

```
/* PROGRAM INFORMATION
```

```
FILE: p8.c
```

```
AUTHOR: VRee
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```
CREATION DATE: 2002/04/22
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VERSION: 01
```

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LAST REVISION DATE: 2002/04/22
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LAST REVISED BY: VRee
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REVISION HISTORY:
```

```
    VERSION:    DESCRIPTION:
```

```
    01          INITIAL ISSUE
```

```
DESCRIPTION OF PROGRAM:
```

```
    A program to sort(ascending) and display a group of 50 integers input by the user.
```

```
*/
```

```
/* PREPROCESSOR DIRECTIVES */
```

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
/* FUNCTION DECLARATIONS */
```

```
void swap(int *i, int *j);
```

```
void bubble2 (int data[], int n);
```

```
void print_array(int MyArray[], int n);
```

```
/* MAIN PROGRAM */
```

```
void main(void)
```

```
{
```

```
    /* Variable Declarations */
```

```
    int i; /* Integer index, 1-50 */
```

```
    int j; /* Array index; j = i-1, 0-49 */
```

```
    int unsorted[50]; /* Array of unsorted integers */
```

```
    int sorted[50]; /* Array of sorted integers */
```

```
    /* Instructions to user */
```

```
    printf("Enter 50 integers, one at a time. After each integer, hit ENTER.\n\n");
```

```
    /* LOOP */
```

```
    for(i=1; i<=50; i++)
```

```
    {
```

```
        printf("Integer Number %d:\t",i);
```

```
        j = i-1;
```

```
        scanf("%d", &unsorted[j]); /* Get the integer from the keyboard */
```

```
        sorted[j] = unsorted[j]; /* Copy integer into sorted list.
```

```
        This list will be sorted later. */
```

```

}

/* Sort the integers read in from the keyboard */

bubble2(sorted, 50);

printf("\n");
printf("\n");

/* Print unsorted integers */

printf("Unsorted List\n\n");
print_array(unsorted, 50);

/* Print sorted integers */

printf("Sorted List (Ascending order)\n\n");
print_array(sorted, 50);

}

/* FUNCTION DEFINITIONS */

void swap(int *i, int *j)
{
    int temp;

    temp = *i;
    *i = *j;
    *j = temp;
}

void bubble2 (int data[], int n)
{
    int i, j;
    int swapped;

    swapped = 1;
    for(i = 0; (i < n) && swapped; i++)
    {
        swapped = 0;
        for(j= n - 1; j > i; j--)
            if( data[j] < data[j-1])
            {
                swapped = 1;
                swap(&data[j], &data[j-1]);
            }
    }
}

```

```
/* Function to print out an array of integers, 10 per line. */
```

```
void print_array(int MyArray[], int n)
```

```
{
```

```
    /* n = number of integers in MyArray. */
```

```
    int i; /* Integer index, 1-50 */
```

```
    int j; /* Array index; j = i-1, 0-49 */
```

```
    for(i=1; i<=n; i++)
```

```
    {
```

```
        j= i-1;
```

```
        printf("%d\t", MyArray[j]);
```

```
        if(i%10 ==0)
```

```
        {
```

```
            printf("\n");
```

```
        }
```

```
    }
```

```
    printf("\n");
```

```
    printf("\n");
```

```
}
```