**ASSEMBLY LINE SQUEDEULING**

**Source Code:**

#include<stdio.h>

#include<conio.h>

int n,i, fe, le;

int a[2][10], t[2][9], e[2], x[2], f1[10], f2[10], l[2][10];

void print\_stations()

{

int j,i=le;

printf("\nThe Optimal path is:\n");

for(j=1;j<n;++j)

{

i = l[i-1][j];

printf("line %d ", i);

printf("station %d ", j);

printf("\n");

}

i = le;

printf("line %d ", i);

printf("station %d ", n);

printf("\n");

}

void fastest\_way()

{

f1[0] = e[0] + a[0][0];

f2[0] = e[1] + a[1][0];

int j;

for(j = 1; j<n; ++j)

{

if( (f1[j-1]+a[0][j]) <= (f2[j-1]+t[1][j-1]+a[0][j]) )

{

f1[j] = f1[j-1] + a[0][j];

l[0][j] = 1;

}

else

{

f1[j] = f2[j-1] + t[1][j-1] + a[0][j];

l[0][j] = 2;

}

if( (f2[j-1]+a[1][j]) <= (f1[j-1]+t[0][j-1]+a[1][j]) )

{

f2[j] = f2[j-1] + a[1][j];

l[1][j] = 2;

}

else

{

f2[j] = f1[j-1] + t[0][j-1] + a[1][j];

l[1][j] = 1;

}

}

if( (f1[n-1] + x[0]) <= (f2[n-1] + x[1]) )

{

fe = f1[n-1] + x[0];

le = 1;

}

else

{

fe = f2[n-1] + x[1];

le = 2;

}

print\_stations();

}

int main()

{

printf("\tAssembly Line Scheduling\n");

printf("Enter the number of nodes: ");

scanf("%d",&n);

printf("Enter the entry values:\n");

for(i=0;i<2;i++)

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

printf("Enter the exit values:\n");

for(i=0;i<2;i++)

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

printf("\nEnter the station times of row/line S1:\n");

for(i=0; i<n; ++i)

scanf("%d", &a[0][i]);

printf("\nEnter the station times of row/line S2:\n");

for(i=0 ; i<n; ++i)

scanf("%d", &a[1][i]);

printf("\nEnter transaction times from row/line S1:\n");

for(i=0; i<n-1; ++i)

scanf("%d", &t[0][i]);

printf("\nEnter transaction times from row/line S2:\n");

for(i=0; i<n-1; ++i)

scanf("%d", &t[1][i]);

printf("\n");

fastest\_way();

printf("\nOptimal path costs are:\n");

i=1;

printf("For Path[%d] ->\t",i);

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

printf("S[%d][%d]=%d\t",i,j+1,f1[j]);

printf("Total cost: %d",fe);

printf("\n");

i=2;

printf("For Path[%d] ->\t",i);

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

printf("S[%d][%d]=%d\t",i,j+1,f2[j]);

fe = f2[n-1] + x[1];

printf("Total cost: %d",fe);

getch();

return 0;

}

**OUTPUT-**



