

Implementation and Analysis of Selection Sort

```
def selection_sort(a):
    n = len(a)
    for i in range(n - 1):
        min = i
        for j in range(i + 1, n):
            if a[j] < a[min]:
                min = j
        if min != i:
            a[min], a[i] = a[i], a[min]
    return a

def display(a):
    for i in range(len(a)):
        print(a[i])
print("Enter an Array :")
a = list(map(int, input().split()))
selection_sort(a)
display(a)
```

Input:

10 20 60 50 30 40

Output:

10
20
30
40
50
60

Time Complexity: $O(n^2)$ (in Best, Average, Worst Case)

Program:

```
Selection Sort.py
1 def selection_sort(a):
2     n = len(a)
3     for i in range(n - 1):
4         min = i
5         for j in range(i + 1, n):
6             if a[j] < a[min]:
7                 min = j
8             if min != i:
9                 a[min], a[i] = a[i], a[min]
10    return a
11
12
13 def display(a):
14     for i in range(len(a)):
15         print(a[i])
16     print("Enter an Array :")
17     a = list(map(int, input().split()))
18     selection_sort(a)
19     display(a)
20
```

Input/Output:

```
C:\Anaconda\envs\MLProject\python.exe "C:\MLProject\Selection Sort.py"
Enter an Array :
10 20 60 50 30 40
10
20
40
30
50
60
```