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Assignment 6: Write a program for simulation of Banker’s algorithm for Deadlock Avoidance.

**Code:**

#include<stdio.h>

#include<stdlib.h>

#include<string.h>

void main()

{

int process,resource,i,j,instance,k=0,count1=0,count2=0;

printf("\n\t Enter No. of Process:-\n");

printf("\t\t");

scanf("%d",&process);

printf("\n\tEnter No. of Resources:-\n");

printf("\t\t");

scanf("%d",&resource);

int avail[resource],max[process][resource],allot[process][resource],need[process][resource],completed[process];

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

completed[i]=0; //Setting Flag for uncompleted Process

printf("\n\tEnter No. of Available Instances\n");

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

{

printf("\t\t");

scanf("%d",&instance);

avail[i]=instance;

}

printf("\n\tEnter Maximum No. of instances of resources that a Process need:\n");

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

{

printf("\n\t For P[%d]",i);

for(j=0;j<resource;j++)

{

printf("\t");

scanf("%d",&instance);

max[i][j]=instance;

}

}

printf("\n\t Enter no. of instances already allocated to process of a resource:\n");

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

{

printf("\n\t For P[%d]\t",i);

for(j=0;j<resource;j++)

{

printf("\t\t");

scanf("%d",&instance);

allot[i][j]=instance;

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

}

}

printf("\n\t Safe Sequence is:- \t");

while(count1!=process)

{

count2=count1;

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

{

for(j=0;j<resource;j++)

{

if(need[i][j]<=avail[j])

{

k++;

}

}

if(k==resource && completed[i]==0 )

{

printf("P[%d]\t",i);

completed[i]=1;

for(j=0;j<resource;j++)

{

avail[j]=avail[j]+allot[i][j];

}

count1++;

}

k=0;

}

if(count1==count2)

{

printf("\t\t Stopping...... There is a Deadlock! \n");

break;

}

}

}

**Output:**

adnan@Aspire-E15:~/Documents/OS/Assignment/Assignment\_6$ ./a.out

Enter No. of Process:-

4

Enter No. of Resources:-

3

Enter No. of Available Instances

0

1

1

Enter Maximum No. of instances of resources that a Process need:

For P[0] 3

2

2

For P[1] 6

1

3

For P[2] 3

1

2

For P[3] 4

2

2

Enter no. of instances already allocated to process of a resource:

For P[0] 1

0

0

For P[1] 6

1

2

For P[2] 2

1

1

For P[3] 0

0

2

Safe Sequence is:- P[1] P[2] P[3] P[0]