1. 173.In a factory, there are two assembly lines, each with n stations. Each station performs a specific task and takes a certain amount of time to complete. The task must go through each station in order, and there is also a transfer time for switching from one line to another. Given the time taken at each station on both lines and the transfer time between the lines, the goal is to find the minimum time required to process a product from start to end.

PROGRAM:

```
def min_time_assembly(n, a1, a2, t1, t2, e1, e2, x1, x2):
    f1 = [0] * n
    f2 = [0] * n
    f1[0] = e1 + a1[0]
    f2[0] = e2 + a2[0]

    for i in range(1, n):
        f1[i] = min(f1[i - 1] + a1[i], f2[i - 1] + t2[i - 1] + a1[i])
        f2[i] = min(f2[i - 1] + a2[i], f1[i - 1] + t1[i - 1] + a2[i])

    return min(f1[n - 1] + x1, f2[n - 1] + x2)

# Example input values
n = 4
a1 = [7, 9, 3, 4]
a2 = [8, 5, 6, 4]
t1 = [2, 3, 1]
t2 = [2, 1, 2]
e1 = 2
e2 = 4
x1 = 3
x2 = 2

# Calculate the minimum time required to process the product
min_processing_time = min_time_assembly(n, a1, a2, t1, t2, e1, e2, x1, x2)
print(min_processing_time)
```

OUTOUT:

```
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=== Code Execution Successful ===
```

TIME COMPLEXITY:O(N)