt
selecting the first 4 elements as initial centers
Writing coordinates of K=4 cluster centers to file "OUTPUT/test1.txt.cluster_centres"
Writing membership of N=1000000 data objects to file "OUTPUT/test1.txt.membership"

Performing **** Regular Kmeans (sequential version) ****
Input file:     OUTPUT/test1.txt
numObjs       = 1000000
numCoords     = 9
numClusters   = 4
threshold     = 0.0010
I/O time           =     3.4687 sec
Computation timing =     6.8720 sec
```

Parallel K-Means algorithm:

For 2 threads:

```
dharani@dharani:~/Downloads/parallel-kmeans$ export OMP_NUM_THREADS=2
dharani@dharani:~/Downloads/parallel-kmeans$ ./omp_main  -o -n 4 -i OUTPUT/test1.txt
reading data points from file OUTPUT/test1.txt
selecting the first 4 elements as initial centers
Writing coordinates of K=4 cluster centers to file "OUTPUT/test1.txt.cluster_centres"
Writing membership of N=1000000 data objects to file "OUTPUT/test1.txt.membership"

Performing **** Regular Kmeans  (OpenMP) ---- using array reduction ******
Number of threads = 2
Input file:     OUTPUT/test1.txt
numObjs       = 1000000
numCoords     = 9
numClusters   = 4
threshold     = 0.0010
I/O time           =     3.7918 sec
Computation timing =     3.1836 sec
```

For 4 threads:

```
dharani@dharani:~/Downloads/parallel-kmeans$ export OMP_NUM_THREADS=4
dharani@dharani:~/Downloads/parallel-kmeans$ ./omp_main  -o -n 4 -i OUTPUT/test1.txt
reading data points from file OUTPUT/test1.txt
selecting the first 4 elements as initial centers
Writing coordinates of K=4 cluster centers to file "OUTPUT/test1.txt.cluster_centres"
Writing membership of N=1000000 data objects to file "OUTPUT/test1.txt.membership"

Performing **** Regular Kmeans  (OpenMP) ---- using array reduction ******
Number of threads = 4
Input file:     OUTPUT/test1.txt
numObjs       = 1000000
```

numCoords = 9
numClusters = 4
threshold = 0.0010
I/O time = 2.5278 sec
Computation timing = 2.4064 sec

For 8 threads:

```
dharani@dharani:~/Downloads/parallel-kmeans$ export OMP_NUM_THREADS=8
dharani@dharani:~/Downloads/parallel-kmeans$ ./omp_main  -o -n 4 -i OUTPUT/test1.txt
reading data points from file OUTPUT/test1.txt
selecting the first 4 elements as initial centers
Writing coordinates of K=4 cluster centers to file "OUTPUT/test1.txt.cluster_centres"
Writing membership of N=1000000 data objects to file "OUTPUT/test1.txt.membership"

Performing **** Regular Kmeans  (OpenMP) ---- using array reduction ******
Number of threads = 8
Input file:     OUTPUT/test1.txt
numObjs       = 1000000
numCoords     = 9
numClusters   = 4
threshold     = 0.0010
I/O time          =     2.5088 sec
Computation timing =     2.2959 sec
```