Code:

```
#include <bits/stdc++.h>
using namespace std;

// direction towards large value

int findShortest(int head, int *queue, int n) {
  int index;
  for (int i = 0; i < n; i++)
    if (queue[i] < head)
      index = i;
  return index;
}

int main() {
  int head, n, range, total = 0;

  cout << "Enter the head position: ";
  cin >> head;
  cout << "\nEnter the number of requests: ";
  cin >> n;
  cout << "\nEnter the range of cylinder: ";
  cin >> range;

  int queue[n];
  cout << "\nEnter the cylinder numbers for the requests: ";
  for (int i = 0; i < n; i++)
    cin >> queue[i];
  sort(queue, queue + n);

  cout << "\nThe order of execution: " << endl;

  int index = findShortest(head, queue, n);

  total += abs(head - queue[index + 1]);
  cout << head << "-->" << queue[index + 1] << endl;

  for (int i = index + 1; i < n - 1; i++) {
    total += abs(queue[i + 1] - queue[i]);
    cout << queue[i] << "-->" << queue[i + 1] << endl;
  }

  total += abs(queue[n - 1] - range);
  cout << queue[n - 1] << "-->" << range << endl;

  total += abs(0 - range);
  cout << range << "-->" << 0 << endl;
```

```
  total += abs(0 - queue[0]);
  cout << 0 << "-->" << queue[0] << endl;

  for (int i = 1; i <= index; i++) {
    total += abs(queue[i] - queue[i - 1]);
    cout << queue[i - 1] << "-->" << queue[i] << endl;
  }

  cout << "\nTotal Headmovements: " << total;

  return 0;
}
```

Output:

Enter the head position: 143

Enter the number of requests: 9

Enter the range of cylinder: 4999

Enter the cylinder numbers for the requests: 86 1470 913 1774 948 1509 1022 1750 130

The order of execution:
143-->913
913-->948
948-->1022
1022-->1470
1470-->1509
1509-->1750
1750-->1774
1774-->4999
4999-->0
0-->86
86-->130

Total Head Movements: 9985