

LAB-02**Implementation 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;

```

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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++)
{

```

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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:

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL
cd "/home/debmalya/Desktop/CC Lab/Lab-2/" && gcc MinMax.c -o MinMax && "/home/debmalya/Desktop/CC Lab/Lab-2/"MinMax
debmalya@parzival:~/Desktop/CC Lab$ cd "/home/debmalya/Desktop/CC Lab/Lab-2/" && gcc MinMax.c -o MinMax && "/home/debmalya/Desktop/CC Lab/Lab-2/"MinMax

Enter number of machines and tasks :
2 2

Fill Data
140
20
170
170

Original Data
14020
170170

Scheduled Task are :

Task 1 Runs on Machine 2 with Time 170 units

Task 2 Runs on Machine 2 with Time 170 units

Makespan time : 340 units
debmalya@parzival:~/Desktop/CC Lab/Lab-2$

```