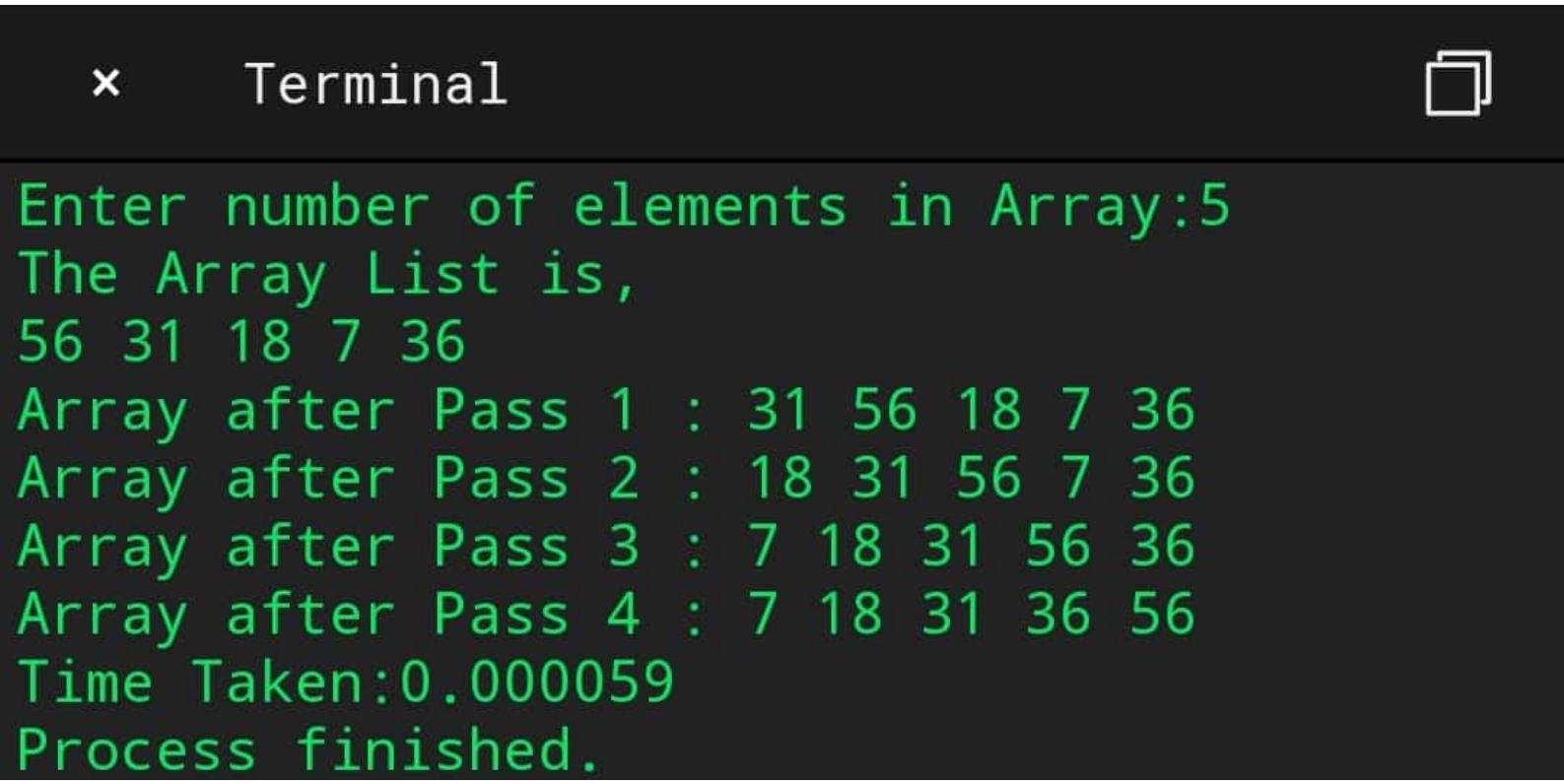
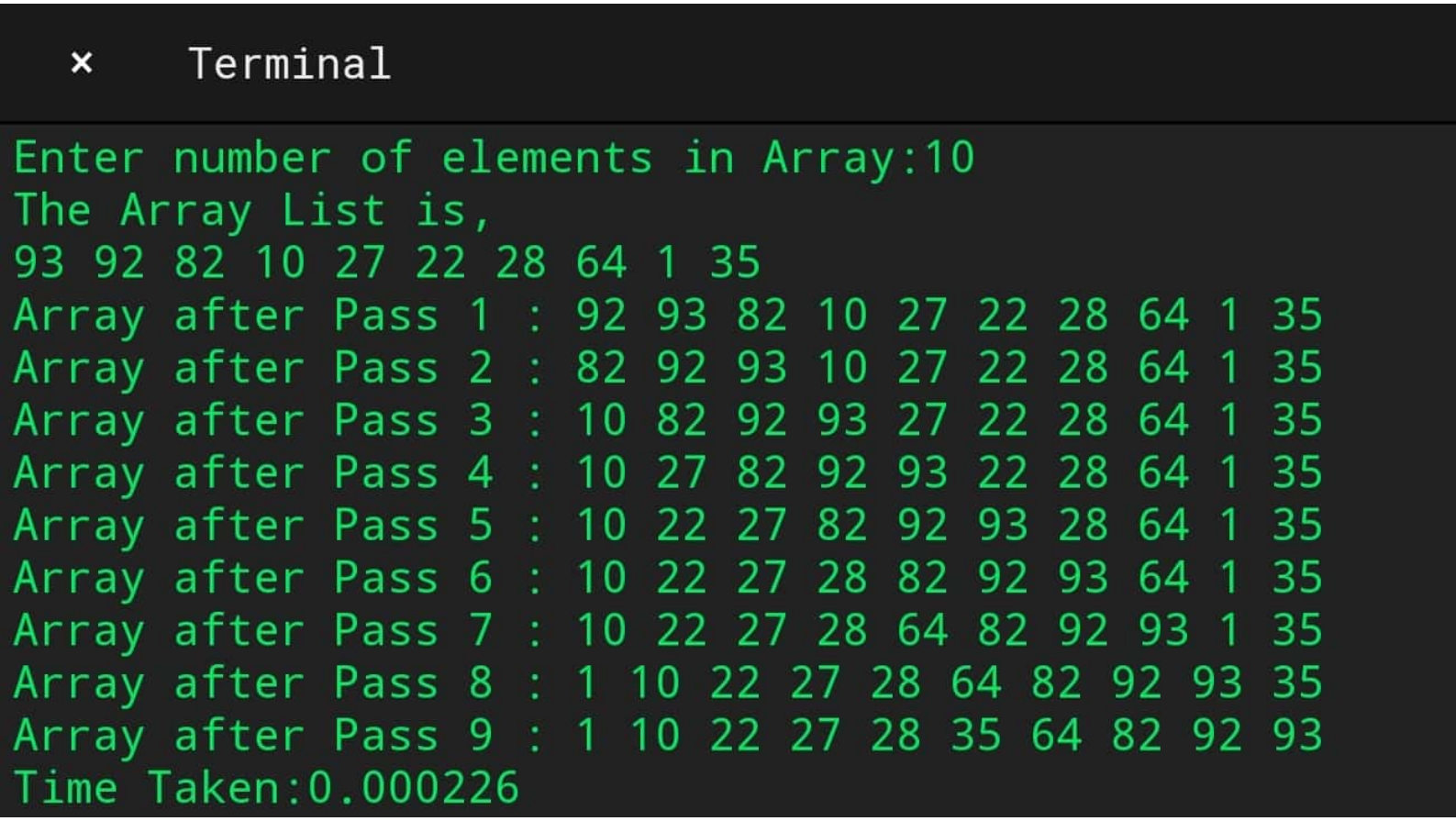
InsertionSort.c

Saved

```c
#include <stdio.h>
#include<time.h>
void InsertionSort(int a[],int n)
{
    int i,j,y;
    for (i=1;i<n;i++)
    {
        y=a[i];
        j=i-1;
        while(j>=0 && a[j]>y)
        {
            a[j+1]=a[j];
            j=j-1;
        }
        a[j+1]=y;
        printf("\nArray after Pass %d : ",i);
        printArray(a, n);
    }
}
void printArray(int a[], int n)
{
    int i;
    for (i=0; i < n; i++)
        printf("%d ", a[i]);
}
void main()
{
    int n, array[n];
    srand(time(0));
    printf("Enter number of elements in Array:");
    scanf("%d",&n);
    for(int c=0;c<n;c++)
        array[c]=rand()%100;
    printf("The Array List is,\n");
    for(int c=0;c<n;c++)
        printf("%d ",array[c]);
    clock_t start,end;
    start=clock();
    InsertionSort(array, n);
    end=clock();
    printf("\nTime Taken:%lf",(double)(end-start)/CLOCKS_PER_SEC);
}
```





```
Terminal
Enter number of elements in Array:20
The Array List is,
82 20 20 10 20 39 89 95 12 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 1 : 20 82 20 10 20 39 89 95 12 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 2 : 20 20 82 10 20 39 89 95 12 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 3 : 10 20 20 82 20 39 89 95 12 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 4 : 10 20 20 20 82 39 89 95 12 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 5 : 10 20 20 20 39 82 89 95 12 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 6 : 10 20 20 20 39 82 89 95 12 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 7 : 10 20 20 20 39 82 89 95 12 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 8 : 10 12 20 20 20 39 82 89 95 69 83 36 95 57 0 52 23 91 97 80
Array after Pass 9 : 10 12 20 20 20 39 69 82 89 95 83 36 95 57 0 52 23 91 97 80
Array after Pass 10 : 10 12 20 20 20 39 69 82 83 89 95 36 95 57 0 52 23 91 97 80
Array after Pass 11 : 10 12 20 20 20 36 39 69 82 83 89 95 95 57 0 52 23 91 97 80
Array after Pass 12 : 10 12 20 20 20 36 39 69 82 83 89 95 95 57 0 52 23 91 97 80
Array after Pass 13 : 10 12 20 20 20 36 39 57 69 82 83 89 95 95 0 52 23 91 97 80
Array after Pass 14 : 0 10 12 20 20 20 36 39 57 69 82 83 89 95 95 52 23 91 97 80
Array after Pass 15 : 0 10 12 20 20 20 36 39 52 57 69 82 83 89 95 95 23 91 97 80
Array after Pass 16 : 0 10 12 20 20 20 23 36 39 52 57 69 82 83 89 95 95 91 97 80
Array after Pass 17 : 0 10 12 20 20 20 23 36 39 52 57 69 82 83 89 91 95 95 97 80
Array after Pass 18 : 0 10 12 20 20 20 23 36 39 52 57 69 82 83 89 91 95 95 97 80
Array after Pass 19 : 0 10 12 20 20 20 23 36 39 52 57 69 80 82 83 89 91 95 95 97
Time Taken:0.000908
Process finished.
```

	A	B
1	5	0.000046
2	10	0.000181
3	20	0.000952
4	50	0.005358
5	100	0.022033
6