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1  /*****
2
3      Online C Compiler.
4      Code, Compile, Run and Debug C program online.
5      Write your code in this editor and press "Run" button to compile and execute
6
7  *****/
8  #include<stdio.h>
9  #include<conio.h>
10
11 int max(int a, int b)
12 {
13     if(a>b)
14         return a;
15     else return b;
16 }
17
18 void knapsack(int w[],int v[], int s,int n)
19 {
20     int k[n+1][s+1];
21     int i,j,res=0;
22
23     for(i=0;i<=n;i++)
24         for(j=0;j<=s;j++)
25         {
26             if(i==0 || j==0)
27                 k[i][j]=0;
28             else if(w[i - 1] <= j)
29                 k[i][j] = max(v[i-1]+k[i-1][j-w[i-1]],k[i-1][j]);
30             else
31                 k[i][j] = k[i-1][j];
32         }
33
34     res=k[n][s];
35     printf("\n\nMaximum Value that can be obtained is : %d",res);
36     j=s;
37     printf("\nAnd the objects with their respective Weights selected are :");
38     for(i=n;i>0 && res>0; i--)

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    else if(w[i - 1] <= j)
        k[i][j] = max(v[i-1]+k[i-1][j-w[i-1]],k[i-1][j]);
    else
        k[i][j] = k[i-1][j];
}

res=k[n][s];
printf("\n\nMaximum Value that can be obtained is : %d",res);
j=s;
printf("\nAnd the objects with their respective Weights selected are :");
for(i=n;i>0 && res>0; i--)
{
    if (res == k[i - 1][j])
        continue;
    else
    {
        printf("%d ", w[i-1]);
        res =res-v[i-1];
        j = j-w[i-1];
    }
}

}

int main()
{
    int w[10],v[10],s,n,i;
    printf("\nEnter the Number of objects : ");
    scanf("%d",&n);
    printf("\nEnter the Weights of the objects : ");
    for(i=0;i<n;i++)
        scanf("%d",&w[i]);
    printf("\nEnter the Values of the objects : ");
    for(i=0;i<n;i++)
        scanf("%d",&v[i]);
    printf("\nEnter the Size of the KnapSack : ");
    scanf("%d",&s);
    knapsack(w,v,s,n);
}

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Enter the Number of objects : 4

Enter the Weights of the objects : 40 25 15 54

Enter the Values of the objects : 25 20 15 10

Enter the Size of the KnapSack : 5

Maximum Value that can be obtained is : 0

And the objects with their respective Weights selected are :

...Program finished with exit code 0

Press ENTER to exit console.

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