Name – Krishnaprasad Awala

Enrollment no – MITU21BTITD006

Roll no – D2215004

Lab 5

Code :

#include<bits/stdc++.h>

using namespace std;

int main()

{

int no\_of\_processes, no\_of\_resources, i, j, k;

cout<<"Enter number of processes: ";

cin>>no\_of\_processes;

cout<<"Enter number of resources: ";

cin>>no\_of\_resources;

//Allocation Matrix;

int allocate[no\_of\_processes][no\_of\_resources];

cout<<"Enter allocation matrix: \n";

for(i=0; i<no\_of\_processes; i++){

for(j=0; j<no\_of\_resources; j++){

cin>>allocate[i][j];

}

}

//Max need

int max[no\_of\_processes][no\_of\_resources];

cout<<"Enter maximum matrix: \n";

for(i=0;i<no\_of\_processes; i++){

for(j=0;j<no\_of\_resources; j++){

cin>>max[i][j];

}

}

//Available resources

int available[no\_of\_resources];

cout << "Enter the available resources:" << endl;

for (i = 0; i < no\_of\_resources; i++) {

cout << "Resource " << i << ": ";

cin >> available[i];

}

int finish[no\_of\_processes] = {0};

int safe\_seq[no\_of\_processes], index = 0;

int need[no\_of\_processes][no\_of\_resources];

for(i=0; i<no\_of\_processes; i++){

for(j=0; j<no\_of\_resources; j++){

//calculate need

need[i][j] = max[i][j] - allocate[i][j];

}

}

int y=0;

bool safe\_state = true;

for(int k=0; k<no\_of\_processes; k++){

for(i=0; i<no\_of\_processes; i++){

if(finish[i]==0){

bool flag = true;

for(j=0; j<no\_of\_resources; j++){

if(need[i][j]>available[j]){

flag = false;

break;

}

}

if(flag==true){

safe\_seq[index++] = i;

for(y=0; y<no\_of\_resources; y++){

available[y] += allocate[i][y];

}

finish[i] = 1;

safe\_state = true;

}

else {

safe\_state = false;

}

}

}

}

if(safe\_state == true){

cout<<"System is in safe state\n";

cout<<"Safe sequence is: \n";

for(i=0; i<no\_of\_processes-1; i++){

cout<<" P"<<safe\_seq[i]<<"->";

}

cout<<" P"<<safe\_seq[no\_of\_processes-1];

}

else {

cout<<"System is not in a safe state.";

}

}

Output :

A picture containing text

Description automatically generated