DS Lab Cycle 1.6 - Set operations

Do the set operations

U={1,2,3,4,5}

A={1,4,5}

B={2,3,4}

find AuB, AnB, A-B, B-A in bit vector representation

Source Code :

```
#include <stdio.h>

void main()

{

 int U[5]={1,2,3,4,5},A[5]={1,0,0,1,1},B[5]={0,1,1,1,0},uni[5],ints[5],diffA[5],diffB[5],
i,compA[5],compB[5];


 printf("The universal set : ");

 for(i=0;i<5;i++)

 printf("%d\t",U[i]);

 printf("\nThe Set A : ");

 for(i=0;i<5;i++)

 {

   if(A[i]==1)

   printf("%d\t",U[i]);

 }

 printf("\nThe Set B : ");

 for(i=0;i<5;i++)

 {

   if(B[i]==1)

   printf("%d\t",U[i]);

 }

 printf("\nBit representation of AUB : ");
```

```
for(i=0;i<5;i++)
{
  uni[i]=A[i]|B[i];
  printf("%d\t",uni[i]);
}
printf("\n AUB =\t");
for(i=0;i<5;i++)
{
  if(uni[i]==1)
  printf("%d\t",U[i]);
}


printf("\nBit representation of AnB : ");
for(i=0;i<5;i++)
{
  ints[i]=A[i]&B[i];
  printf("%d\t",ints[i]);
}
printf("\n AnB =\t");
for(i=0;i<5;i++)
{
  if(ints[i]==1)
  printf("%d\t",U[i]);
}

printf("\nComplement of A : ");
for(i=0;i<5;i++)
{
compA[i]=1-A[i];
printf("%d\t",compA[i]);
```

```
}
printf("\nA' =\t");
for(i=0;i<5;i++)
{
  if(compA[i]==1)
  printf("%d\t",U[i]);
}

printf("\nComplement of B : ");
for(i=0;i<5;i++)
{
  compB[i]=1-B[i];
  printf("%d\t",compB[i]);
}
printf("\nB' =\t");
for(i=0;i<5;i++)
{
if(compB[i]==1)
printf("%d\t",U[i]);
}

printf("\nDifference of A : ");
for(i=0;i<5;i++)
{
  diffA[i]=A[i]&compB[i];
  printf("%d\t",diffA[i]);
}
printf("\n A-B =\t");
for(i=0;i<5;i++)
{
  if(diffA[i]==1)
```

```
   printf("%d\t",U[i]);
}

printf("\nDifference of B : ");
for(i=0;i<5;i++)
{
   diffB[i]=B[i]&compA[i];
   printf("%d\t",diffB[i]);
}
printf("\n B-A =\t");
for(i=0;i<5;i++)
{
if(diffB[i]==1)
printf("%d\t",U[i]);
}

}
```

Output:

```
The universal set : 1    2    3    4    5
The Set A : 1    4    5
The Set B : 2    3    4
Bit representation of AUB : 1    1    1    1    1
 AUB =  1    2    3    4    5
Bit representation of AnB : 0    0    0    1    0
 AnB =  4
Complement of A : 0    1    1    0    0
A' =    2    3
Complement of B : 1    0    0    0    1
B' =    1    5
Difference of A : 1    0    0    0    1
```

A-B = 1 5

Difference of B : 0 1 1 0 0

B-A = 2 3