PROGRAM-1

AIM: Write a program to implement bitstrings

```
#include<stdio.h>
#include<stdlib.h>
int u[20],a[20],b[20],a_[20],b_[20],uni[20],in[20],dif[20],i=0,j,flag=0,k=0,n,m,o,c=0;
void unio()
{       i=0;
        while(i<n)
          {
                  uni[i]=a_[i]|b_[i];
                  i++;
          }
          printf("Union of a and b :");
          for(i=0;i<n;i++)
          {
                  printf("%d",uni[i]);
          }
}
void inter()
{
i=0;
          while(i<n)
          {
                  in[i]=a_[i]&b_[i];
                  i++;
          }
          printf("Intersection of a and b :");
          for(i=0;i<n;i++)
          {
                  printf("%d",in[i]);
```

```
	}}
void diff()
{
	for(i=0;i<n;i++)
	{
		if(b_[i]==1)
		{
			b_[i]=0;
		}
		else
		{
			b_[i]=1;
		}
	}
	printf("Complement of b :");
	for(i=0;i<n;i++)
	{
		printf("%d",b_[i]);
	}
	i=0;
	while(i<n)
	{
		dif[i]=a_[i]&b_[i];
		i++;
	}
	printf("\nDifference of a and b :");
	for(i=0;i<n;i++)
	{
		printf("%d",dif[i]);
	}
}
```

```
void main(){
	printf("Enter the size of universal set :");
	scanf("%d",&n);
	printf("Enter the size of set a :");
	scanf("%d",&m);
	printf("Enter the size of set b :");
	scanf("%d",&o);
	printf("Enter the universal set :");
	for(i=0;i<n;i++)
	{
		scanf("%d",&u[i]);
	}
	printf("Enter the set a :");
	for(i=0;i<m;i++)
	{
		scanf("%d",&a[i]);
	}
	printf("Enter the set b :");
	for(i=0;i<o;i++)
	{
		scanf("%d",&b[i]);
	}
	for(i=0;i<n;i++)
	{
		for(j=0;j<m;j++)
		{
			if(u[i]==a[j])
			{
				flag=1;
				break;
```

```
                }
                else
                {
                        flag=0;
                }
        }
        if(flag==1)
        {
                a_[k]=1;
                k++;
        }
        else
        {
                a_[k]=0;
                k++;
        }
}
k=0;
for(i=0;i<n;i++)
{
        for(j=0;j<o;j++)
        {
                if(u[i]==b[j])
                {
                        flag=1;
                        break;
                }
                else
                {
                        flag=0;
                }
```

```
		}
		if(flag==1)
		{
			b_[k]=1;
			k++;
		}
		else
		{
			b_[k]=0;
			k++;
		}
}
printf("Bitstring of a :");
for(i=0;i<n;i++)
{
		printf("%d",a_[i]);
}
printf("\nBitstring of b :");
for(i=0;i<n;i++)
{
		printf("%d",b_[i]);
}
while(1)
{
		printf("\n1. UNION \n");
		printf("2. INTERSECTION\n");
		printf("3. DIFFERENCE\n");
		printf("4. Exit\n");
		printf("Enter your Option :\n");
		scanf("%d",&c);
		switch(c)
```

```
                {
                        case 1:unio();
                                        break;
                        case 2:inter();
                                        break;
                        case 3:diff();
                                        break;
                        case 4:exit(0);
                                        break;
                        default:printf("Wrong choice");
                }
        }
}
```

OUTPUT:

```
Enter the size of universal set :5
Enter the size of set a :4
Enter the size of set b :3
Enter the universal set :1 2 3 4 5
Enter the set a :1 2 3 5
Enter the set b :2 3 4
Bitstring of a :11101
Bitstring of b :01110
1. UNION
2. INTERSECTION
3. DIFFERENCE
4. Exit
Enter your Option :
1
Union of a and b :11111
1. UNION
2. INTERSECTION
3. DIFFERENCE
4. Exit
Enter your Option :
2
Intersection of a and b :01100
```

```
Intersection of a and b :01100
1. UNION
2. INTERSECTION
3. DIFFERENCE
4. Exit
Enter your Option :
3
Complement of b :10001
Difference of a and b :10001
1. UNION
2. INTERSECTION
3. DIFFERENCE
4. Exit
Enter your Option :
4


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