SUM OF SUBSETS PROGRAM USING BACKTRACKING

PROGRAM :-

```
#include<stdio.h>
int count,w[10],d,x[10];
 void subset(int cs, int k, int r)
  {
        int i;
       x[k]=1;
       if(cs+w[k]==d)
      {
        printf("\nSubset solution = %d\n", ++count);
       for(i=0;i<=k;i++)
       {
         if(x[i]==1)
         printf("%d", w[i]);
       }
   }
else
    if(cs+w[k]+w[k+1]<=d)
    subset(cs+w[k], k+1, r-w[k]);
    if((cs+r-w[k]>=d) && (cs+w[k+1])<=d)
    {
      x[k]=0;
       subset(cs,k+1,r-w[k]);
    }
 }
void  main()
     {
  int sum=0,i,n;
    printf("Enter the number of elements\n");
```

```
    printf("Enter the number of elements\n");
    scanf("%d", &n);
    printf("Enter the elements in ascending  order\n");
 for(i=0;i<n;i++)
   scanf("%d", &w[i]);
   printf("Enter the required sum\n");
   scanf("%d", &d);
 for(i=0;i<n;i++)
  sum+=w[i];
     if(sum<d)
    {
        printf("No solution exists\n");
        return;
    }
   printf("The solution is\n");
   count=0;
   subset(0,0,sum);
   getch();
}
```

OUTPUT:-

```
Enter the number of elements
4
Enter the elements in ascending  order
10 20 30 40
Enter the required sum
50
The solution is

Subset solution = 1
1040
Subset solution = 2
2030

...Program finished with exit code 0
Press ENTER to exit console.
```