

PROGRAM:

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#include "stdio.h"

int x[10] = {0};

int m;

int w[10];

int n,cnt=0,noofsoln=0;


void displaysubset(int x[],int k,int num)
{
    printf("Subset %d : {",num);
    for(int i=0;i<=k;i++)
    {
        if(x[i] == 1)
            printf(" %d ",w[i]);
    }
    printf("}\n-----");
}


void display(int x[],int k)
{
    noofsoln+=1;
    printf("\n\nSolution %d : {",noofsoln);
    for (int i=0;i<=k;i++)
        printf(" %d ", x[i]);
    if(k<n)
    {
        for(int i=k+1;i<n;i++)
            printf(" 0 ");
    }
}
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    }
    printf("{}\n");
    displaysubset(x,k,noofsoln);
}

void sumofsubset(int s, int r, int k)
{
    cnt+=1;
    x[k] = 1;
    if(s+w[k] == m)
        display(x,k);
    else if (s + w[k] + w[k+1] <= m)
        sumofsubset(s + w[k],r-w[k],k+1);

    if((s+r-w[k]>=m) && (s+w[k+1]<=m))
    {
        x[k] = 0;
        sumofsubset(s ,r-w[k],k+1);
    }

}

int main(void) {

    printf("Enter total sum required : ");
    scanf("%d",&m);
    printf("Enter no of elements in subset : ");
    scanf("%d",&n);
    int r=0;
    printf("Enter element ");

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for(int i=0;i<n;i++)
{
    scanf("%d",&w[i]);
    r+=w[i];
}
sumofsubset(0, r ,0);

printf("\n No of Nodes (call to sumofsubset procedure) : %d\n",cnt);

}

```

OUTPUT:

```

Microsoft PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\Harsh\SEM 4\AOA\Assignment\Assign 8> cd "d:\Harsh\SEM 4\AOA\Assign 8"
Enter total sum required : 50
Enter no of elements in subset : 8
Enter element 10 20 12 6 8 1 16 9

Solution 1 : { 1 1 1 0 1 0 0 0 }
Subset 1 : { 10 20 12 8 }
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Solution 2 : { 1 0 0 1 1 1 1 1 }
Subset 2 : { 10 6 8 1 16 9 }
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Solution 3 : { 0 1 0 1 1 0 1 0 }
Subset 3 : { 20 6 8 16 }
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No of Nodes (call to sumofsubset procedure) : 59
PS D:\Harsh\SEM 4\AOA\Assignment\Assign 8>

```