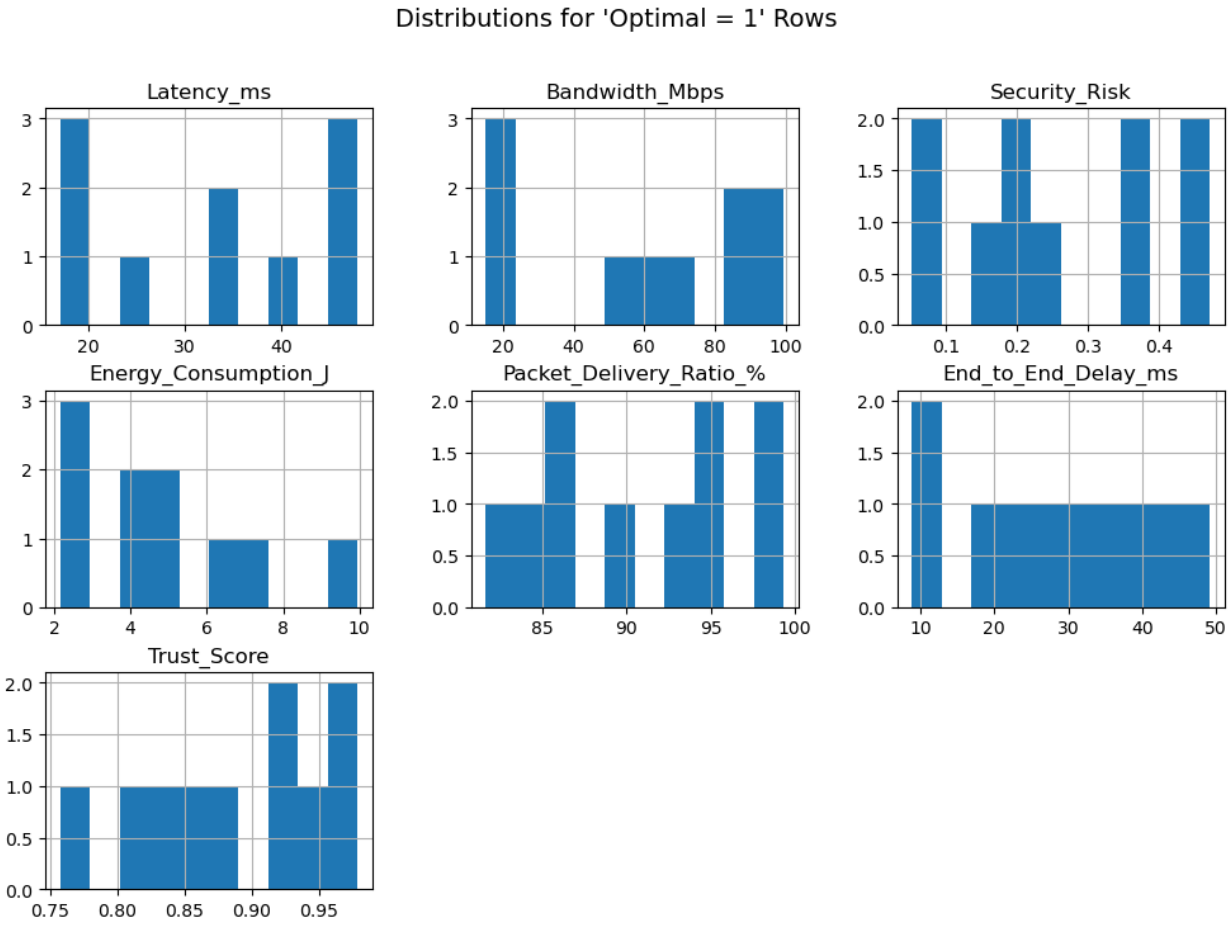
Multi-Criteria Network Routing Dataset

1. First I tried distribute Optimal for 10 first rows for other columns.

From Optima's are =m 1



Feature	Mean	Range	Notes
Latency_ms	33.18	17 > 48	Roughly normal spread
Bandwidth_Mbps	59.9	15 > 99	Wide Varitation
Security_Risk	0.25	0.05 > 0.47	Small, Likely uniform
Energy Consumption J	4.92	2.15 > 9.96	Moderate spread
Packet Delivery Ratio %	90.6 %	81.6 > 99.3	Very High, Consistent
End to end Delay ms	28.6	8.8 > 49.1	Wide range
Trust Score	0.888	0.75 > 0.98	High Trust Overall

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2. Now I want to do it for rest of rows

```
   Latency_ms  Bandwidth_Mbps  Security_Risk  Energy_Consumption_J  \
0   26.321717       68.386930       0.396534              3.067508
1   31.115632       25.330313       0.265096              5.078855
2   30.120863       77.857233       0.335632              7.629810
3   31.031942       15.137817       0.051957              5.150052
4   30.215862       67.883801       0.332081              2.939466

   Packet_Delivery_Ratio_%  End_to_End_Delay_ms  Trust_Score Algorithm_Used  \
0                93.303284            27.862228     0.979152     MCRO-RHGSO
1                87.388226            39.294750     0.921458     MCRO-RHGSO
2                99.336910            40.551389     0.979152     MCRO-RHGSO
3                87.165389            24.607628     0.845676     MCRO-RHGSO
4                89.073997            32.470626     0.834695     MCRO-RHGSO

   Optimal
0        1
1        1
2        1
3        1
4        1
✅ Simulated 480 'Optimal = 1' samples saved to Simulated_Optimal_Data.csv
```

3. Extra job – Auto Distribution fitting

```
⚠️ Could not fit distributions for Latency_ms: Invalid values in `data`.  Maximum likelihood estimat
⚠️ Could not fit distributions for Bandwidth_Mbps: Invalid values in `data`.  Maximum likelihood est
⚠️ Could not fit distributions for Security_Risk: Invalid values in `data`.  Maximum likelihood estir
⚠️ Could not fit distributions for Energy_Consumption_J: Invalid values in `data`.  Maximum likelihoo
⚠️ Could not fit distributions for Packet_Delivery_Ratio_%: Invalid values in `data`.  Maximum likeli
⚠️ Could not fit distributions for End_to_End_Delay_ms: Invalid values in `data`.  Maximum likelihooo
⚠️ Could not fit distributions for Trust_Score: Invalid values in `data`.  Maximum likelihood estimat
✅ Successfully generated 480 realistic simulated 'Optimal = 1' samples!
Saved as: Advanced_Simulated_Optimal_Data.csv
```

Please refer to new CSV file

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Feature	Basic Version	Advanced Version
Distribution Type	Always Normal	Auto Detects (Normal, Uniform, Beta)
Parameter Fitting	Mean/Std only	Fits real data statistically
Realism	Moderate	High (Each feature mimics actual behavior
Output	480 rows	480 rows, more accurate distribution

3. Comparing The Real VS Simulated Distributions for Optimal ones