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## Look Disk Scheduling Algorithm

Code:

```
23 data = []
24 for i in range(0, 15):
25     # Random numbers
26     data.append(random.randint(0,99))
27
28 print("Original String: ",data)
```

For loop to generate and store the random numbers for our main argument string.

```
30 start_val= 50
31 right_side = []
32 left_side = []
33 end_track = 99
34 start_track = 0
```

Starting value to start the algorithm and to initialize the start and end of the track. Variables at 31 and 32 to store the values that are above and below the start value in the main string respectively.

```
36 for i in range( 0, len(data)):
37     if start_val == data[i]:
38         data.remove(start_val)
```

To deal with condition where the start value is already in the main string.

```
40 mainSeq = []
41 mainSeq.append(start_val)
```

To initialize the variable that will store the sequence of the algorithm.

```
5 def getRightSide(data, s, e):
6     listR = []
7     for j in range (s, e):
8         for i in range(0, len(data)):
9             if data[i] == j:
10                listR.append(data[i])
11
12     return listR
13
14 def getLeftSide(data, s, e):
15     listL =[]
16     for j in range(s, e, -1):
17         for i in range(0, len(data)):
18             if data[i] == j:
19                listL.append(data[i])
20
21     return listL
```

Functions to store the values above and below the starting value respectively and returning it.

```

43 right_side = getRightSide(data, start_val, end_track)
44 left_side = getLeftSide(data, start_val, start_track)
45
46 print("Right Side",right_side)
47 print("Left Side", left_side)
48
49 for i in range ( 0, len(right_side)):
50     mainSeq.append(right_side[i])
51
52 for i in range ( 0, len(left_side)):
53     mainSeq.append(left_side[i])
54
55 print("Look Disk Scheduling Algorithm:", mainSeq)
56
57 y = []
58 for i in range( 0 , len(data)+1):
59     y.append(-(i+1))
60
61 print(y)

```

We will be moving to the right first so the right sequence will be appended first then the left to the algorithm sequence. And now initializing the Y-axis values for plotting the graph.

```

63 fig, ax = plt.subplots()
64 ax.plot(mainSeq, y)
65 ax.axes.yaxis.set_visible(False)
66 ax.xaxis.tick_top()
67 for i in range(len(mainSeq)):
68     ax.text(mainSeq[i], y[i], mainSeq[i])
69
70 plt.title("Disk-scheduling algorithm->Look\n")
71 plt.xticks(np.arange(0, end_track+1, 10))
72 plt.show()

```

For Plotting the graph.

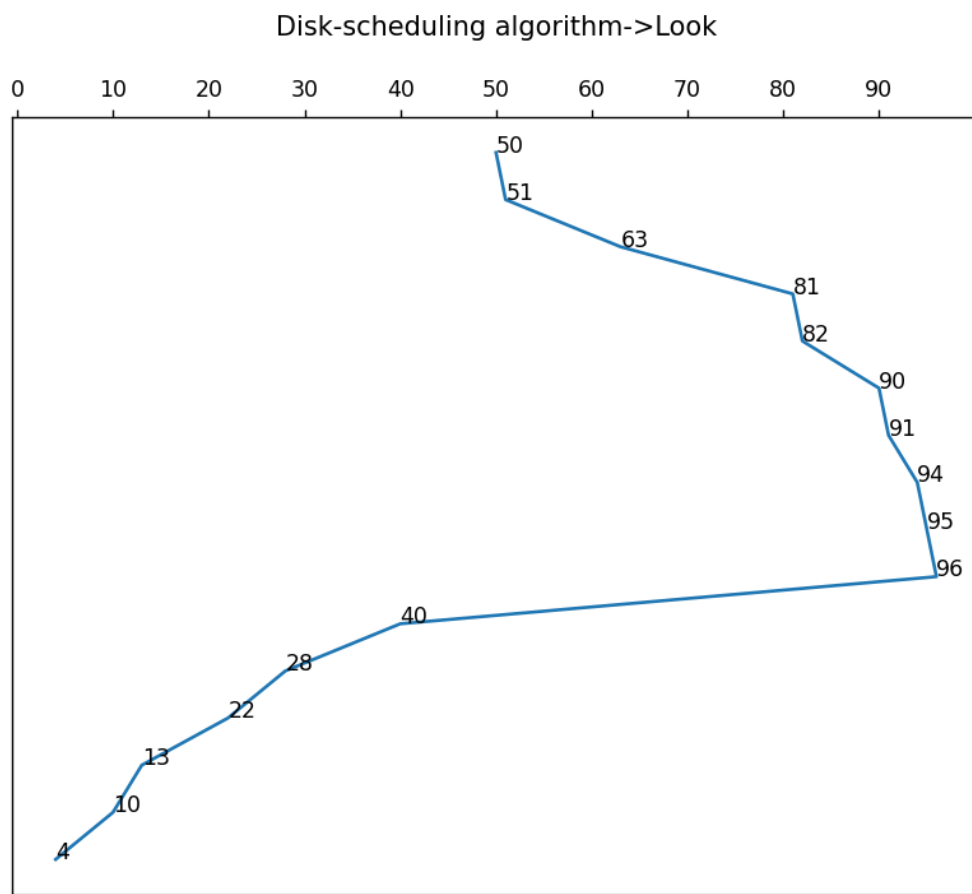
Output:

```

Look Disk Scheduling Algorithm: [50, 57, 58, 59, 66, 69, 74, 88, 41, 35, 34, 24, 23, 7, 5, 2]
[-1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14, -15, -16]
88
2
124
PS C:\Users\Shivraj\Desktop\VJTI\OS Lab> python -u "c:\Users\Shivraj\Desktop\VJTI\OS Lab\OS_pracs.py"
Original String: [28, 51, 94, 90, 10, 13, 96, 95, 40, 91, 82, 81, 22, 63, 4]
Right Side [51, 63, 81, 82, 90, 91, 94, 95, 96]
Left Side [40, 28, 22, 13, 10, 4]
Look Disk Scheduling Algorithm: [50, 51, 63, 81, 82, 90, 91, 94, 95, 96, 40, 28, 22, 13, 10, 4]
[-1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14, -15, -16]
96
4
138

```

Graph:



Full Code:

```
import matplotlib.pyplot as plt
import numpy as np
import random

def getRightSide(data, s, e):
    listR = []
    for j in range(s, e):
        for i in range(0, len(data)):
            if data[i] == j:
                listR.append(data[i])

    return listR

def getLeftSide(data, s, e):
    listL = []
    for j in range(s, e, -1):
        for i in range(0, len(data)):
            if data[i] == j:
                listL.append(data[i])

    return listL

data = []
for i in range(0, 15):
    # Random numbers
    data.append(random.randint(0,99))

print("Original String: ",data)

start_val= 50
right_side = []
left_side = []
end_track = 99
start_track = 0

for i in range( 0, len(data)):
    if start_val == data[i]:
        data.remove(start_val)

mainSeq = []
mainSeq.append(start_val)

right_side = getRightSide(data, start_val, end_track)
left_side = getLeftSide(data, start_val, start_track)

print("Right Side",right_side)
print("Left Side", left_side)

for i in range ( 0, len(right_side)):
    mainSeq.append(right_side[i])

for i in range ( 0, len(left_side)):
```

```

    mainSeq.append(left_side[i])

print("Look Disk Scheduling Algorithm:", mainSeq)

y = []
for i in range( 0 , len(data)+1):
    y.append(-(i+1))

print(y)

print( max(data))
print(min(data))
totalStepsMoved = (max(data)-start_val) + (max(data)-min(data))
print(totalStepsMoved)

fig, ax = plt.subplots()
ax.plot(mainSeq, y)
ax.axes.yaxis.set_visible(False)
ax.xaxis.tick_top()
for i in range(len(mainSeq)):
    ax.text(mainSeq[i], y[i], mainSeq[i])

plt.title("Disk-scheduling algorithm->Look\n")
plt.xticks(np.arange(0, end_track+1, 10))
plt.show()

```