**LAB-02**

**Implemenation of Max MinTask Scheduling algorithm for Load Balance :**

**Code:**

#include <stdio.h>

#include <limits.h>

int main()

{

int nT, nM;

printf("\nEnter number of machines and tasks : \n");

scanf("%d%d", &nM, &nT);

int maxMax[nM][nT];

int tmp[nM][nT];

int makespan = 0;

printf("\nFill Data\n");

for (int i = 0; i < nM; i++)

for (int j = 0; j < nT; j++)

{

scanf("%d", &maxMax[i][j]);

tmp[i][j] = maxMax[i][j];

}

printf("\nOriginal Data\n");

for (int i = 0; i < nM; i++)

{

for (int j = 0; j < nT; j++)

printf("%d", maxMax[i][j]);

printf("\n");

}

int resultTask[nT];

int resultMachine[nT];

int resultTime[nT];

int ptr = -1;

while (ptr < nT - 1)

{

int time[nT], machine[nT];

for (int j = 0; j < nT; j++)

{

int maximum = INT\_MIN;

int pos = -1;

for (int i = 0; i < nM; i++)

{

if (maxMax[i][j] > maximum)

{

maximum = maxMax[i][j];

pos = i;

}

}

time[j] = maximum;

machine[j] = pos;

}

int maximum = INT\_MIN;

int pos = -1;

for (int j = 0; j < nT; j++)

{

if (time[j] > maximum)

{

maximum = time[j];

pos = j;

}

}

resultTask[++ptr] = pos;

resultMachine[ptr] = machine[pos];

resultTime[ptr] = tmp[machine[pos]][pos];

if (maximum > makespan)

makespan = maximum;

for (int i = 0; i < nM; i++)

{

for (int j = 0; j < nT; j++)

{

if (j == resultTask[ptr])

maxMax[i][j] = INT\_MIN;

else if (i == resultMachine[ptr] && maxMax[i][j] != INT\_MIN)

maxMax[i][j] += maximum;

else

continue;

}

}

}

printf("\nScheduled Task are :\n");

for (int i = 0; i < nT; i++)

{

printf("\nTask %d Runs on Machine %d with Time %d units\n", resultTask[i] + 1, resultMachine[i] + 1, resultTime[i]);

}

printf("\nMakespan time : %d units\n", makespan);

return 0;

}

**Output:**

