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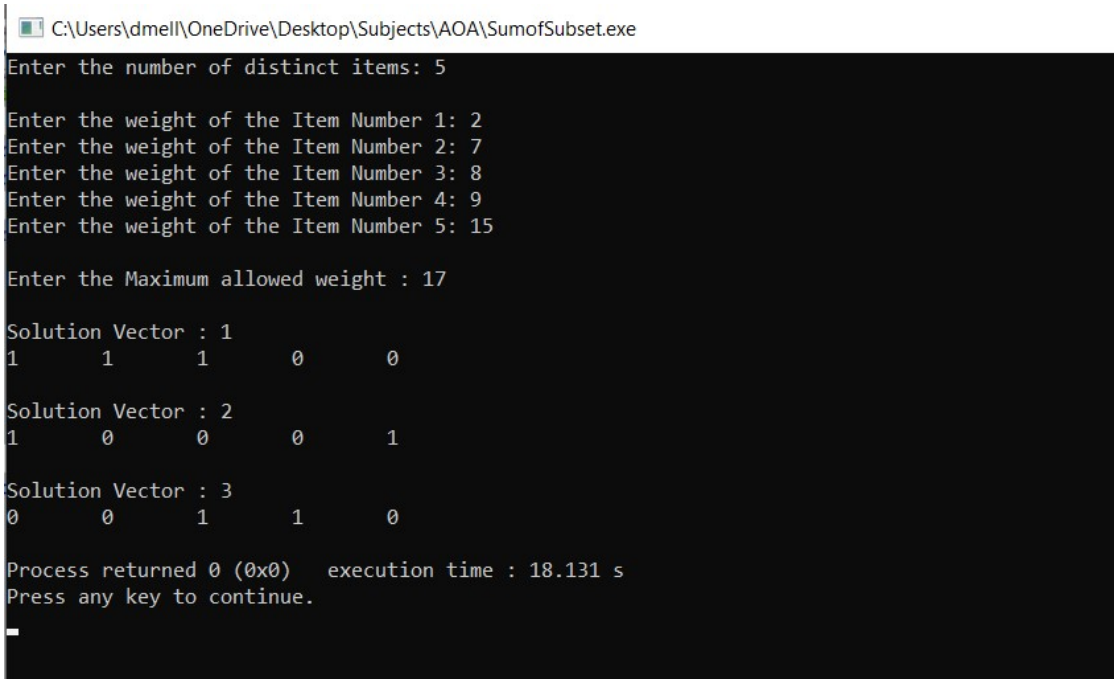
Branch: SE Computers A(Batch A)
Experiment 14: Sum of Subset

```
#include<stdio.h>

int w[10]={0};
int n,s=0,sol[10]={0},tot_pl=0,count=0;

int promising(int l,int wsf,int tpl)//to check whether the node is promising
{
	if(wsf+w[l+1]<=s && wsf+tpl>=s)//check the required two conditions
	{
		return 1;
	}
	return 0;
}

void sum_of_subsets(int l,int wsf,int tpl)
{
	int i;
	if(wsf==s)
	{
		count++;
		printf("\nSolution Vector : %d",count);	//print the solution vector
			printf("\n");
			for(i=1;i<=n;i++)
			{
			printf("%d\t",sol[i]);
		}
		printf("\n");
	}
	else if(promising(l,wsf,tpl))//check whether the node is promising
	{
		sol[l+1]=1;
		sum_of_subsets(l+1,wsf+w[l+1],tpl-w[l+1]);
		sol[l+1]=0;
		sum_of_subsets(l+1,wsf,tpl-w[l+1]);
	}
}

int main()
{
	int i;
	printf("Enter the number of distinct items: ");//number of items
	scanf("%d",&n);
	printf("\n");
	for(i=1;i<=n;i++)
	{
		printf("Enter the weight of the Item Number %d: ",(i));//enter weight
```

```
            scanf("%d",&w[i]);
            tot_pl=tot_pl+w[i];       //Calulating total profit
        }
        printf("\nEnter the Maximum allowed weight : ");//maximum weight
        scanf("%d",&s);
        sum_of_subsets(0,0,tot_pl); // call to sum of subset method
        return 0;
}
```

Output:



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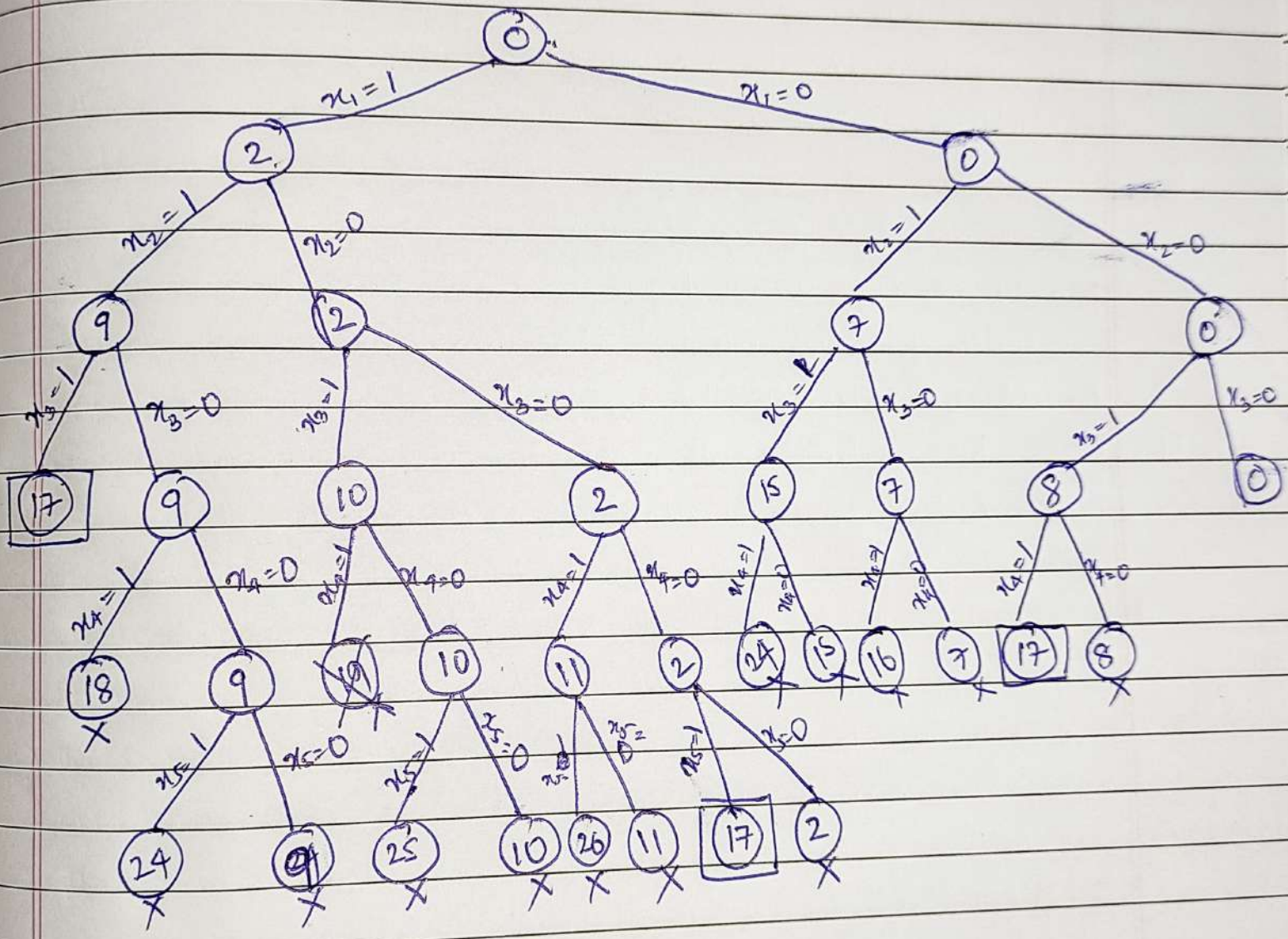
Experiment 14: Sum of Subset

Postlab

Q1 $n = 5$

$W = \{2, 7, 8, 9, 15\}$



∴ Solution Vector is

① (1 1 0 0)

② (1 0 0 0 1)

③ (0 0 1 1 0)