Lab - 6 06/June/24

```
#include <stdio.h>
Void Swap (int* a, int a* b) {
    int t = *a;
    *a = *b;
    *b = t;
int Partition (int arr[], int low, int high){
    int Pivot = arr[high];
    int i = (low - 1);
for (int j = low; j <= high - 1; j++) {
    if (arr[j] < Pivot) {
        i++;
        Swap (&arr[i], &arr[j]);
    }
}
Swap (&arr[i+1], arr[high]);
return (i+1);
}
void Quicksort (int arr[], int low, int high)
{ if (low < high) {
int Pi = Partition (arr, low, high);
Quicksort (arr, low, Pi-1);
Quicksort (arr, Pi+1, high);
}
}
Void Printarray (int arr[], int size) {
int i;
for (i=0; i < size; i++)
```

```
int main(){
    int a[15000], n, i, j, ch, temp;
    clock_t start, end;
while(1){
printf("\n1: for manual entry of N value
    and array elements");
printf("2: To display the The Time taken for
Sorting number of elements N in range
    500 to 14500\n");
printf("Enter your choice:");
scanf("%d", &ch);

switch(ch){
case 1:
    printf("Enter number of Elements:");
    scanf("%d", &n);
printf("Enter array elements:");
    for(i=0; i<n; i++){
        scanf("%d", &a[i]);
    }
start = clock();
quicksort(a, 0, n-1);
end = clock();
printf("Sorted array:");
}
printf("\n Time taken to Sort %d
number is %f Secs\n", n, (double)
```

```
(end-start)) / CLOCKS_PER_SEC);
    break;
case 2:
    n=500;
    while (n<=10500){
        for (i=0; i<n; i++){
        a[i] = n-i;
        }
        start= clock();
        quicksort (a, 0, n-1);
    for (j=0; j<500000; j++){
            temp = 38/60;
        }
        end = clock();
        printf ("Time taken to sort %d
numbers is %f secs \n", n, ((double)(
        end-start)) / CLOCKS_PER_SEC);
            n= n+1000;
    }
    break;
case 3:
    exit (0);
}
    getchar();
    }
    return 0;
    }
```

Enter array Elements : 7

18

2

Sorted array is 2 7 18

2. To display Time taken to Sort 3 numbers is 0.000000.

2. To display time taken to Sort number of Elements N in the range 500 to 14500

Time taken to sort 500 number is 0.000000 Secs

Time taken to Sort 1500 number is 0.000000 Secs

Time taken to Sort 2500 number is 0.000000 secs

Time taken to sort 3500 number is 0.000000 Secs

Time taken to Sort 4500 number is 0.015000 Secs

Time taken to sort 5500 number is 0.016000 Secs

Time taken to sort 6500 number is 0.031000 Secs

Time taken to Sort 7500 number is 0.031000 Secs

Time taken to Sort 8500 number is 0.047000 Secs

Time taken to sort 9500 number is 0.047000 Secs

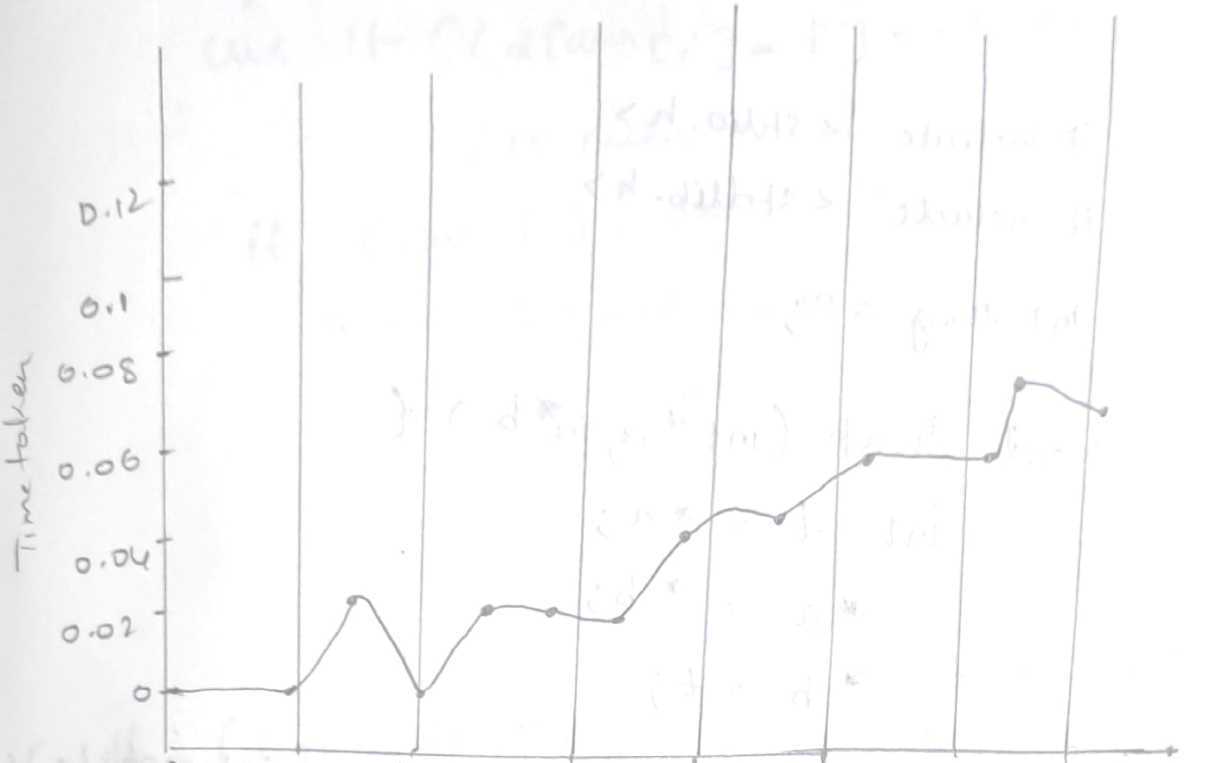
Time taken to Sort 10500 number is 0.064000 Secs

Time take to Sort 11500 number is 0.062000 Secs

Time take to Sort 12500 number is 0.078000 Secs

Time taken to Sort 13500 number is 0.078000 Secs

Time taken to sort 14500 number is 0.094000 Secs


Time taken
0.12
0.1
0.08
0.06
0.04
0.02
0
0
2000
4000
6000
8000
10000
12000
14000
16000

6/6/2024