```
using System;

namespace lab1
{
   class Program
   {
      public void showMenu()
      {
         Console.WriteLine("<-----Menu----->");
         Console.WriteLine("1. Input array");
         Console.WriteLine("2. Show array ");
         Console.WriteLine("3. Get specific number in array ");
         Console.WriteLine("4. Insert number at position");
         Console.WriteLine("5. Remove array");
         Console.WriteLine("6. Remove number at specific location");
         Console.WriteLine("7. Replace number at position by another number");
         Console.WriteLine("8. Size of array");
         Console.WriteLine("9. Check empty");
         Console.WriteLine("10. Check full");
         Console.WriteLine("11. Selection Short");
         Console.WriteLine("12. Buble Short");
         Console.WriteLine("13. Insert Short");
         Console.WriteLine("14. Quick Short");
         Console.WriteLine("15. Exit");
         Console.WriteLine("==================================");
      }


      public void Getpos(int[] arr, int pos)
      {
         Console.WriteLine("Your number at {0} position that you have found is: {1}",pos+1,
arr[pos]);
      }

      public void InsertNum(int[] arr,int n, int num, int pos)
      {
         if ( n >= 100) Console.WriteLine("Array is full");
         else
         {
            n =n+1;
            for(int i=n; i > pos; i--)
            {
               arr[i] = arr[i-1];
            }
            arr[pos] = num;
         }
      }

      public void RemoveArray(int[] arr, int n)
      {
         for (int i=0; i<n; i++)
         {
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        arr[0] = 0;
    }
    n=0;
}

public void RemoveAt(int[] arr,int n, int pos)
{
    if(pos >n) Console.Write("You selection run out of array");
    else
    {
        if(pos == n-1)
        {
            arr[n-1]=0;
            n=n-1;
        }
        else
        {
            for (int i=pos; i<n;i++)
            {
                arr[i]=arr[i+1];
            }
            n=n-1;
        }
    }
}


public void replaceNum(int[] arr, int reNum, int pos)
{
    arr[pos] = reNum;
}
public void Display(int[] arr, int n)
{
    Console.WriteLine();
    Console.Write("Your array: ");
    for (int i=0; i<n;i++)
    {
        Console.Write(arr[i]);
        Console.Write(" ");
    }
    Console.WriteLine();
}

public void SelectionShort(int[] arr,int n)
{
    int temp, min;
    for (int i = 0; i < n - 1; i++)
    {
        min = i;
        for (int j = i + 1; j < n; j++)
        {
            if (arr[j] < arr[min])
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            {
            min = j;
            }
        }
    temp = arr[min];
    arr[min] = arr[i];
    arr[i] = temp;
    }
    Console.WriteLine();
    Console.Write("Sorted array is: ");
    for (int i = 0; i < n; i++)
    {
        Console.Write(arr[i] + " ");
    }
    Console.WriteLine("\n");
}

public void BubleShort(int[] arr,int n)
{
    int temp;
    for (int i =0;i<n-1;i++)
    {
        for (int j=i+1;j<n;j++)
        {
            if (arr[i]>arr[j])
                {
                    temp=arr[i];
                    arr[i] = arr[j];
                    arr[j] = temp;
                }
        }
    }
    for (int i = 0; i < n; i++)
    {
        Console.Write(arr[i] + " ");
    }
    Console.WriteLine("\n");
}

public void InsertShort(int[] arr, int n)
{

    for (int i = 1; i < n; i++)
    {
        int temp = arr[i];

        for (int j = i - 1; j >= 0; j-- )
        {
            if (temp < arr[j])
                {
                    arr[j + 1] = arr[j];
                    arr[j] = temp;
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            }
        else break;
        }
    }
    Console.Write("\nSorted Array is: ");
    for (int i = 0; i < n; i++)
    {
        Console.Write(arr[i] + " ");
    }
    Console.WriteLine("\n");
}

public void QuickSort(int[] arr, int start, int end)
{
    int i;
    if (start < end)
    {
        i = Partition(arr, start, end);

        QuickSort(arr, start, i - 1);
        QuickSort(arr, i + 1, end);
    }
}
private int Partition(int[] arr, int start, int end)
{
    int temp;
    int p = arr[end];
    int i = start - 1;

    for (int j = start; j <= end - 1; j++)
    {
        if (arr[j] <= p)
        {
            i++;
            temp = arr[i];
            arr[i] = arr[j];
            arr[j] = temp;
        }
    }

    temp = arr[i + 1];
    arr[i + 1] = arr[end];
    arr[end] = temp;
    return i + 1;
}
static void Main(string[] args)
{
    Program myProgram = new Program();
    myProgram.showMenu();

    int[] arr = new int[100];
    int n=0;
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Console.Write("Input how many number in array: ");
n = Convert.ToInt32(Console.ReadLine());

Console.Write("Enter your command: ");
int pickOption = Convert.ToInt32(Console.ReadLine());

while (pickOption != 15)
{
   if (pickOption <1 || pickOption >15)
   {
      Console.WriteLine("Error");
   }else
   {
      switch(pickOption)
      {
         case 1:
            for (int i=0; i<n; i++)
            {
               Console.Write("Input your number {0} that you want insert to array: ", i+1);
               arr[i] = Convert.ToInt32(Console.ReadLine());
            }
            break;

         case 2:
            myProgram.Display(arr, n);
            break;

         case 3:
            Console.Write("Input your number location: ");
            int l = Convert.ToInt32(Console.ReadLine());
            myProgram.Getpos(arr,l-1);
            break;

         case 4:
            Console.Write("Input your number: ");
            int insNum = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine();
            Console.Write("Input your insert position: ");
            int insLoc = Convert.ToInt32(Console.ReadLine());
            myProgram.InsertNum(arr,n,insNum,insLoc-1);
            Console.WriteLine();
            myProgram.Display(arr, n+1);
            break;
         case 5:
            myProgram.RemoveArray(arr,n);
            Console.Write("Your array has been deleted");
            break;
         case 6:
            Console.Write("Input your position that you want to delete: ");
            int posDel = Convert.ToInt32(Console.ReadLine());
            myProgram.RemoveAt(arr,n,posDel-1);
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            Console.WriteLine();
            Console.Write("Your new array: ");
            myProgram.Display(arr,n-1);
            break;
        case 7:
            Console.Write("Input your replace number: ");
            int repNum = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine();
            Console.Write("Input your replace position: ");
            int repPos = Convert.ToInt32(Console.ReadLine());
            myProgram.replaceNum(arr,repNum,repPos);

            break;
        case 8:
            Console.Write(" Array size: {0}", n);

            break;
        case 9:
            if (arr.Length == 0) Console.WriteLine("The array is empty");
            else
            {
                Console.WriteLine("The araay is not empty");
            }
            break;

        case 10:
            if (arr.Length >= 1-0) Console.WriteLine("The array is full");
            else
            {
                Console.WriteLine("The araay is not full");
            }
            break;

        case 11:
            myProgram.SelectionShort(arr,n);
            break;
        case 13:
            myProgram.InsertShort(arr,n);
            break;
        case 14:
            myProgram.QuickSort(arr,0,n-1);
            Console.Write("\nSorted Array is: ");
            for (int k = 0; k < n; k++)
            {
                Console.Write(arr[k] + " ");
            }
            Console.WriteLine("\n");
            break;
        case 15:
            break;
        default:
            break;
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                }
                if (pickOption == 15) break;
            }
            Console.Write("Enter your command: ");
            pickOption = Convert.ToInt32(Console.ReadLine());
        }

        Console.WriteLine("Thank you for using our service");
        Console.WriteLine();
        Console.ReadKey();
    }
  }
}
```