**Program to implement data structure set operation union intersection and difference using bit string**

```
#include<stdio.h>
#include<stdlib.h>
void main()
{
 int ch,A[50],B[50],C[50],m,n,i;
 do
 {
  printf("\nSelect the choice: ");
  printf("\n1.Union\t2.Intersection\t3.Difference\t4.Exit");
  printf("\nChoice: ");
  scanf("%d",&ch);
 switch(ch)
 {
  case 1:printf("\nEnter cardinality of first set: ");
        scanf("%d",&m);
       printf("\nEnter cardinality of second set: ");
scanf("%d",&n);
if(m!=n)
{
printf("\nCannot perform union!");
break;
    }
   printf("\nEnter elements of first set(0/1): ");
   for(i=0;i<m;i++)
{
 scanf("%d",&A[i]);
 }
printf("\nEnter elements of second set(0/1): ");
   for(i=0;i<n;i++)
```

```
{
 scanf("%d",&B[i]);
 }
printf("\nElements of set1 union set2: ");
for(i=0;i<m;i++)
{
 C[i]=A[i]|B[i];
 printf("%d ",C[i]);
 }
break;
  case 2:printf("\nEnter cardinality of first set: ");
        scanf("%d",&m);
       printf("\nEnter cardinality of second set: ");
scanf("%d",&n);
if(m!=n)
{
printf("\nCannot perform intersection!");
break;
    }
   printf("\nEnter elements of first set(0/1): ");
   for(i=0;i<m;i++)
{
 scanf("%d",&A[i]);
 }
printf("\nEnter elements of second set(0/1): ");
   for(i=0;i<n;i++)
{
 scanf("%d",&B[i]);
 }
printf("\nElements of set1 intersection set2: ");
for(i=0;i<m;i++)
```

```
{
 C[i]=A[i]&B[i];
 printf("%d ",C[i]);
 }
       break;
  case 3:printf("\nEnter cardinality of first set: ");
         scanf("%d",&m);
       printf("\nEnter cardinality of second set: ");
scanf("%d",&n);
if(m!=n)
{
printf("\nCannot perform difference!");
break;
    }
   printf("\nEnter elements of first set:(0/1) ");
   for(i=0;i<m;i++)
{
 scanf("%d",&A[i]);
 }
printf("\nEnter elements of second set:(0/1) ");
   for(i=0;i<n;i++)
{
 scanf("%d",&B[i]);
 }
for(i=0;i<n;i++)
{
 if(A[i]==0)
 C[i]=0;
 else
 {
  if(B[i]==1)
```

```
C[i]=0;
else
C[i]=1;
  }
 }
 printf("\nDifference of set1 - set2: ");
 for(i=0;i<m;i++)
 {
  printf("%d ",C[i]);
 }
        break;
  case 4:printf("\nProgram exit successfully!");
        exit(0);
       break;
  default:printf("\nInvalid choice!");
  };
 }while(1);
}
```

**Output**

**Select the choice:**

**1.Union 2.Intersection 3.Difference 4.Exit**

**Choice: 1**

**Enter cardinality of first set: 4**

**Enter cardinality of second set: 4**

**Enter elements of first set(0/1): 1**

**0**

**1**

**0**

**Enter elements of second set(0/1): 1**

**0**

**1**

**1**

**Elements of set1 union set2: 1 0 1 1**

**Select the choice:**

**1.Union 2.Intersection 3.Difference 4.Exit**

**Choice:**

**1.Union 2.Intersection 3.Difference 4.Exit**

**Choice: 2**

**Enter cardinality of first set: 4**

**Enter cardinality of second set: 4**

**Enter elements of first set(0/1): 1**

**0**

**1**

**0**

**Enter elements of second set(0/1): 1**

**0**

**1**

**0**

**Elements of set1 intersection set2: 1 0 1 0**

**Select the choice:**

**1.Union 2.Intersection 3.Difference 4.Exit**

**Choice: 3**

**Enter cardinality of first set: 4**

**Enter cardinality of second set: 4**

**Enter elements of first set:(0/1) 1**

**0**

**1**

**0**

**Enter elements of second set:(0/1) 1**

**0**

**1**

**0**

**Difference of set1 - set2: 0 0 0 0**

**Select the choice:**

**1.Union 2.Intersection 3.Difference 4.Exit**

**Choice:**

**Select the choice:**

**1.Union 2.Intersection 3.Difference 4.Exit**

**Choice: 4**

**Program exit successfully!**

**Process returned 0 (0x0) execution time : 74.976 s**

**Press any key to continue.**