فصل ششم: آرایه‌ها

```
// S06-01.cpp
// گرفتن آرایه 5 عنصری اعداد و اضافه کردن یک واحد به آنها

#include "stdafx.h"
#include <iostream>
1
using namespace std;

int main(void)
{
 int s[5];
 cout<<"Enter one number : ";
 cin>>s[0];
 cout<<"Enter one number : ";
 cin>>s[1];
 cout<<"Enter one number : ";
 cin>>s[2];
 cout<<"Enter one number : ";
 cin>>s[3];
 cout<<"Enter one number : ";
 cin>>s[4];
 s[0]=s[0]+1;
 s[1]=s[1]+1;
 s[2]=s[2]+1;
 s[3]=s[3]+1;
 s[4]=s[4]+1;
 cout<<"Result is : \n";
 cout<<s[0]<<"\t";
 cout<<s[1]<<"\t";
 cout<<s[2]<<"\t";
 cout<<s[3]<<"\t";
 cout<<s[4]<<"\t";
 cout<<endl;
 system("pause");
 return 0;
}
```

```
Enter one number : 10
Enter one number : 20
Enter one number : 30
Enter one number : 40
Enter one number : 50
Result is :
11    21    31    41    51
Press any key to continue . . .
```

```
// S06-02.cpp
// مثال قبلی با استفاده از for

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
 int S[5],i;
 for(i=0;i<5;i++)
 {
  cout<<"Enter one number : ";
  cin>>S[i];
 }
 for(i=0;i<5;i++)
  S[i]=S[i]+1;
 cout<<"Result is : \n";
 for(i=0;i<5;i++)
  cout<<S[i]<<"\t";
 cout<<endl;
 system("pause");
 return 0;
}
```

```
Enter one number : 1
Enter one number : 2
Enter one number : 3
Enter one number : 4
Enter one number : 5
Result is :
2    3    4    5    6
Press any key to continue . . .
```

```
// S06-03.cpp
// گرفتن آرایه 10 عنصری اعداد و پیدا کردن بزرگترین آنها

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
 int S[10],i,max;
 cout<<"Enter one number : ";
 cin>>S[0];
 max=S[0];
 for(i=1;i<10;i++)
 {
  cout<<"Enter one number : ";
  cin>>S[i];
  if(S[i]>max)
    max=S[i];
 }
 cout<<"Maximum is : "<<max;
 cout<<endl;
 system("pause");
 return 0;
}
```

```
Enter one number : 10
Enter one number : 20
Enter one number : 30
Enter one number : 40
Enter one number : 50
Enter one number : 60
Enter one number : 70
Enter one number : 80
Enter one number : 90
Enter one number : 100
Maximum is : 100
Press any key to continue . . .
```

```
// S06-04.cpp
// جمع عناصر یک آرایه 10 عنصری اعشاری با مقدار اولیه

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
 float f[10]={1.3,2.3,13.2,12,23,12,12,43,1,2};
 float sum=0;
 int i;
 for(i=0;i<10;i++)
 sum=sum+f[i];
  cout<<"Numbers are : ";
 for(i=0;i<10;i++)
 cout<<f[i]<<" ";
 cout<<"\nSum of numbers is : "<<sum;
 cout<<endl;
 system("pause");
 return 0;
}
```

```
Numbers are : 1.3 2.3 13.2 12 23 12 12 43 1 2
Sum of numbers is : 121.8
Press any key to continue . . .
```

```
// S06-05.cpp
// پروسیجری که عناصر آرایه را یکی یکی کرفته و چاپ میکتد

#include "stdafx.h"
#include <iostream>


using namespace std;

void PrintFieldArray(int x)
{
  cout<<x<<" ";
}

int main(void)
{
int i,A[10]={1,2,3,4,5,6,7,8,9,10};
for(i=0;i<10;i++)
PrintFieldArray(A[i]);
cout<<endl;
system("pause");
return 0;
}
```

```
1 2 3 4 5 6 7 8 9 10
Press any key to continue . . .
```

```
// S06-06.cpp
// تابعی که عناصر آرایه را گرفته و زوج و فرد بودن آنها را چک میکند

#include "stdafx.h"
#include <iostream>


using namespace std;

bool even(int x)
{
 if(x%2==0)
  return true;
 else
  return false;
}

int main(void)
{
int i,A[10]={1,2,3,4,5,6,7,8,9,10};
for(i=0;i<10;i++)
  if(even(A[i])==true)
    cout<<A[i]<<" is Even.\n";
  else
   cout<<A[i]<<" is Odd.\n";
system("pause");
return 0;
}
```

```
1 is Odd.
2 is Even.
3 is Odd.
4 is Even.
5 is Odd.
6 is Even.
7 is Odd.
8 is Even.
9 is Odd.
10 is Even.
Press any key to continue . . .
```

```
/ S06-07.cpp
// ورود و افزایش و چاپ عناصر آرایه هر کدام با تابع جداگانه

#include "stdafx.h"
#include <iostream>


using namespace std;

void ReadFArray(int &x)
{
 cin>>x;
}

void WriteFArray(int x)
{
 cout<<x<<" ";
}

void IncFArray(int &x)
{
 x++;
}

int main(void)
{
int i,A[10];
cout<<"Enter 10 numbers : ";
for(i=0;i<10;i++)
 ReadFArray(A[i]);
for(i=0;i<10;i++)
 IncFArray(A[i]);
cout<<"Result is : ";
for(i=0;i<10;i++)
 WriteFArray(A[i]);
cout<<endl;
system("pause");
return 0;
}
```

```
Enter 10 numbers : 10 11 12 13 14 15 16 17 18 19
Result is : 11 12 13 14 15 16 17 18 19 20
Press any key to continue . . .
```

```
// S06-08.cpp
// گرفتن عناصر آرایه عددی و محاسبه مکعب آنها و ذخیره در همان عنصر

#include "stdafx.h"
#include <iostream>


using namespace std;

void  ReadArray(double  D[10])
{
 int i;
 cout<<"Enter 10 numbers : ";
 for(i=0;i<10;i++)
  cin>>D[i];
}

void CubeArray(double D[10])
{
 int i;
 for(i=0;i<10;i++)
  D[i]=pow(D[i],3.0);
}

void  WriteArray(double  D[10])
{
int i;
cout<<"Result is : ";
for(i=0;i<10;i++)
   cout<<D[i]<<" ";
}

int main(void)
{
double D[10];
ReadArray(D);
CubeArray(D);
WriteArray(D);
cout<<endl;
system("pause");
return 0;
}
```

```
Enter 10 numbers : 1 2 3 4 5 6 7 8 9 10
Result is : 1 8 27 64 125 216 343 512 729 1000
Press any key to continue . . .
```

```
/ S06-09.cpp
// ارسال آرایه 10 عنصری به تابع و یافتن بزرگترین عنصر

#include "stdafx.h"
#include <iostream>


using namespace std;

void  ReadArray(float  f[10])
{
 int i;
 cout<<"Enter 10 numbers : ";
 for(i=0;i<10;i++)
  cin>>f[i];
}

float FindMaxArray(float f[10])
{
 int i;
 float max=f[0];
 for(i=1;i<10;i++)
    if (f[i]>max)
      max=f[i];
 return(max);
}

int main(void)
{
 float max,f[10];
 ReadArray(f);
 max=FindMaxArray(f);
 cout<<"Maximum is : "<<max;
 cout<<endl;
 system("pause");
 return 0;
}
```

```
Enter 10 numbers : 5 10 15 20 25 30 35 40 45 50
Maximum is : 50
Press any key to continue . . .
```

```
// S06-10.cpp
// تاثیر کلمه کلیدی const در پارامترهای از نوع آرایه

#include "stdafx.h"
#include <iostream>


using namespace std;

void tryToModifyArray(const int[]);

int main(void)
{
   int A[]={10,20,30};
   tryToModifyArray(A);
   cout <<A[0] <<" "<<A[1]<<" "<<A[2]<<"\n";
   system("pause");
   return 0;
}


void  tryToModifyArray(const int B[])
{
  B[0]/=2;     → Error
  B[1]/=2;     → Error
  B[2]/=2;     → Error
}
```

برنامه اجرا نمیشود و **error** میدهد، زیرا مقدار **const** غیر قابل تغییر میباشد.

```
// S06-11.cpp
// تفاوت آرایه های محلی Static و محلی Automatic

#include "stdafx.h"
#include <iostream>


using namespace std;

void staticArrayInit(void);

void automaticArrayInit(void);

int main(void)
{
 cout<<"First call to each function : ";
 staticArrayInit();
 automaticArrayInit();
 cout<<"\n\nSecond call to each function : ";
 staticArrayInit();
 automaticArrayInit();
 cout<<endl;
 system("pause");
 return 0;
}

void staticArrayInit(void)
{
 static int A1[3];
 int i;
 cout<<"\nValues on entering staticArrayInit:\n";
 for(i=0;i<3;i++)
  cout<<" array1["<<i<<"]= "<<A1[i];
 cout<<"\nValues on exiting staticArrayInit:\n";
 for(i=0;i<3;i++)
  A1[i]+=5;
 for(int j=0;j<3;j++)
  cout<<" array1["<<j<<"]= "<<A1[j];
}

void automaticArrayInit(void)
{
 int A2[3]={1,2,3},i;
 cout<<"\n";
 cout<<"Values on entering automaticArrayInit:";
 cout<<"\n";
 for(i=0;i<3;i++)
  cout<<" array2["<<i<<"]= "<<A2[i];
 cout<<"\nValues on exiting automaticArrayInit:\n";
 for(i=0;i<3;i++)
  A2[i]+=5;
 for(int j=0;j<3;j++)
  cout<<" array2["<<j<<"]= "<<A2[j];
}
```

```
First call to each function :
Values on entering staticArrayInit:
 array1[0]= 0 array1[1]= 0 array1[2]= 0
Values on exiting staticArrayInit:
 array1[0]= 5 array1[1]= 5 array1[2]= 5
Values on entering automaticArrayInit:
 array2[0]= 1 array2[1]= 2 array2[2]= 3
Values on exiting automaticArrayInit:
 array2[0]= 6 array2[1]= 7 array2[2]= 8

Second call to each function :
Values on entering staticArrayInit:
 array1[0]= 5 array1[1]= 5 array1[2]= 5
Values on exiting staticArrayInit:
 array1[0]= 10 array1[1]= 10 array1[2]= 10
Values on entering automaticArrayInit:
 array2[0]= 1 array2[1]= 2 array2[2]= 3
Values on exiting automaticArrayInit:
 array2[0]= 6 array2[1]= 7 array2[2]= 8
Press any key to continue . . .
```

```
// S06-12.cpp
// جستجوی یک عنصر در آرایه با روش ترتیبی

#include "stdafx.h"
#include <iostream>


using namespace std;

int linearSearch(const int [],int,int);

int main(void)
{
 const int arraySize=10;
 int A[arraySize];
 int searchKey;
 cout<<"Enter "<<arraySize<<" numbers : ";
 for(int i=0;i<arraySize;i++)
   cin>>A[i];
 cout<<"Enter integer search key : ";
 cin>>searchKey;
 int element=linearSearch(A,searchKey,arraySize);
 if(element!=-1)
    cout<<"Found value in element : "<<element;
  else
    cout<<"Value not found." ;
 cout<<endl;
 system("pause");
 return 0;
}

int linearSearch(const int A[],int key,int size)
{
 for(int j=0;j<size;j++)
   if(A[j]==key)
      return j+1;
  return -1;
}
```

```
Enter 10 numbers : 5 7 9 11 13 15 17 19 21 23
Enter integer search key : 13
Found value in element : 5
Press any key to continue . . .
```

```
// S06-13.cpp
// جستجوی یک عنصر در آرایه مرتب به روش دودوئی

#include "stdafx.h"
#include <iostream>


using namespace std;

int BinarySearch(const int [],int,int);

int main(void)
{
 const int arraySize=10;
 int i;
 int A[arraySize];
 int searchKey;
 for(i=0;i<arraySize;i++)
     A[i]=2*i;
 cout<<"Numbers in array are : ";
 for(i=0;i<arraySize;i++)
    cout<<A[i]<<" ";
 cout<<"\nEnter integer search key : ";
 cin>>searchKey;
 int element=BinarySearch(A,searchKey,arraySize);
 if(element!=-1)
   cout<<"Found value in element : "<<element;
  else
   cout<<"Value not found." ;
 cout<<endl;
 system("pause");
 return 0;
}

int BinarySearch(const int A[],int key,int size)
{
 int mid , low=0 , high=size-1;
 while(low<=high)
  {
   mid=(low+high)/2;
   if(key<A[mid])
     high=mid-1;
   else
     if(key>A[mid])
       low=mid+1;
     else
       return mid+1;
  }
 return -1;
}
```

```
Numbers in array are : 0 2 4 6 8 10 12 14 16 18
Enter integer search key : 4
Found value in element : 3
Press any key to continue . . .
```

```
// S06-14.cpp
// مرتب کردن یک آرایه 5 عنصری

#include "stdafx.h"
#include <iostream>


using namespace std;

void exchange(int &x,int &y)
{
 int temp;
 temp=x;
 x=y;
 y=temp;
}

void SortArray(int A[],int num)
{
 int i,j;
 for(i=0;i<num;i++)
  for(j=i+1;j<num;j++)
   if(A[i]>A[j])
    exchange(A[i],A[j]);
}

void PrintArray(int A[],int num)
{
 int i;
 cout<<"Sort Array is : ";
 for(i=0;i<num;i++)
   cout<<A[i]<<" ";
}

int main(void)
{
 int A[5]={32,15,41,12,14};
 PrintArray(A,5);
 cout<<endl;
 SortArray(A,5);
 PrintArray(A,5);
 cout<<endl;
 system("pause");
 return 0;
}
```

```
Sort Array is : 32 15 41 12 14
Sort Array is : 12 14 15 32 41
Press any key to continue . . .
```

```
// S06-15.cpp
// گرفتن یک آرایه دو بعدی اعشاری و افزودن یک واحد به آنها

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
int s[3][3],i,j;
cout<<"Enter 9 numbers : ";
for(i=0;i<3;i++)
 for(j=0;j<3;j++)
   cin>>s[i][j];
for(i=0;i<3;i++)
 for(j=0;j<3;j++)
   s[i][j]=s[i][j]+1;
cout<<"Numbers are : \n";
for(i=0;i<3;i++)
 {
 for(j=0;j<3;j++)
   cout<<s[i][j]<<"\t";
 cout<<"\n";
 }

 system("pause");
 return 0;
}
```

```
Enter 9 numbers : 2 4 6 8 10 12 14 16 18
Numbers are :
3     5     7
9     11    13
15    17    19
Press any key to continue . . .
```

```
// S06-16.cpp
// قرار دادن جدول ضرب در یک آرایه 2 بعدی

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
int s[10][10],i,j;
for(i=0;i<10;i++)
  for(j=0;j<10;j++)
   s[i][j]=(i+1)*(j+1);
for(i=0;i<10;i++)
 {
  for(j=0;j<10;j++)
   cout<<s[i][j]<<"\t";
  cout<<"\n";
 }

 system("pause");
 return 0;
}
```

```
1    2    3    4    5    6    7    8    9    10

2    4    6    8    10   12   14   16   18   20

3    6    9    12   15   18   21   24   27   30

4    8    12   16   20   24   28   32   36   40

5    10   15   20   25   30   35   40   45   50

6    12   18   24   30   36   42   48   54   60

7    14   21   28   35   42   49   56   63   70

8    16   24   32   40   48   56   64   72   80

9    18   27   36   45   54   63   72   81   90

10   20   30   40   50   60   70   80   90   100
Press any key to continue . . .
```

```
// S06-17.cpp
// گرفتن یک آرایه دو بعدی 5*5 از اعداد صحیح و نگاشت آن به یک آرایه یک بعدی 25 عنصری

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
int A[5][5],B[25],i,j;
cout<<"Enter 25 numbers : ";
for(i=0;i<5;i++)
 for(j=0;j<5;j++)
  cin>>A[i][j];
for(i=0;i<5;i++)
 for(j=0;j<5;j++)
   B[5*i+j]=A[i][j];
cout<<"Result is : "<<"\n";
for(i=0;i<25;i++)
  cout<<B[i]<<" ";
cout<<endl;

system("pause");
return 0;
}
```

```
Enter 25 numbers : 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Result is :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Press any key to continue . . .
```

```
// S06-18.cpp
// بر عکس مثال قبل

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
int A[5][5],B[25],i,j;
cout<<"Enter 25 numbers : ";
for(i=0;i<25;i++)
 cin>>B[i];
for(i=0;i<5;i++)
 for(j=0;j<5;j++)
  A[i][j]=B[5*i+j];
cout<<"Result is : "<<"\n";
for(i=0;i<5;i++)
 {
  for(j=0;j<5;j++)
   cout<<A[i][j]<<"\t";
  cout<<"\n";
 }
cout<<endl;

system("pause");
return 0;
}
```

```
Enter 25 numbers :  1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Result is :
1     2     3     4     5
6     7     8     9     10
11    12    13    14    15
16    17    18    19    20
21    22    23    24    25
Press any key to continue . . .
```

```
// S06-19.cpp
// روش های مختلف مقدار دهی اولیه آرایه 2 بعدی

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
 int A1[2][3]={{1,2,3},{4,5,6}};
 int A2[2][3]={1,2,3,4,5};
 int A3[2][3]={{1,2},{4}};
 int i,j;
 cout<<"Values in array1 by row are : \n";
 for(i=0;i<2;i++)
  {
   for(j=0;j<3;j++)
    cout<<A1[i][j]<<"\t";
   cout<<"\n";
 }
 cout<<"Values in array2 by row are : \n";
 for(i=0;i<2;i++)
  {
   for(j=0;j<3;j++)
     cout<<A2[i][j]<<"\t";
   cout<<"\n";
  }
  cout<<"Values in array3 by row are : \n";
  for(i=0;i<2;i++)
  {
   for(j=0;j<3;j++)
     cout<<A3[i][j]<<"\t";
   cout<<"\n";
  }

system("pause");
return 0;
}
```

```
Values in array1 by row are :
1    2    3
4    5    6
Values in array2 by row are :
1    2    3
4    5    0
Values in array3 by row are :
1    2    0
4    0    0
Press any key to continue . . .
```

```
// S06-20.cpp
// قرار دادن جدول ضرب در یک آرایه 2 بعدی 10*10

#include "stdafx.h"
#include <iostream>


using namespace std;

void set(int A[10][10])
{
for(int i=0;i<10;i++)
 for(int j=0;j<10;j++)
  A[i][j]=(i+1)*(j+1);
}

void show(int A[10][10])
{
 for(int i=0;i<10;i++)
 {
  for(int j=0;j<10;j++)
   cout<<A[i][j]<<"\t";
  cout<<endl;
 }
}

int main(void)
{
 int A[10][10];
 set(A);
 show(A);
 cout<<endl;

 system("pause");
 return 0;
}
```

```
1    2    3    4    5    6    7    8    9    10

2    4    6    8    10    12    14    16    18    20

3    6    9    12    15    18    21    24    27    30

4    8    12    16    20    24    28    32    36    40

5    10    15    20    25    30    35    40    45    50

6    12    18    24    30    36    42    48    54    60

7    14    21    28    35    42    49    56    63    70

8    16    24    32    40    48    56    64    72    80

9    18    27    36    45    54    63    72    81    90

10    20    30    40    50    60    70    80    90    100

Press any key to continue . . .
```

```
// S06-21.cpp
// گرفتن یک رشته و چاپ آن

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
 char s[10];
 cout<<"Enter a string : ";
 cin>>s;
 cout<<"your string is : ";
 cout<<s;
 cout<<endl;

 system("pause");
 return 0;
}
```

```
Enter a string : ABC123abc
your string is : ABC123abc
Press any key to continue . . .
```

```
// S06-22.cpp
// گرفتن یک رشته و شمارش کاراکتر های آن

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
 char s[10];
 int num=0;
 cout<<"Enter A String : ";
 cin>>s;
 while(s[num]!='\0')
   num++ ;
 cout<<"Length of string is : "<<num;
 cout<<endl;

 system("pause");
 return 0;
}
```

```
Enter A String : ABC123abc
Length of string is : 9
Press any key to continue . . .
```

```
// S06-23.cpp
// چسباندن 2 رشته ورودی به هم

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
 char str1[50],str2[50];
 int i=0,j=0;
 cout<<"Enter First String : ";
 cin>>str1;
 cout<<"Enter Second String : ";
 cin>>str2;
 while(str1[i]!='\0')
   i++;
 while(str2[j]!='\0')
 {
  str1[i]=str2[j];
  i++;
  j++;
 }
 str1[i]='\0';
 cout<<"Result is : "<<str1;
 cout<<endl;

 system("pause");
 return 0;
}
```

```
Enter First String : ABC123abc
Enter Second String : EFG456efg
Result is : ABC123abcEFG456efg
Press any key to continue . . .
```

```
// S06-24.cpp
// خواندن یک رشته و تبدیل تمام حروف کوچک به بزرگ

#include "stdafx.h"
#include <iostream>


using namespace std;

void upper(char []);

int main(void)
{
 char str[30];
 cout<<"Enter a String : ";
 cin>>str;
 upper(str);
 cout<<"Result is : "<<str;
 cout<<endl;

 system("pause");
 return 0;
}


void upper(char s[30])
{
 int i=0;
 while(s[i]!='\0')
 {
  if(s[i]>='a' && s[i]<='z')
    s[i]=s[i]-32;
  i++;
 }
}
```

```
Enter a String : ABC123abc
Result is : ABC123ABC
Press any key to continue . . .
```

```
// S06-25.cpp
// خواندن یک رشته از ورودی و تعیین طول آن با تابع کتابخانه ای

#include "stdafx.h"
#include <iostream>
//#include <string.h>  for some of String Function
//#include <cstring>   for some of String Function


using namespace std;

int main(void)
{
 char S[50];
 int len;
 cout<<"Enter a String : ";
 cin>>S;
 len=strlen(S);
 cout<<"length of String is : "<<len;
 cout<<endl;

 system("pause");
 return 0;
}
```

```
Enter a String : ABC123abc
length of String is : 9
Press any key to continue . . .
```

```
// S06-26.cpp
// گرفتن 2 رشته و چاپ مرتب آنها

#include "stdafx.h"
#include <iostream>
//#include <string.h>
//#include <cstring>


using namespace std;

int main(void)
{
 char S1[50],S2[50];
 cout<<"Enter First String : ";
 cin>>S1;
 cout<<"Enter Second String : ";
 cin>>S2;
 cout<<"sorted string : ";
 if(strcmp(S1,S2)<0)
   cout<<S1<<"\t"<<S2;
 else
   cout<<S2<<"\t"<<S1;
 cout<<endl;

 system("pause");
 return 0;
}
```

```
Enter First String : ABC123abc
Enter Second String : DEF456def
sorted string : ABC123abc       DEF456def
Press any key to continue . . .
```

```
// S06-27.cpp
// گرفتن 5 رشته و ذخیره در یک آرایه رشته ای و مرتب کردن آنها
#include "stdafx.h"
#include <iostream>
//#include <string.h>
//#include <cstring>

using namespace std;

void ExchangeString(char A1[50],char A2[50])
{
 char s[50];
 strcpy(s,A1);
 strcpy(A1,A2);
 strcpy(A2,s);
}

void SortArrayString(char str[][50],int n)
{
 int i,j;
 for(i=0;i<n;i++)
  for(j=i+1;j<n;j++)
    if(strcmp(str[i],str[j])>0)
      ExchangeString(str[i],str[j]);
}

void InputSortArrayString(char str[][50],int n)
{
 int i;
 for(i=0;i<n;i++)
  {
   cout<<"Enter a String : ";
   cin>>str[i];
  }
}

void OutputSortArrayString(char str[][50],int n)
{
 int i;
 cout<<"Strings are : ";
 for(i=0;i<n;i++)
   cout<<str[i]<<"\t";
}

int main(void)
{
 const int n=5;
 char str[n][50];
 InputSortArrayString(str,n);
 SortArrayString(str,n);
 OutputSortArrayString(str,n);
 cout<<endl;

 system("pause");
 return 0;
}
```

```
Enter a String : reza
Enter a String : ali
Enter a String : maryam
Enter a String : mohammad
Enter a String : mina
Strings are : ali     maryam  mina    mohammad      reza
Press any key to continue . . .
```

```
// P06-01.cpp
// گرفتن 10 عدد و چاپ اعداد مثبت و سپس اعداد منفی

#include "stdafx.h"
#include <iostream>

using namespace std;

int main(void)
{
int A[10],i;
cout<<"Enter 10 numbers : ";
for(i=0;i<10;i++)
 cin>>A[i];
cout<<"Negatives are : ";
for(i=0;i<10;i++)
 if(A[i]<0)
  cout<<A[i]<<"\t";
cout<<"\nPositivs are : ";
for(i=0;i<10;i++)
 if(A[i]>0)
  cout<<A[i]<<"\t";
cout<<endl;

system("pause");
return 0;
}
```

```
Enter 10 numbers : 1  -1  2  -2  3  -3  4  -4  5  -5
Negatives are : -1     -2     -3     -4     -5
Positivs are : 1       2      3      4      5
Press any key to continue . . .
```

```
// P06-02.cpp
// for مقداردهی عناصر آرایه 10 عنصری با اندیس آرایه با استفاده از

#include "stdafx.h"
#include <iostream>
#include <iomanip>

using namespace std;

int main(void)
{
int n[10];
for(int i=0;i<10;i++)
 n[i]=i;
cout<<"Element"<<setw(13)<<"Value"<<endl;
for(int j=0;j<10;j++)
 cout<<setw(7)<<j<<setw(13)<<n[j]<<endl;

system("pause");
return 0;
}
```

```
Element      Value
      0          0
      1          1
      2          2
      3          3
      4          4
      5          5
      6          6
      7          7
      8          8
      9          9
Press any key to continue . . .
```

```
// P06-03.cpp
// مقداردهی عناصر آرایه 10 عنصری با اعداد زوج

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
const int arraySize=10;
int  S[arraySize];
for(int i=0;i<arraySize;i++)
  S[i]=2+2*i;
cout<<"Element   Value"<<endl;
for(int j=0;j<arraySize;j++)
  cout<<j<<"\t"<<S[j]<<endl;

system("pause");
return 0;
}
```

```
Element   Value
0     2
1     4
2     6
3     8
4     10
5     12
6     14
7     16
8     18
9     20
Press any key to continue . . .
```

```
// P06-04.cpp
// مجموع عناصر آرایه

#include "stdafx.h"
#include <iostream>


using namespace std;

int main(void)
{
const int Size=10;
int A[Size]={87,68,94,10,83,78,85,91,76,87};
int sum=0,i;
for(i=0;i<Size;i++)
 sum+=A[i];
cout<<"Sum of array elements : "<<sum;
cout<<endl;

system("pause");
return 0;
}
```

```
Sum of array elements : 759
Press any key to continue . . .
```

```
// P06-05.cpp
// جستجوی دودوئی  در یک آرایه مرتب با استفاده از تابع بازگشتی

#include "stdafx.h"
#include <iostream>

using namespace std;

int BSearch(const int [],int,int,int);

int main(void)
{
const int arraySize=10;
int i;
int A[arraySize];
int searchKey;
for(i=0;i<arraySize;i++)
  A[i]=2*i;
cout<<"Numbers in array are : ";
for(i=0;i<arraySize;i++)
  cout<<A[i]<<" ";
cout<<"\nEnter integer search key : ";
cin>>searchKey;
int element=BSearch(A,searchKey,0,arraySize);
if(element!=-1)
  cout<<"Found value in element : "<<element;
else
  cout<<"Value not found." ;
cout<<endl;

system("pause");
return 0;
}

int BSearch(const int A[],int key,int low,int high)
{
 int mid;
 mid=(high+low)/2;
 if (low<=high)
 {
  if(A[mid]==key)
    return mid;
  if(A[mid]<key)
    return(BSearch(A,key,mid+1,high));
  if(A[mid]>key)
    return(BSearch(A,key,low,mid-1));
  }
 else
   return -1;
}
```

```
Numbers in array are : 0 2 4 6 8 10 12 14 16 18
Enter integer search key : 6
Found value in element : 3
Press any key to continue . . .
```

```
// P06-06.cpp
// گرفتن یک رشته و چاپ کاراکتر به کاراکتر آن

#include "stdafx.h"
#include <iostream>

using namespace std;

#include "stdafx.h"
#include<iostream>
#include<conio.h>

using namespace std;

int main(void)
{
char S[30];
int i=0;
cout<<"Enter a String : ";
cin>>S;
while(S[i]!='\0')
 {
  cout<<S[i]<<" ";
  i++;
 }
cout<<endl;

system("pause");
return 0;
}
```

```
Enter a String : ABC123abc
A B C 1 2 3 a b c
Press any key to continue . . .
```

```
// P06-07.cpp
// خواندن یک رشته و تبدیل تمام حروف بزرگ به کوچک

#include "stdafx.h"
#include<iostream>

using namespace std;

void lower(char []);

int main(void)
{
 char str[30];
 cout<<"Enter a String : ";
 cin>>str;
 lower(str);
 cout<<"Result is : "<<str;
 cout<<endl;

system("pause");
return 0;
}

void lower(char s[30])
{
 int i=0;
 while(s[i]!='\0')
 {
  if(s[i]>='A' && s[i]<='Z')
    s[i]=s[i]+32;
  i++;
 }
}
```

```
Enter a String : ABCD123456qwe
Result is : abcd123456qwe
Press any key to continue . . .
```