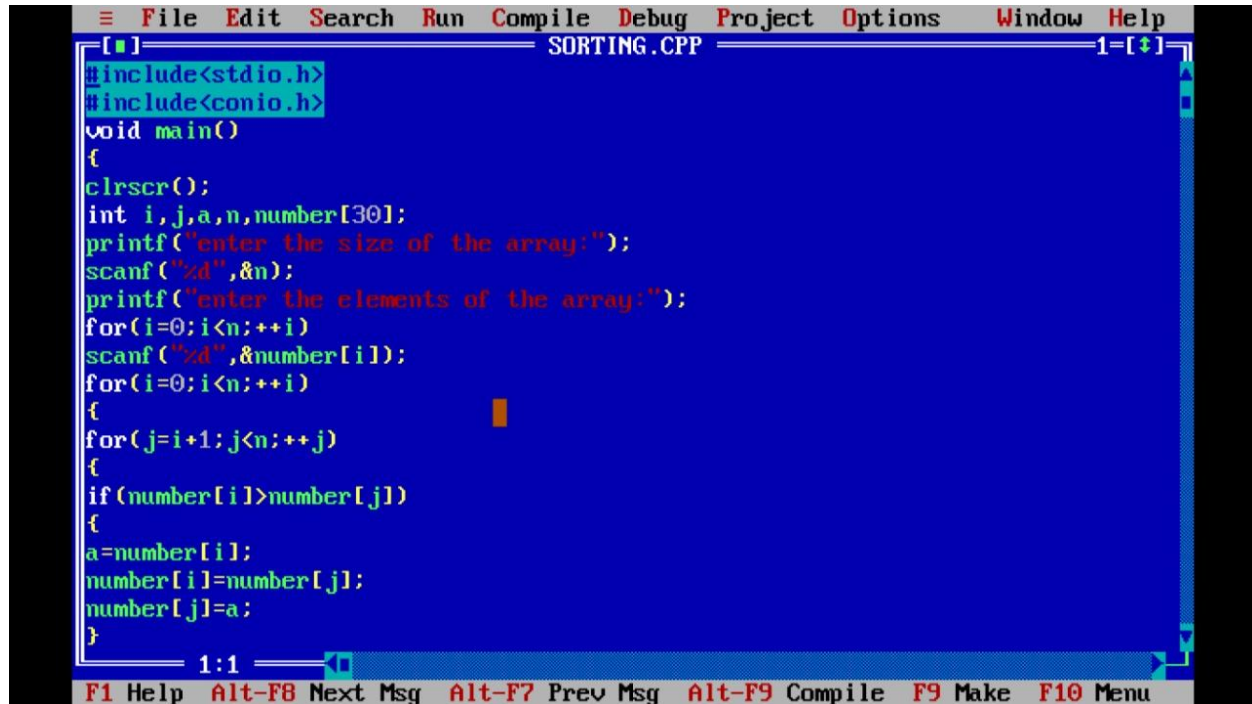


1. Sorting of array

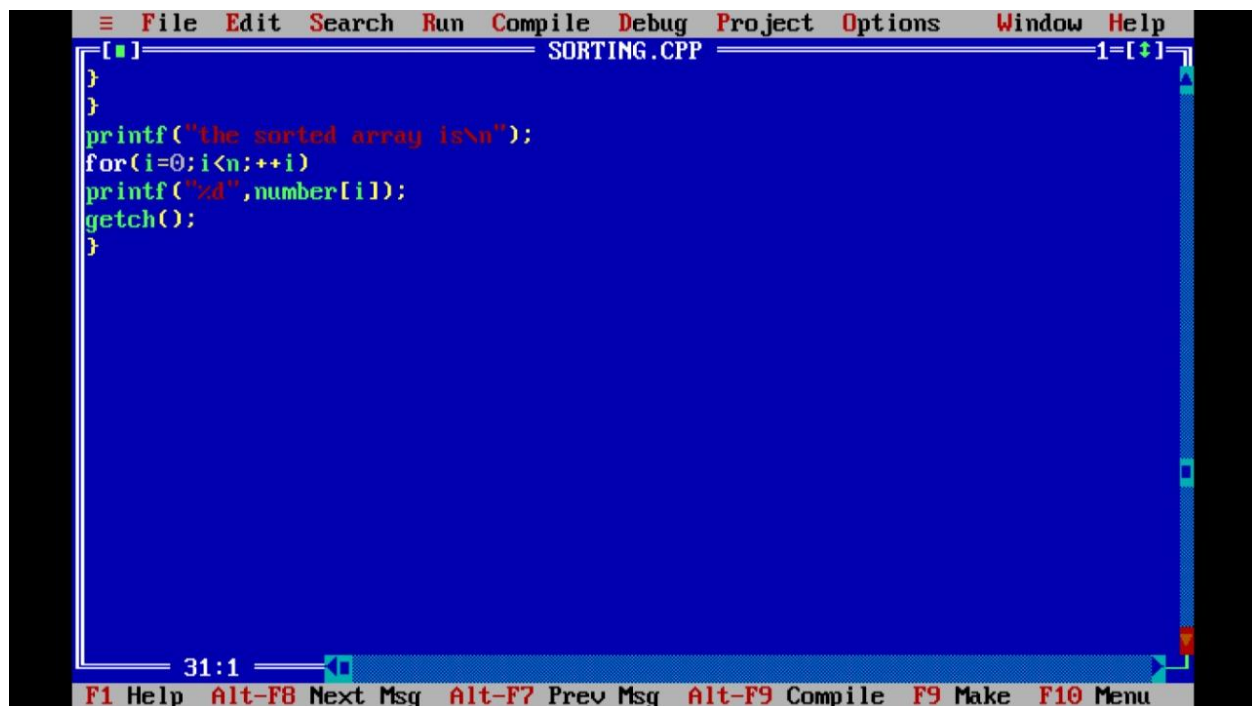


```
File Edit Search Run Compile Debug Project Options Window Help
SORTING.CPP 1=[+]
```

```
#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

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```
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SORTING.CPP 1=[+]
```

```
}
}
printf("the sorted array is\n");
for(i=0;i<n;++i)
printf("%d",number[i]);
getch();
}
```

31:1

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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.Disjoint set operations

```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP
#include<stdio.h>
struct disjset
{
int parent[10];
int rank[10];
int n;
}dis;
void makeset()
{
for(int i=0;i<dis.n;i++)
{
dis.parent[i]=i;
dis.rank[i]=0;
}}
void displayset()
{
printf("\nparent array\n");
for(int i=0;i<dis.n;i++)
{
printf("%d",dis.parent[i]);
}
```

```
F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu
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DISJOINT.CPP
for(int i=0;i<dis.n;i++)
{
printf("%d",dis.parent[i]);
}
printf("\nrank array\n");
for(i=0;i<dis.n;i++)
{
printf("%d",dis.parent[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)
{
int xset=find(x);
```

```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP
{
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]=yset;
dis.rank[xset]=dis.rank[xset]+1;
}
1:1
```

```
F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP
dis.rank[yset]=1;
}
}
int main()
{
int x,y,n;
printf("How many elements");
scanf("%d",&n);
makeset();
int ch,wish;
do
{
printf("\n MENU\n1.UNION\n2.FIND\n3.DISPLAY\n");
printf("eter choice");
scanf("%d",&ch);
switch(ch)
{
cas 1:printf('enter elements to prform union");
scanf("%d%d",&x,&y);
union(x,y);
break;
}
}
1:1
```

F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu

```
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP
switch(ch)
{
case 1:printf("enter elements to prform union");
scanf("%d%d",&x,&y);
union(x,y);
break;
case 2:printf("enter elements to check if the components ");
scanf("%d%d",&x,&y);
if(find(x)==find(y))
printf("connecet components\n");
else
printf("not connected components");
break;
case 3:
displayset();
break;
}
printf("Do you wish to continue?(1/0)\n");
scanf("%d",&wish);
}
while(wish==1);
1:1

F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu
File Edit Search Run Compile Debug Project Options Window Help
DISJOINT.CPP
if(find(x)==find(y))
printf("connecet components\n");
else
printf("not connected components");
break;
case 3:
displayset();
break;
}
printf("Do you wish to continue?(1/0)\n");
scanf("%d",&wish);
}
while(wish==1);
return 0;
}
1:1

F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu
```

```
≡ File Edit Search Run Compile Debug Project Options Window Help
[■] DISJOINT.CPP 2=[+]
```

```
{
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]=yset;
dis.rank[xset]=dis.rank[xset]+1;
}
```

```
1:1
```

```
F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu
```

+

```
Menu
1.Union
2.Find
3.Display
enter choice
2
Enter elements to check if connected components:1 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)
```

```
How many elements?4
```

```
Menu
1.Union
2.Find
3.Display
enter choice
1
```

```
Enter elements to perform union:2 3
```

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

```
Menu
1.Union
2.Find
3.Display
enter choice
2
```

```
Enter elements to check if connected components:
```