

```

1 - /*****
2
3         Online C Compiler.
4         Code, Compile, Run and Debug C program online.
5         Write your code in this editor and press "Run" button to compile and execu
6
7         *****/
8 #include <stdio.h>
9 #include <stdlib.h>
10 #include <time.h>
11
12 //swap function
13 void swap(int *x, int *y)
14 {
15     int temp = *x;
16     *x = *y;
17     *y = temp;
18 }
19
20 //Selection Sort
21 void selectionsort(int A[],int n)
22 {
23     int i, j, min;
24
25     for(i = 0; i < n-1; i++)
26     {
27         min = i;
28         for(j = i+1; j < n; j++)
29         {
30             if(A[j] < A[min])
31             {
32                 min = j;
33             }
34         }
35         swap(&A[min],&A[i]);
36     }
37 }
38

```

*//Bubble Sort*

void bubblesort(int A[],int n)

```
{
    int i,j,temp;

    for (i = 0 ; i < n ; i++)
    {
        for (j = i+1 ; j < n ; j++)
        {
            if(A[i] > A[j])
            {
                temp = A[i];
                A[i] = A[j];
                A[j] = temp;
            }
        }
    }
}
```

*//display array*

void display(int A[],int n)

```
{
    int i;
    for(i=0;i<n;i++)
    {
        printf("%d ",A[i]);
    }
}
```

int main()

```
{
    int A[2000],n,i;
    clock_t start,end;
    double time_taken;

    printf("Enter the size of the array: ");
    scanf("%d",&n);
```



```

}

int main()
{
    int A[2000],n,i;
    clock_t start,end;
    double time_taken;

    printf("Enter the size of the array: ");
    scanf("%d",&n);

    for(i=0;i<n;i++)
    {
        A[i]=rand()%200;
    }
    printf("\n\nUnsorted Array:\n");
    display(A,n);

    //Selection Sort
    start = clock();
    selectionsort(A,n);
    end = clock();
    time_taken = ((double)(end-start))/CLOCKS_PER_SEC;
    printf("\n\nArray after Selection Sort:\n");
    display(A,n);
    printf("\n\nTime taken for Selection Sort: %lf s",time_taken);

    //Bubble Sort
    start = clock();
    bubblesort(A,n);
    end = clock();
    time_taken = ((double)(end-start))/CLOCKS_PER_SEC;
    printf("\n\nArray after Bubble Sort:\n");
    display(A,n);
    printf("\n\nTime taken for Bubble Sort: %lf s",time_taken);

    return 0;
}

```

Enter the size of the array: 100

Unsorted Array:

183 86 177 115 193 135 186 92 49 21 162 27 90 59 163 126 140 26 172 136 11 168 167 29 182 130 62 123 67 135 129 2 22 58 69 167 193 56 11  
12 29 173 21 119 184 137 198 124 115 170 13 126 91 180 156 73 62 170 196 81 105 125 84 127 136 105 46 129 113 57 124 95 182 145 14 167 34  
164 43 150 87 8 76 178 188 184 3 51 154 199 132 60 76 168 139 12 26 186 94 139

Array after Selection Sort:

3 8 11 11 12 13 14 21 21 22 26 26 27 29 29 34 42 43 46 49 51 56 57 58 59 60 62 62 67 69 73 76 76 81 84 86 87 90 91 92 94 95 105 105 113  
115 115 119 123 124 124 125 126 126 127 129 129 130 132 135 135 136 136 137 139 139 140 145 150 154 156 162 163 164 167 167 167 168 168  
170 170 172 173 177 178 180 182 182 183 184 184 186 186 188 193 193 196 198 199

Time taken for Selection Sort: 0.000029 s

Array after Bubble Sort:

3 8 11 11 12 13 14 21 21 22 26 26 27 29 29 34 42 43 46 49 51 56 57 58 59 60 62 62 67 69 73 76 76 81 84 86 87 90 91 92 94 95 105 105 113  
115 115 119 123 124 124 125 126 126 127 129 129 130 132 135 135 136 136 137 139 139 140 145 150 154 156 162 163 164 167 167 167 168 168  
170 170 172 173 177 178 180 182 182 183 184 184 186 186 188 193 193 196 198 199

Time taken for Bubble Sort: 0.000020 s

..Program finished with exit code 0  
Press ENTER to exit console.