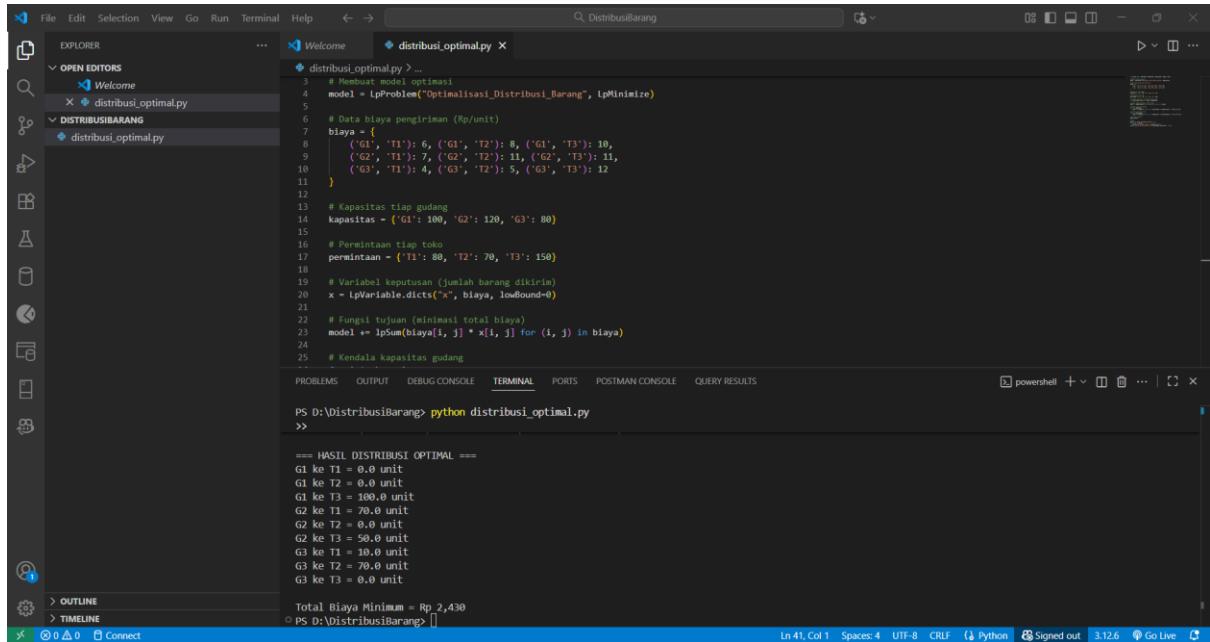


## Implementasi Python



The screenshot shows the Visual Studio Code interface with the following details:

- File Explorer:** Shows files like "Welcome", "distribusi\_optimal.py", and "distribusi\_optimal.py" under "DISTRIBUSIBARANG".
- Terminal:** Displays the command "python distribusi\_optimal.py" and its output:

```
PS D:\DistribusiBarang> python distribusi_optimal.py
>>
    == HASIL DISTRIBUSI OPTIMAL ==
G1 ke T1 = 6.0 unit
G1 ke T2 = 6.0 unit
G1 ke T3 = 10.0 unit
G2 ke T1 = 7.0 unit
G2 ke T2 = 11.0 unit
G2 ke T3 = 11.0 unit
G3 ke T1 = 4.0 unit
G3 ke T2 = 5.0 unit
G3 ke T3 = 12.0 unit
Total Biaya Minimum = Rp 2,430
```
- Status Bar:** Shows "Ln 41, Col 1" and "3.12.6".

```
from pulp import LpProblem, LpMinimize, LpVariable, lpSum, value

# Membuat model optimasi

model = LpProblem("Optimalisasi_Distribusi_Barang", LpMinimize)

# Data biaya pengiriman (Rp/unit)

biaya = {

    ('G1', 'T1'): 6, ('G1', 'T2'): 8, ('G1', 'T3'): 10,
    ('G2', 'T1'): 7, ('G2', 'T2'): 11, ('G2', 'T3'): 11,
    ('G3', 'T1'): 4, ('G3', 'T2'): 5, ('G3', 'T3'): 12
}

# Kapasitas tiap gudang

kapasitas = {'G1': 100, 'G2': 120, 'G3': 80}

# Permintaan tiap toko

permintaan = {'T1': 80, 'T2': 70, 'T3': 150}

# Variabel keputusan (jumlah barang dikirim)

x = LpVariable.dicts("x", biaya, lowBound=0)

# Fungsi tujuan (minimasi total biaya)

model += lpSum(biaya[i, j] * x[i, j] for (i, j) in biaya)

# Kendala kapasitas gudang

for i in kapasitas:
```

```

model += lpSum(x[i, j] for j in permintaan) <= kapasitas[i], f'Kapasitas_{i}'
# Kendala permintaan toko
for j in permintaan:
    model += lpSum(x[i, j] for i in kapasitas) == permintaan[j], f'Permintaan_{j}'
# Jalankan optimasi
model.solve()
# Hasil
print("==== HASIL DISTRIBUSI OPTIMAL ====")
for (i, j) in biaya:
    print(f'{i} ke {j} = {x[i, j].value()} unit')
print(f'\nTotal Biaya Minimum = Rp {value(model.objective):,.0f}')

```

## **HASIL DISTRIBUSI OPTIMAL**

G1 ke T1 = 0.0 unit

G1 ke T2 = 0.0 unit

G1 ke T3 = 100.0 unit

G2 ke T1 = 70.0 unit

G2 ke T2 = 0.0 unit

G2 ke T3 = 50.0 unit

G3 ke T1 = 10.0 unit

G3 ke T2 = 70.0 unit

G3 ke T3 = 0.0 unit

Total Biaya Minimum = Rp 2,430