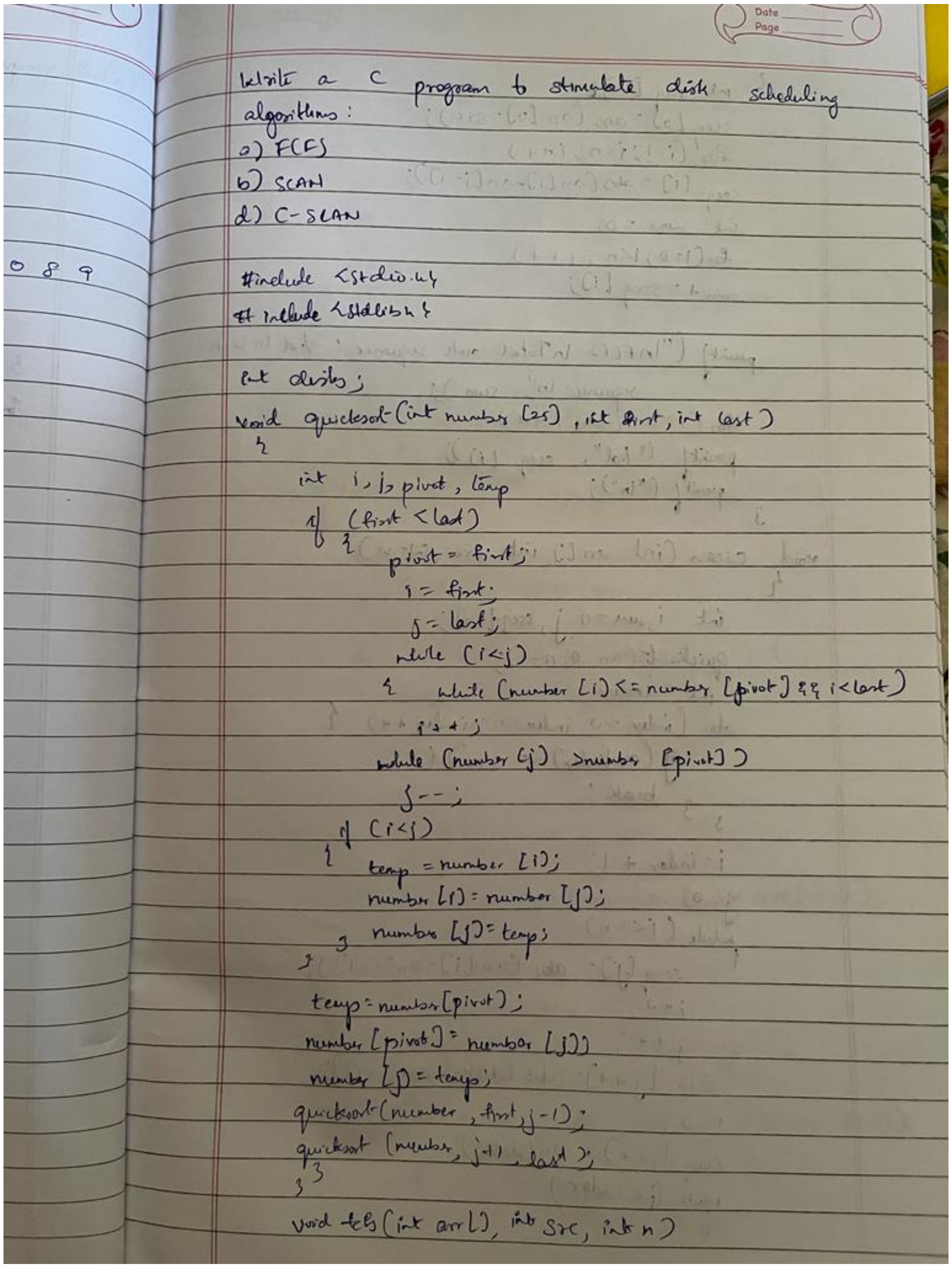
LAB 12

Write a C program to simulate disk scheduling algorithms
a) FCFS
b) SCAN



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Write a C program to stimulate disk scheduling algorithms:
a) FCFS
b) SCAN
d) C-SCAN

```
#include <stdio.h>
# include <stdlib.h>

int disks;
void quicksort(int number [25] , int first, int last )
 {
     int i, j, pivot, temp
     if (first <last)
      {
          pivot = first;
           i = first;
           j = last;
          while (i<j)
         {    while (number [i] <= number [pivot] && i<last)
              i++;
         while (number [j] >number [pivot] )
              j--;
     if (i<j)
    {
         temp = number [i];
         number [i] = number [j];
         number [j] = temp;
      }
   }
    temp = number[pivot] ;
    number [pivot] = number [j]]
    number [j] = temp;
   quicksort(number , first, j-1);
   quicksort (number, j+1, last );
  }
 }
void fcfs(int arr[], int src, int n)
```

```
{   int sseq [20],i;
    sseq [0] = abs (arr [0] - src);
    for (i=1; i<n; i++)
    sseq [i] = abs (arr[i]-arr[i-1]);
    int sum =0)
    for (i=0) i<n ; i++)
    sum += sseq [i];

    printf ("\nFCFS \nTotal seek sequence : %d \n seek
                sequence: \n", sum );
    for (i=0; i<n; i++)
    printf ("%d", sseq (i));
     printf ("\n");
  }
void cscan (int arr[], int src, int n)
  {
      int i, sum=0 ,j, sseq[20];
      quicksort (arr, 0, n-1);
       int index ;
      for (index =0; index <n; index ++)   {
          if (arr[index] == src) {
            break;
      }  }

      i=index + 1;
     j=0;
     while (i<=n)
     {
         sseq[j] = abs (arr[i]- arr[i-1]);
         i++;
     }   j++;
      Sseq [j++]= abs (disks - arr[i-1]);
      i=0;
      sseq [j++] = abs (disks);
      while (i<index)
      {
            sseq [j++] = abs (arr[i] - arr[i-1]);
            i++;
      }

      for (i=0; i<(n+2); i++)
      sum += sseq [i];

printf ("\n CSCAN \n Total seek sequence : %d \n
        seek sequence: \n", sum);
for (i=0; i<n+2; i++)
  printf ("%d", sseq [i]);
   printf ("\n");
}

void scan (int arr [], int src, int n)
{

     int i, sum=0, j, sseq [20];
     quicksort (arr, 0, n-1);
      int index;
     for (index=0; index<n; index++) {
          if (arr [index] == src) {
                break;
        }
      }
      i = index - 1;
       j = 0;
      while (j >= 0)
      {     sseq [j] = abs (arr [i] - arr[i+1]);
            i--;
            j++;
      }
        i = index + 1;
       sseq [j++] = abs (arr[i-1] - arr [0]);
       while (i<=n)
       {      sseq [j++] = abs (arr [i] - arr [i-1]);
              i++;
       }
```

```
    for(i=0; i<n; i++)
     sum += sseq[i];
   printf ("\n SCAN \n Total seek sequence: %d \n Seek
         sequence : \n", sum);
  for (i=0; i<n; i++)
  printf ("%d", sseq [i]);
   printf ("\n");
 }

void main()
{
  int source, arr[20], i, n, copy [20];
  printf ("Enter number of disks: ");
  scanf ("%d", &n);

  printf ("\n Enter %d values: ", n);
  for (i=0; i<n; i++)
  scanf("%d", & arr [i]);

  printf ("\n Entor source position : ");
  scanf ("%d", & source);

 printf ("\n Entor number of disks: ");
 scanf ("%d", & disks);

 for (i=0; i<n; i++)
 copy [i] = arr [i];
 arr [n] = source;
 copy [n] = arr [n];
  fcfs (copy, source, n);
  scanf (copy, Source, n);
   cscan ( arr, source, n);
}
```

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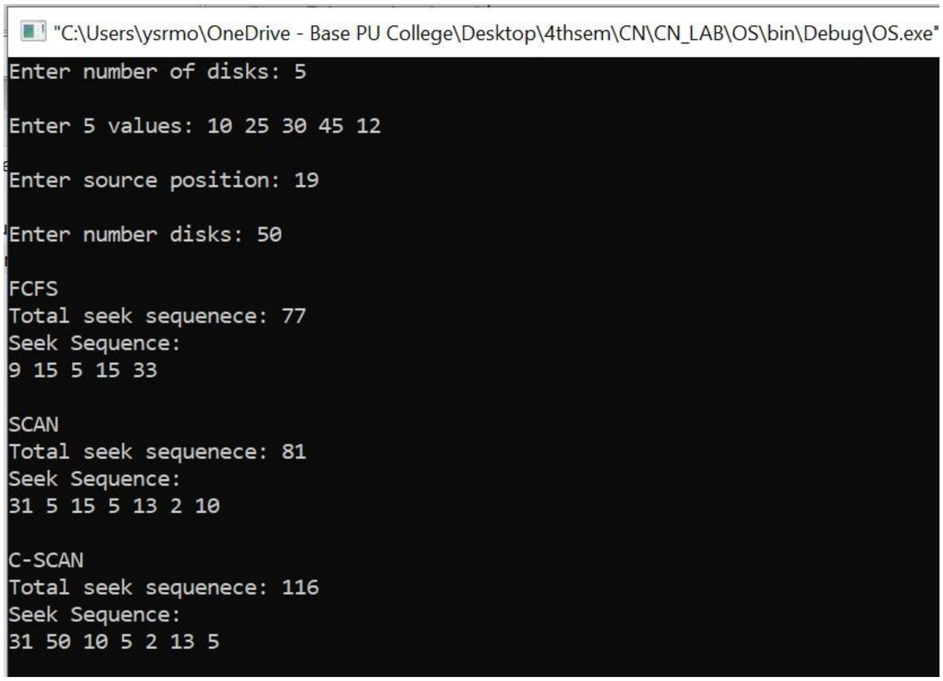
Output:

```
Enter number of disks : 5
Entr 5 values : 10  25  30  45  12

Enter source position : 19
Enter number of disks : 50

FCFS
Total seek sequence : 77
seek sequence :
9  15  5  15  33

C-SCAN
Total seek sequence : 118
seek sequence
31  50  2  2  13  5  15

SCAN
Total seek sequence : 61
Seek sequence :
26  15  5  13  2
```

OUTPUT:



"C:\Users\ysrmo\OneDrive - Base PU College\Desktop\4thsem\CN\CN_LAB\OS\bin\Debug\OS.exe"

```
Enter number of disks: 5

Enter 5 values: 10 25 30 45 12

Enter source position: 19

Enter number disks: 50

FCFS
Total seek sequenece: 77
Seek Sequence:
9 15 5 15 33

SCAN
Total seek sequenece: 81
Seek Sequence:
31 5 15 5 13 2 10

C-SCAN
Total seek sequenece: 116
Seek Sequence:
31 50 10 5 2 13 5
```