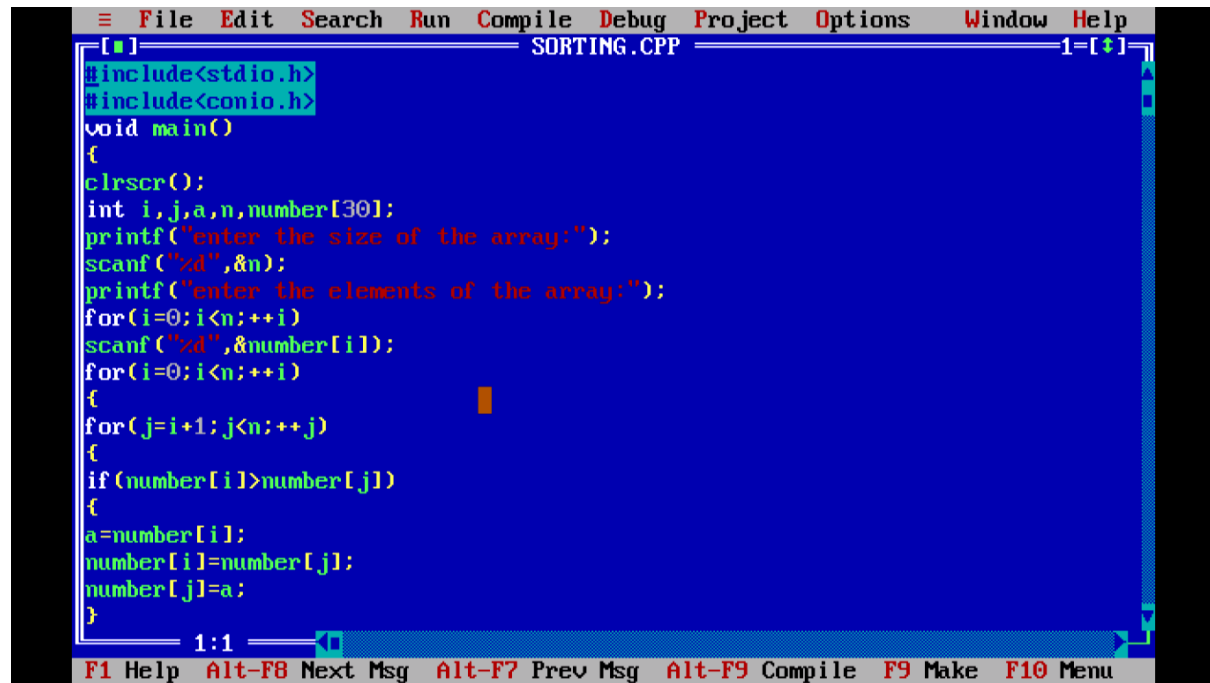
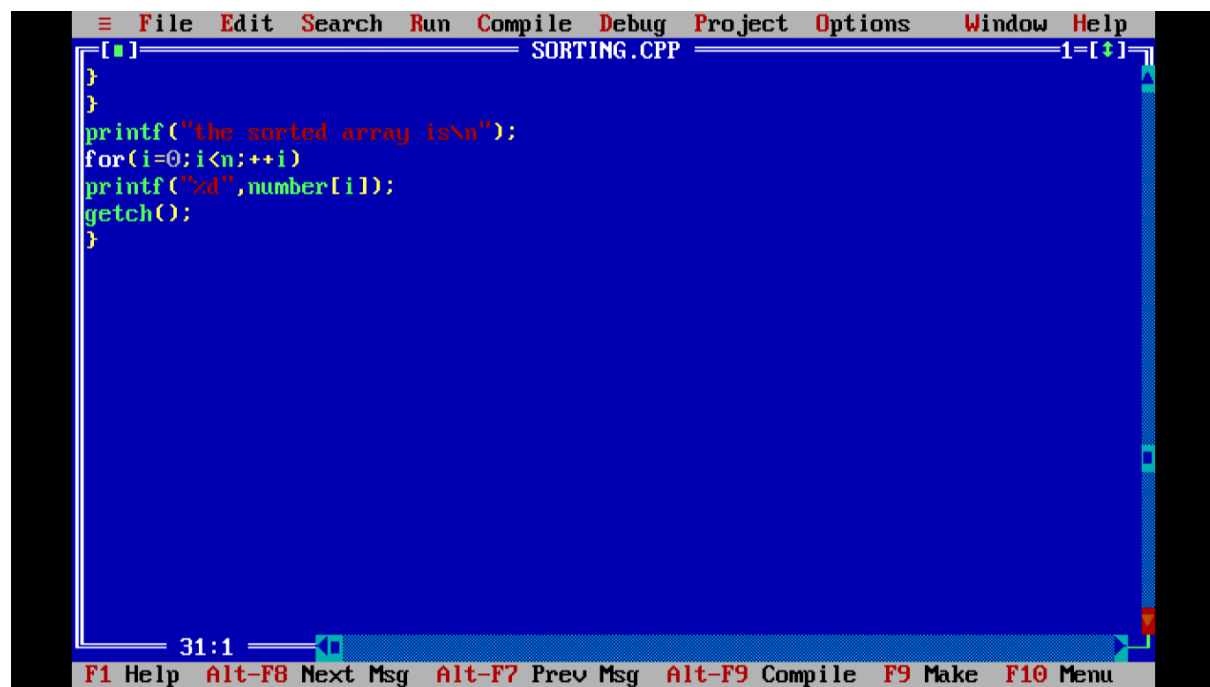


1.Sorting of integer array

PROGRAM



```
File Edit Search Run Compile Debug Project Options Window Help
[.] SORTING.CPP 1=[+]
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
int i,j,a,n,number[30];
printf("enter the size of the array:");
scanf("%d",&n);
printf("enter the elements of the array:");
for(i=0;i<n;++i)
scanf("%d",&number[i]);
for(i=0;i<n;++i)
{
for(j=i+1;j<n;++j)
{
if(number[i]>number[j])
{
a=number[i];
number[i]=number[j];
number[j]=a;
}
}
}
1:1
```



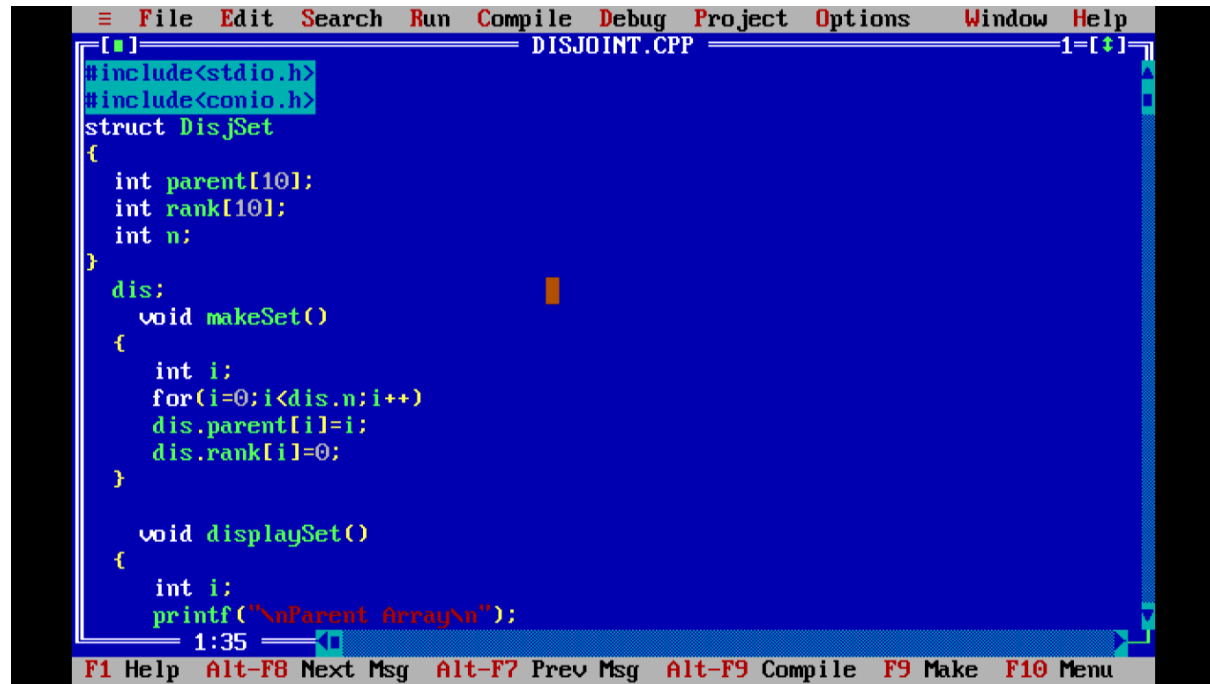
```
File Edit Search Run Compile Debug Project Options Window Help
[.] SORTING.CPP 1=[+]
}
}
printf("the sorted array is\n");
for(i=0;i<n;++i)
printf("%d",number[i]);
getch();
}
31:1
F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu
```

OUTPUT

```
enter the size of the array:6
enter the elements of the array:3
5
1
4
8
7
the sorted array is
134578_
```

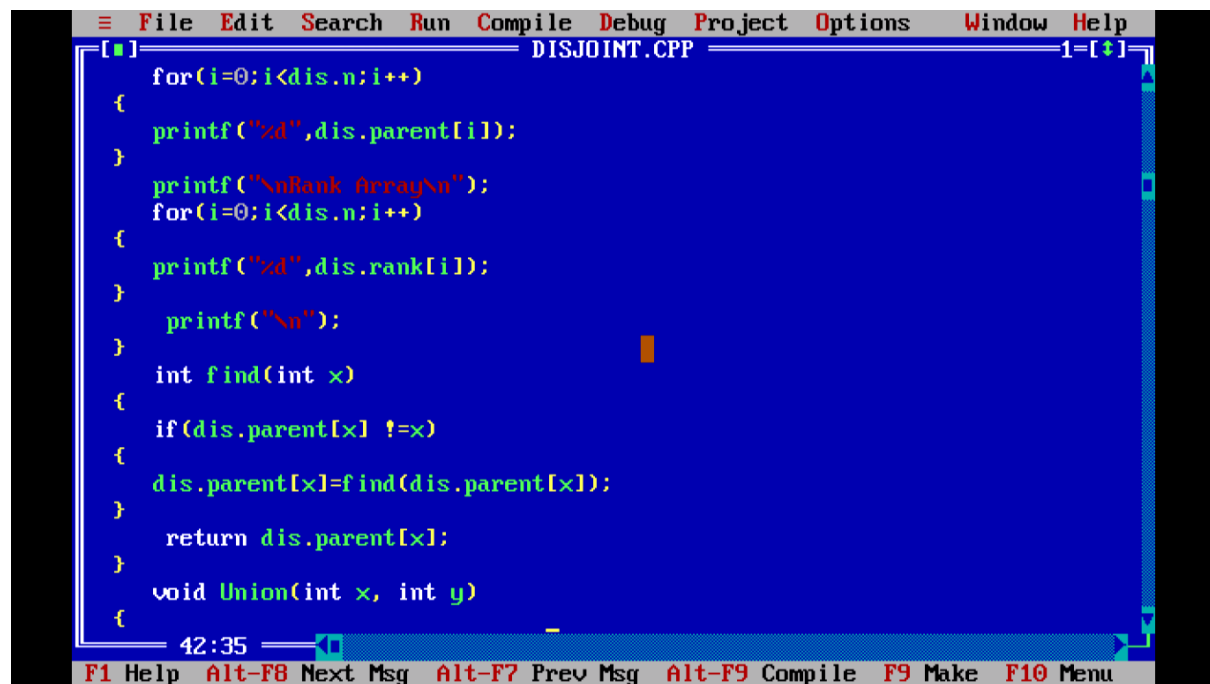
2.Implement Disjoint set operations

PROGRAM



```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP 1=[+]
#include<stdio.h>
#include<conio.h>
struct DisjSet
{
    int parent[10];
    int rank[10];
    int n;
}
dis;
void makeSet()
{
    int i;
    for(i=0;i<dis.n;i++)
        dis.parent[i]=i;
    dis.rank[i]=0;
}

void displaySet()
{
    int i;
    printf("NoParent Array\n");
    1:35
```



```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP 1=[+]
    printf("%d",dis.parent[i]);
}
printf("NoRank Array\n");
for(i=0;i<dis.n;i++)
{
    printf("%d",dis.rank[i]);
}
    printf("\n");
}
int find(int x)
{
    if(dis.parent[x] !=x)
    {
        dis.parent[x]=find(dis.parent[x]);
    }
    return dis.parent[x];
}
void Union(int x, int y)
{
    42:35
```

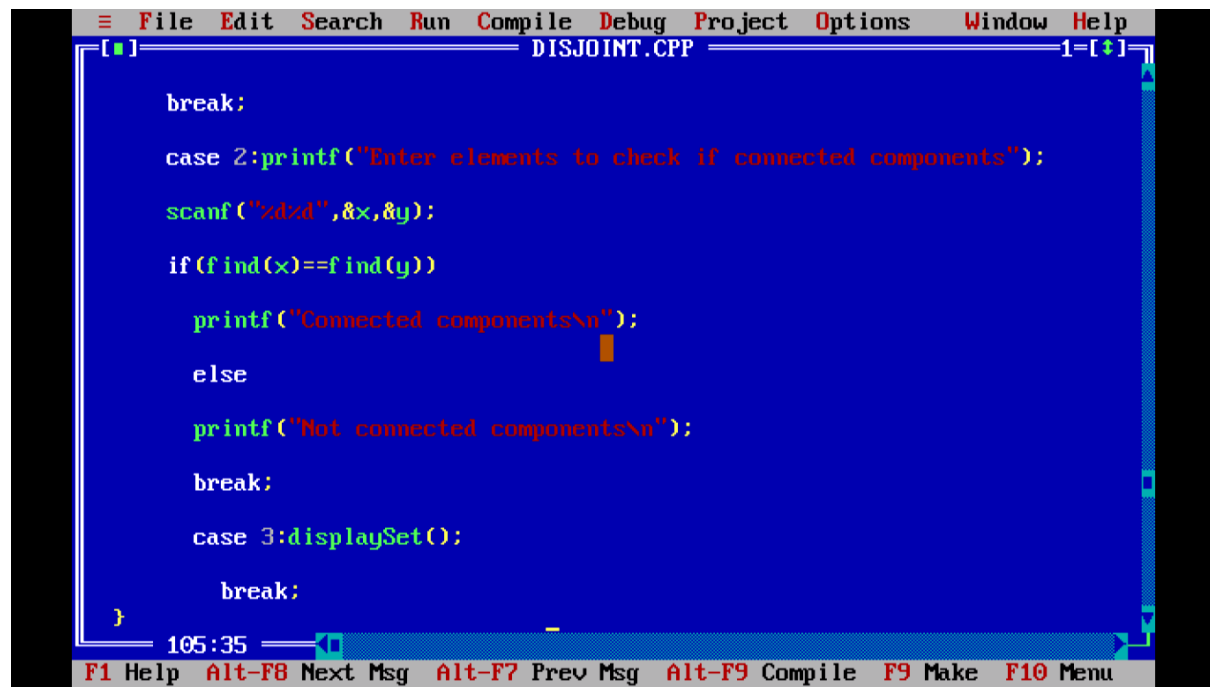
```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP 1=[+]
int xset=find(x);
int yset=find(y);
if(xset==yset)
return:
    if(dis.rank[xset]<dis.rank[yset])
    {
        dis.parent[xset]=yset;
        dis.rank[xset]=1;
    }
else if(dis.rank[xset]>dis.rank[yset])
    {
        dis.parent[yset]=xset;
        dis.rank[yset]=1;
    }
else
    {
        dis.parent[yset]=xset;
        dis.rank[xset]=dis.rank[xset] +1;
        dis.rank[yset]= -1;
    }
}
}
63:35
F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu
```

```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP 1=[+]
getch();
int main()
{
    int x,y,n,ch,wish;
    printf("How many elements ?");
    scanf("%d",&dis.n);
    makeSet();

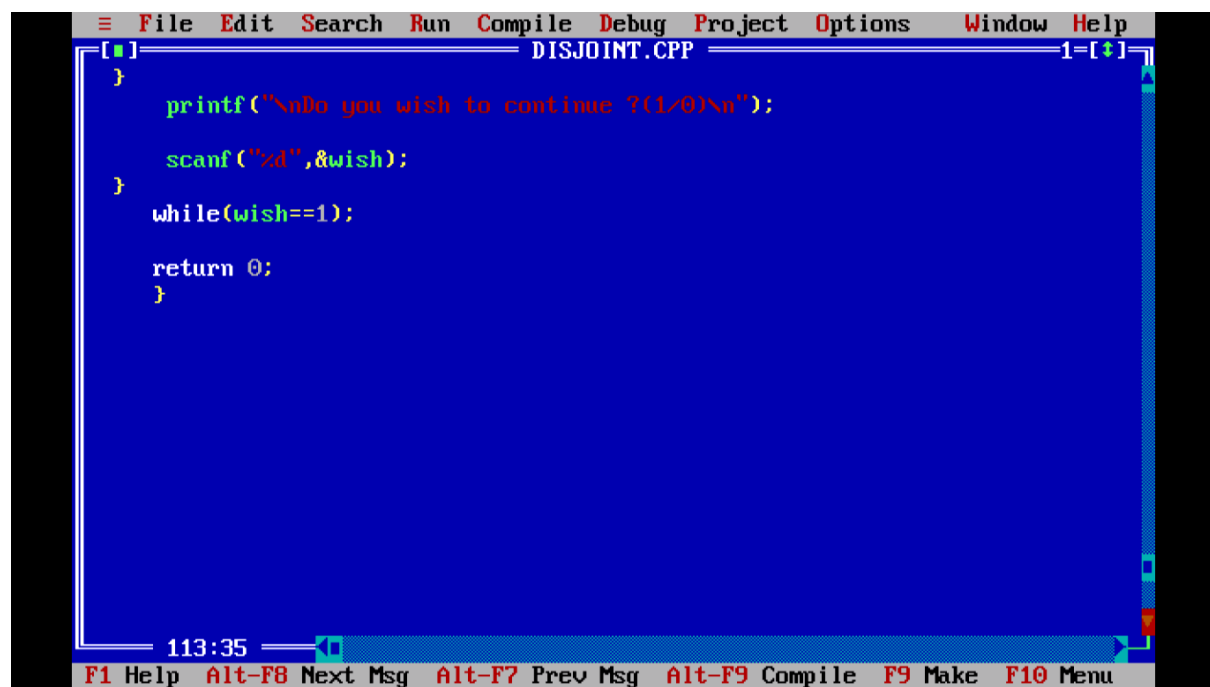
    do
    {
        printf("\n      MENU      \n");
        printf("1. Union\n2. Find\n3. Display\n");
        printf("enter choice\n");
        scanf("%d",&ch);
        switch(ch)
        {
            case 1: printf("Enter elements to perform union");

                    scanf("%d%d",&x,&y);

                    Union(x,y);
        }
    }
    getch();
}
84:35
F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu
```



```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP 1=1
break;
case 2:printf("Enter elements to check if connected components");
scanf("%d%d",&x,&y);
if(find(x)==find(y))
    printf("Connected components\n");
else
    printf("Not connected components\n");
break;
case 3:displaySet();
break;
}
105:35
F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu
```



```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP 1=1
}
printf("\ndo you wish to continue?(1/0)\n");
scanf("%d",&wish);
}
while(wish==1);
return 0;
}
113:35
F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu
```

OUTPUT

```
C:\TURBOC3\BIN>TC
How many elements ?4

      MENU
1. Union
2.Find
3.Display
enter choice
1
Enter elements to perform union2
3

Do you wish to continue ?(1/0)
1

      MENU
1. Union
2.Find
3.Display
enter choice
2_
```

```
2.Find
3.Display
enter choice
2
Enter elements to check if connected components1
4
Not connected components

Do you wish to continue ?(1/0)
1

      MENU
1. Union
2.Find
3.Display
enter choice
3

Parent Array
0122
Rank Array
001-1

Do you wish to continue ?(1/0)
_
```

enter choice

3

Parent Array

0122

Rank Array

001-1

Do you wish to continue ?(1/0)

1

MENU

1. Union

2.Find

3.Display

enter choice

3

Parent Array

0122

Rank Array

001-1

Do you wish to continue ?(1/0)

_