#include <iostream>

using namespace std;

int main()

{int sack[10][10],i,j,x,y,n,c,w[10],v[10];

cout<<"enter the number of items"<<endl;cin>>n;

cout<<"enter the sack capacity"<<endl;cin>>c;

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

{ cout<<"enter the "<<i<<"th element value"<<endl;

cin>>v[i];

cout<<"enter the "<<i<<"th element weight"<<endl;

cin>>w[i];

}

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

{

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

sack[i][j]=0;

}

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

{

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

{

if(j-w[i]>=0)

{

x=v[i]+sack[i-1][j-w[i]];

y=sack[i-1][j];

if(x>y)

sack[i][j]=x;

else

sack[i][j]=y;

}

else

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

}

}

/\*for(i=0;i<=n;i++)

{for(j=0;j<=c;j++)

cout<<sack[i][j]<<" ";

cout<<endl;

}\*/

cout<<endl<<"the optimal solution is "<<sack[n][c];

cout<<endl<<endl;

j=c;i=n;

while(j>0 and i>0)

{

if(sack[i][j]==sack[i-1][j])

{

i--;

}

else

{

cout<<i<<" is selected"<<endl;

j=j-w[i];

i--;

}

}

return 0;

}