

100) Assembly line scheduling

CODE:

```
def assembly_line_scheduling(a, t, e, x, n):
    f = [[0 for _ in range(n)] for _ in range(2)]
    f[0][0] = e[0] + a[0][0]
    f[1][0] = e[1] + a[1][0]

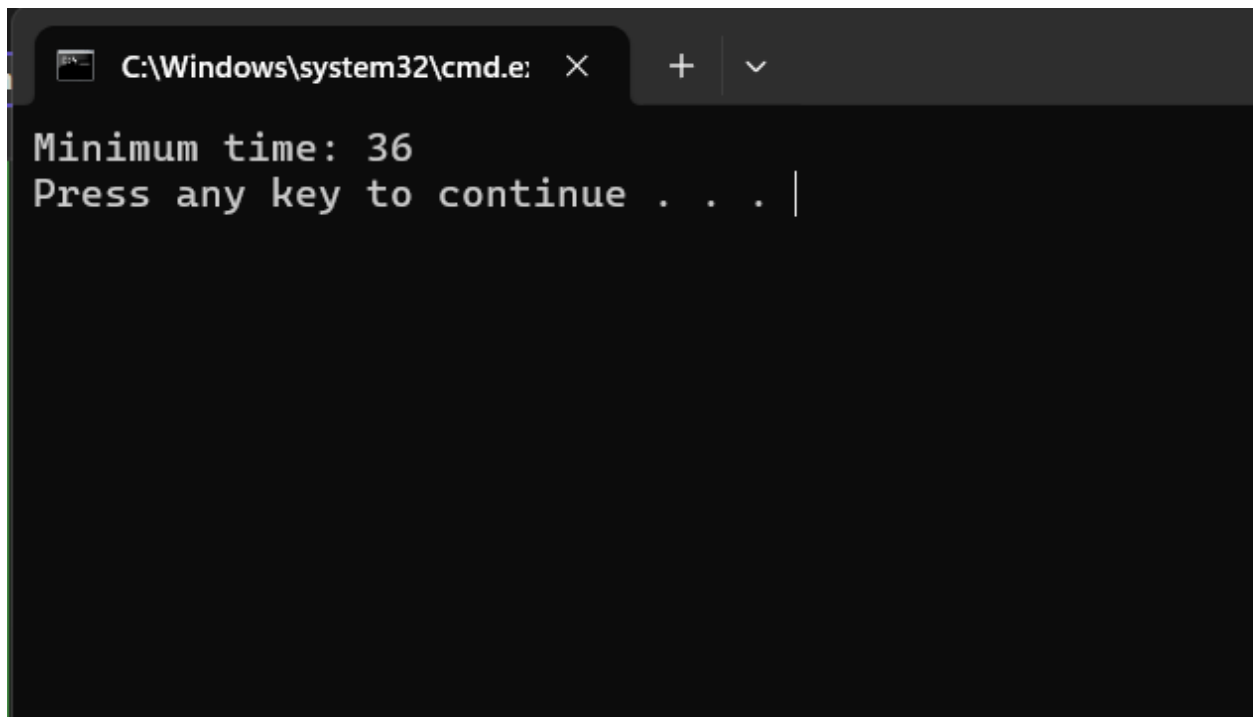
    for i in range(1, n):
        f[0][i] = min(f[0][i-1] + a[0][i], f[1][i-1] + t[1][i-1] + a[0][i])
        f[1][i] = min(f[1][i-1] + a[1][i], f[0][i-1] + t[0][i-1] + a[1][i])

    return min(f[0][n-1] + x[0], f[1][n-1] + x[1])

# Example input
a = [[4, 5, 3, 2], [2, 10, 1, 4]]
t = [[0, 7, 4, 5], [0, 9, 2, 8]]
e = [10, 12]
x = [18, 7]
n = 4

print("Minimum time:", assembly_line_scheduling(a, t, e, x, n))
```

OUTPUT:

A screenshot of a Windows command prompt window. The title bar shows the path 'C:\Windows\system32\cmd.e' with a close button. The window content displays the output of the program: 'Minimum time: 36' followed by 'Press any key to continue . . . |' with a cursor. The background is black and the text is white.

TIME COMPLEXITY : $O(n)$