

3. Sort a given set of N integer elements using Selection Sort technique and compute its time taken.

Program:

```
#include<stdio.h>
#include<stdlib.h>
#include<time.h>
double time_spent = 0.0;
int n,arr[1000];
int selectionsort() {
int min=arr[0];
int pos=0,temp=0;
for(int i=0;i<(n-1);i++){
    pos=i;
    for(int j=i+1;j<n;j++){
        if(arr[pos]>arr[j]) {
            pos=j;
        }
    }
    if(pos!=i) {
        temp=arr[i];
        arr[i]=arr[pos];
        arr[pos]=temp; } }
printf("the sorted array is\n");
for(int i=0;i<n;i++){
    printf("%d\n",arr[i]);
}
}

int main() {
    clock_t start,end;
    printf("enter the number of elements of array\n");
    scanf("%d",&n);

    for (int i = 0; i < n; i++)
    {
        arr[i] = rand()%500;
    }
    start=clock();
    int c=selectionsort();
    end = clock();
    time_spent += (double)(end -start) / CLOCKS_PER_SEC;

    printf("Time elapsed is %f seconds", time_spent);

    return 0;
}
```

OUTPUT:

For n=10

```
enter the number of elements of array
10
the sorted array is
0
41
169
224
334
358
462
464
467
478
Time elapsed is 0.003000 seconds
Process returned 0 (0x0)   execution time : 4.248 s
Press any key to continue.
```

For n=100

```
D:\ADA\labs\ada_lab\LAB3.exe
429
431
436
439
442
442
444
446
447
454
461
462
464
466
467
478
491
495
Time elapsed is 0.087000 seconds
Process returned 0 (0x0)   execution time : 4.609 s
Press any key to continue.
```