1)Set data structure and set operation union,intersection,difference using bit string?

Ans:

```
#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\t\n2.Intersection\t\n3.Difference\t\n4.Exit\n");
  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: 2

Enter cardinality of second set: 2

Enter elements of first set(0/1): 101
001

Enter elements of second set(0/1): 010
011

Elements of set1 union set2: 111 11
```

Select the choice:

1.Union

2.Intersection

3.Difference

4.Exit

Choice: 2

Enter cardinality of first set: 2

Enter cardinality of second set: 2

Enter elements of first set(0/1): 10101

10101

Enter elements of second set(0/1): 10101

10101

Elements of set1 intersection set2: 10101 10101

Select the choice:

1.Union

2.Intersection

3.Difference

4.Exit

Choice: 3

Enter cardinality of first set: 3

Enter cardinality of second set: 3

Enter elements of first set:(0/1) 1010101

0001

0101010

Enter elements of second set:(0/1) 00001

0001010

01010101

Difference of set1 - set2: 0 1 1

Select the choice:

1.Union

2.Intersection

3.Difference

4.Exit

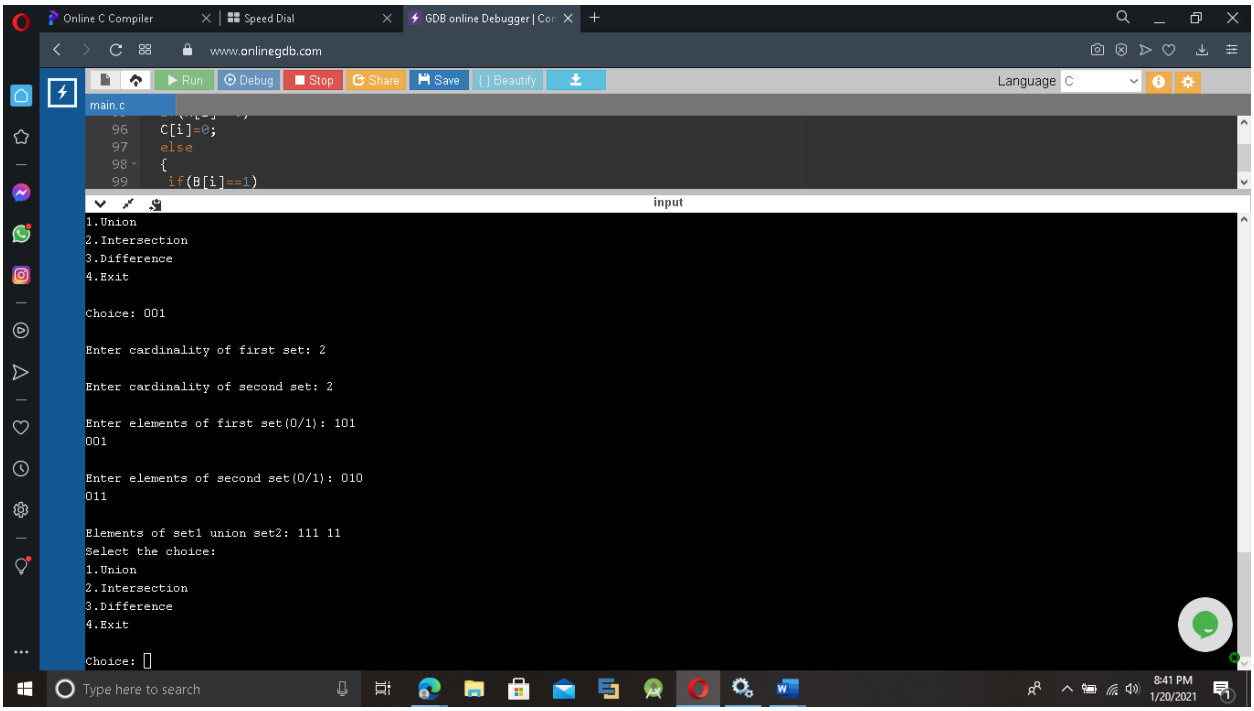
Choice: 1

Enter cardinality of first set: 3

Enter cardinality of second set: 101

Cannot perform union!

Choice:


Online C Compiler
Speed Dial
GDB online Debugger | Cor
www.onlinegdb.com
Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
96 C[i]=0;
97 else
98 {
99 if(B[i]==1)
input
1.Union
2.Intersection
3.Difference
4.Exit
Choice: 001
Enter cardinality of first set: 2
Enter cardinality of second set: 2
Enter elements of first set(0/1): 101
001
Enter elements of second set(0/1): 010
011
Elements of set1 union set2: 111 11
Select the choice:
1.Union
2.Intersection
3.Difference
4.Exit
Choice:
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