Program 11

Design and implement in java to find a subset of a given set S={S1,S2......Sn) of n positive integers whose sum is equal to a given positive integer d. For example, if S={1,2,5,6,8} and d=9,there are two solutions {1,2,6} and {1,8}. Display a suitable message, if the given problem instance doesn’t have a solution.

import java.util.Scanner;

public class P11 {

static int d,flag=0;

static int[]S=new int[10];

static int[]x=new int[10];

static void sumofsub(int s,int k,int r)

{

int i;

x[k]=1;

if((s+S[k]==d))

{

flag=1;

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

if(x[i]==1)

System.out.print(S[i]+"\t");

System.out.println();

}

else

if(s+S[k]+S[k+1]<=d)

sumofsub(s+S[k],k+1,r-S[k]);

if((s+r-S[k]>=d) && (s+S[k+1]<=d))

{

x[k]=0;

sumofsub(s,k+1,r-S[k]);

}

}

public static void main(String[] args){

int i,n,sum=0;

Scanner read=new Scanner(System.in);

System.out.println("enter the no of elements in the set");

n=read.nextInt();

System.out.println("enter the set in increasing order");

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

S[i]=read.nextInt();

System.out.println("enter the max subset value");

d=read.nextInt();

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

sum=sum+S[i];

if(sum<d ||S[1]>d)

System.out.println("no subset possible");

else

{

System.out.println("the possible subsets are");

sumofsub(0,1,sum);

if(flag==0)

System.out.println("no subject possible");

}

} }