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Subject - Operating System

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Ques2 Write a C program to implement Scan Disk Scheduling Algorithm & Calculate the total distance that disk arm moves.

Code :-

```
#include <stdio.h>
int absolute value (int);
void main ()
 {
  int
 queue [25], n, headposition, i, j, k, seek = 0,
  maxrange,
  difference, temp, queue 1 [20], queue 2 [20], te
 mp1 = 0, temp 2 = 0;
 float average Seek Time;
 printf ("Enter the maximum range of Disk:");
 Scanf ("%d", & maxrange);
printf ("Enter the number of queue requests:");
 Scanf ("%d", & n);
printf ("Enter the initial head position:");
 Scanf ("%d", & headposition);
printf ("Enter the disk positions to be read (queue):");
 for (i = 1; i <= n; i++)
  {
  Scanf ("%d", & temp);
  if (temp > headposition)
   {
    queue 1 [temp 1] = temp;
     temp 1 ++;
   }
```

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```
    else
     {
    queue2[temp2] = temp;
     temp2++;
    }
    }
  for (i=0; i<temp1-1; i++)
   {
  for (j=i+1; j<temp1; j++)
   {
    if (queue1[i] > queue1[j])
     {
      temp = queue1[i];
      queue1[i] = queue1[j];
      queue1[j] = temp;
    }
   }
  }
  for (i=0; i<temp2-1; i++)
    {
      for (j=i+1; j<temp2; j++)
     {
      if (queue2[i] < queue2[j])
      {
      temp = queue2[i];
      queue2[i] = queue2[j];
      queue2[j] = temp;
    }
   }
  }
}
```

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```
for (i=1, j=0; j< temp1; i++, j++)
 {
  queue [i] = queue1 [j];
 }
 queue [i] = maxrange;
 for (i= temp1+2, j= 0; j< temp2; i++, j++)
  {
   queue [i] = queue2 [j];
 }
 queue [i] = 0;
 queue [0] = headposition;
 for(j= 0; j< n; j++)
  {
   difference = absolute value (queue[j+1] - queue [j]);
     seek = seek + difference;
   printf ("Disk head moves from position %d to %d with
          Seek %d \n", queue [j], queue [j+1], difference);
        }
   average Seek Time = seek / (float) n;
  printf ("Total Seek Time = %d \n", seek);
  printf ("Average Seek Time = %f \n", average Seek Time);
  }
  int absolute value (int x)
  {
    if (x<0)
    {
     return x;
    }
    else {
     return x* -1;
  }
```

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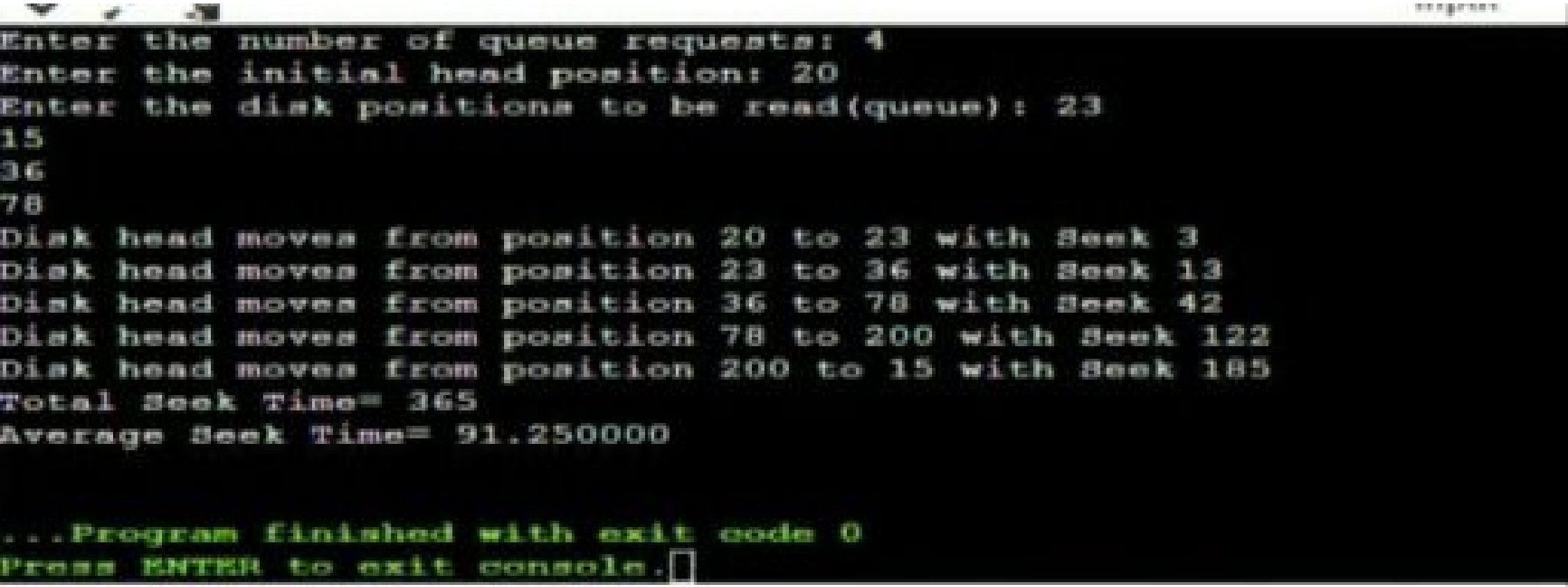
Enter the number of queue requests: 4
Enter the initial head position: 20
Enter the disk positions to be read(queue): 23
15
36
78
Disk head moves from position 20 to 23 with Seek 3
Disk head moves from position 23 to 36 with Seek 13
Disk head moves from position 36 to 78 with Seek 42
Disk head moves from position 78 to 200 with Seek 122
Disk head moves from position 200 to 15 with Seek 185
Total Seek Time= 365
Average Seek Time= 91.250000
...Program finished with exit code 0
Press ENTER to exit console.