# **DAA LAB**

## **LAB 8: Implement the Sum of Subsets Problem.**

PROGRAM:

**#include<stdio.h>**

**#include<conio.h>**

**#define TRUE 1**

**#define FALSE 0**

**int inc[50],w[50],sum,n;**

**int promising(int i,int wt,int total)**

**{**

**return(((wt+total)>=sum)&&((wt==sum)||(wt+w[i+1]<=sum)));**

**}**

**void main()**

**{**

**int i,j,n,temp,total=0;**

**printf("\n Enter how many numbers:");**

**scanf("%d",&n);**

**printf("\n Enter %d numbers to the set:\n",n);**

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

**{**

**scanf("%d",&w[i]);**

**total+=w[i];**

**}**

**printf("\n Input the sum value to create sub set:\n");**

**scanf("%d",&sum);**

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

**for (j=0;j<n-1;j++)**

**if(w[j]>w[j+1])**

**{**

**temp=w[j];**

**w[j]=w[j+1];**

**w[j+1]=temp;**

**}**

**printf("\n The given %d numbers in ascending order:\n",n);**

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

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

**if((total<sum))**

**printf("\n Subset construction is not possible"); else {**

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

**inc[i]=0;**

**printf("\n The solution using backtracking is:\n");**

**sumset(-1,0,total);**

**}**

**}**

**void sumset(int i,int wt,int total)**

**{**

**int j;**

**if(promising(i,wt,total))**

**{**

**if(wt==sum)**

**{**

**printf("\n{\t");**

**for (j=0;j<=i;j++)**

**if(inc[j])**

**printf("%d\t",w[j]);**

**printf("}\n");**

**}**

**else**

**{**

**inc[i+1]=TRUE;**

**sumset(i+1,wt+w[i+1],total-w[i+1]);**

**inc[i+1]=FALSE;**

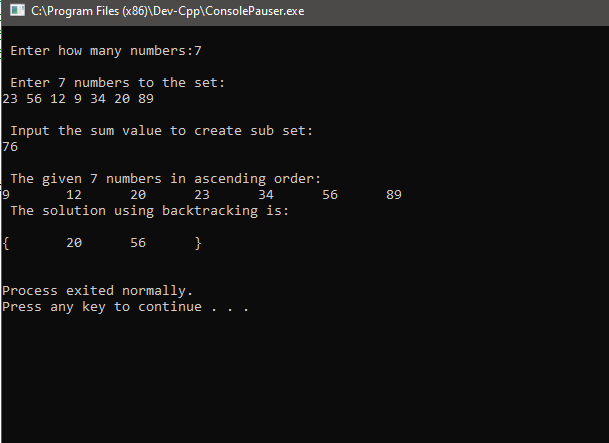
**sumset(i+1,wt,total-w[i+1]);**

**}**

**}**

**}**

OUTPUT:

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