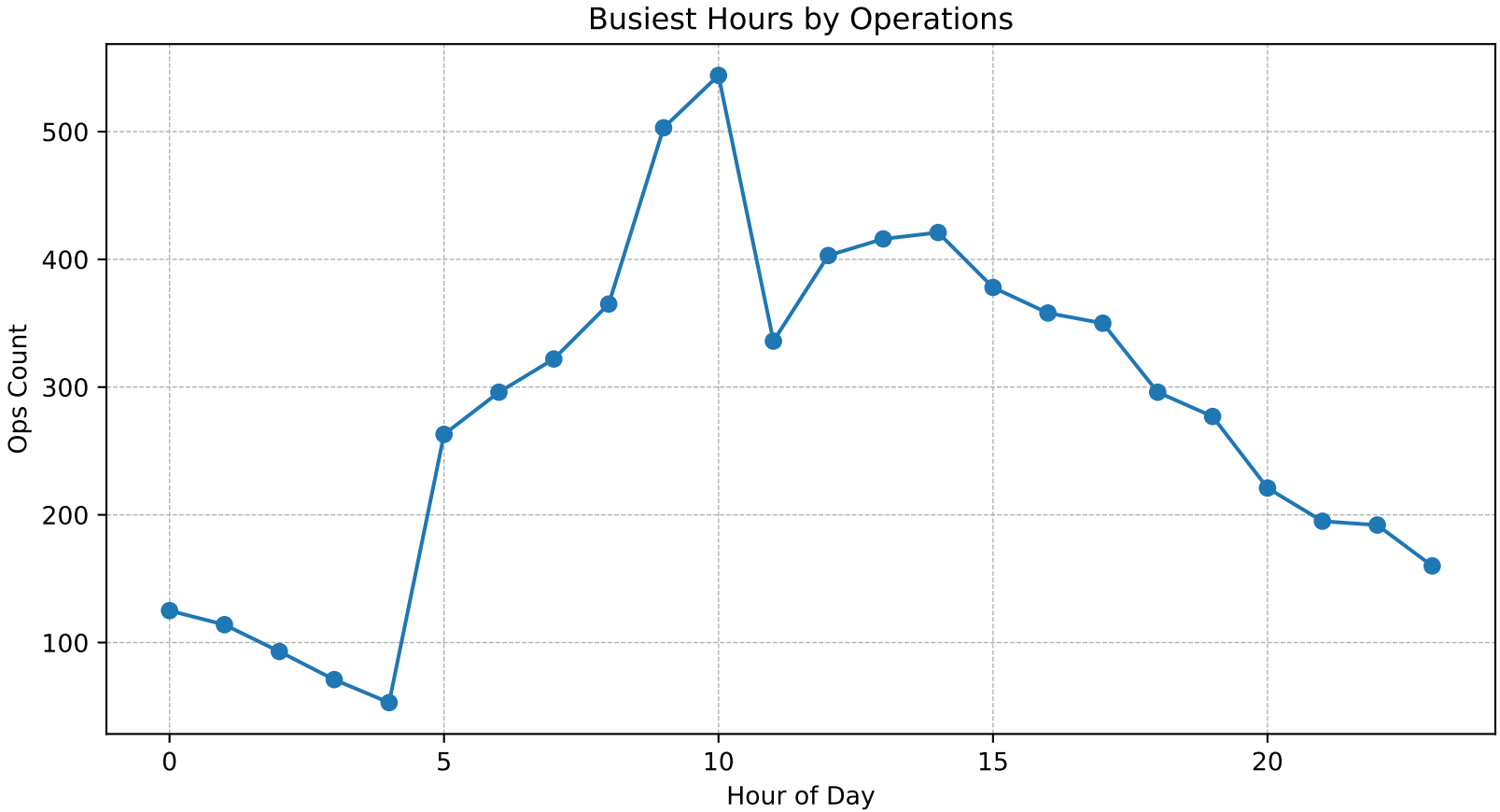
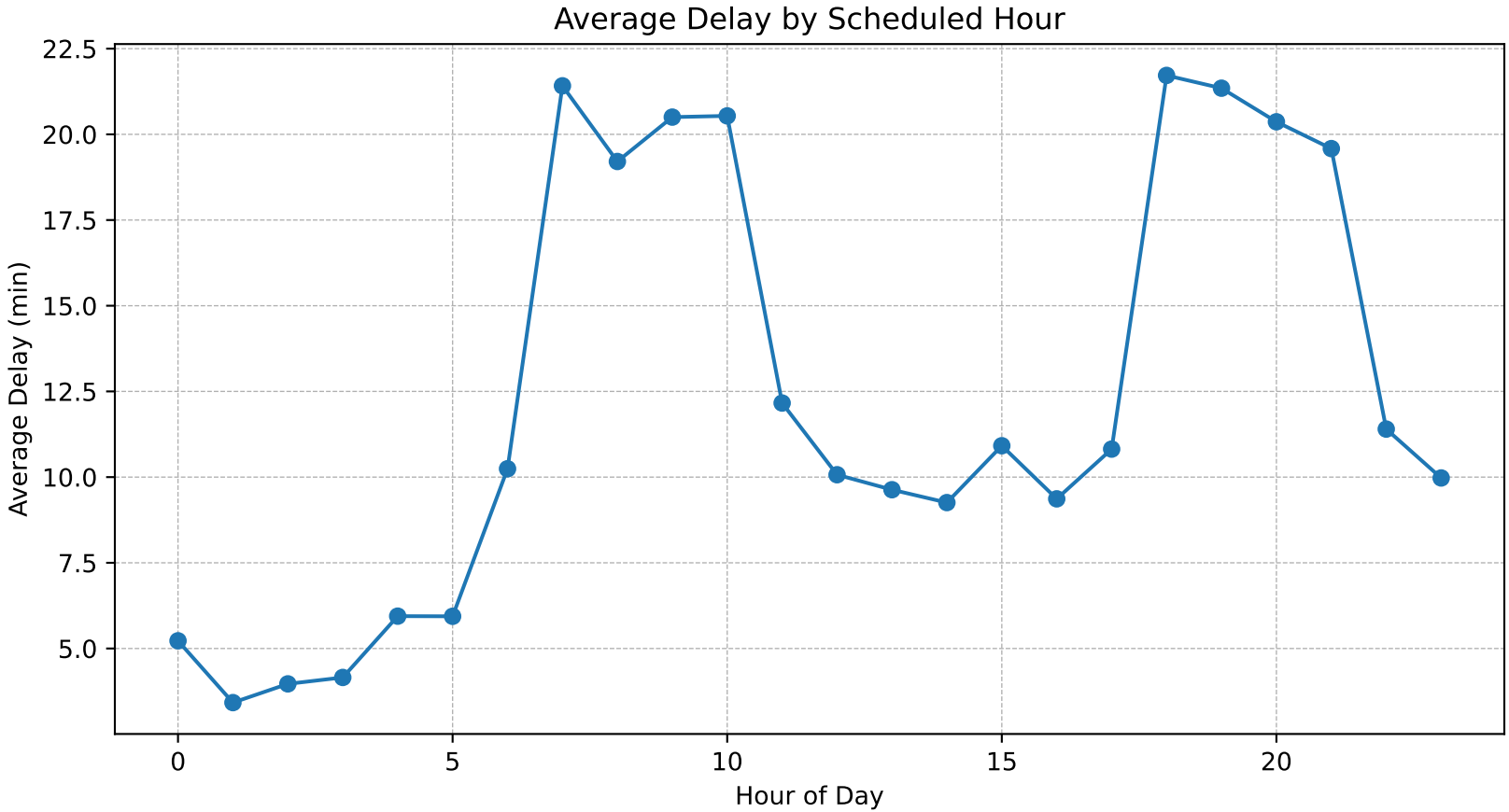
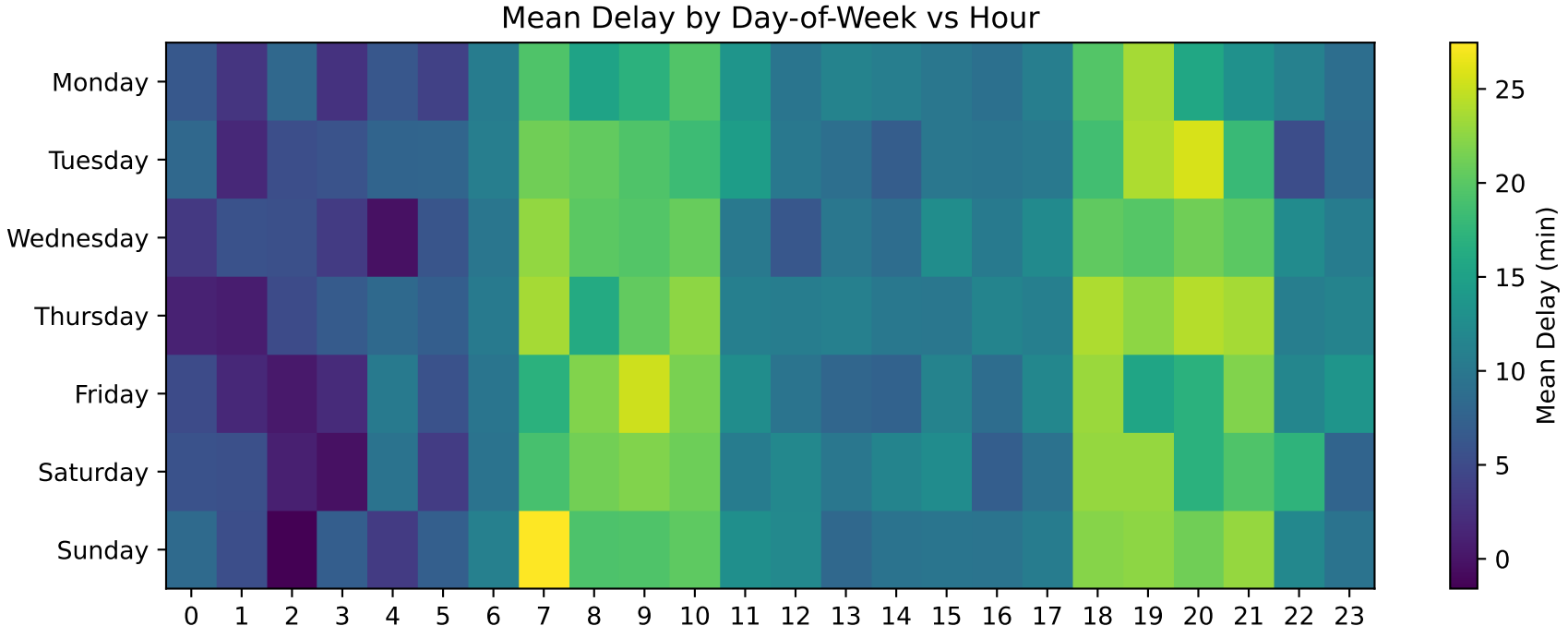
Flight Scheduling – BOM (Synthetic Week)
Honeywell Hackathon Q4

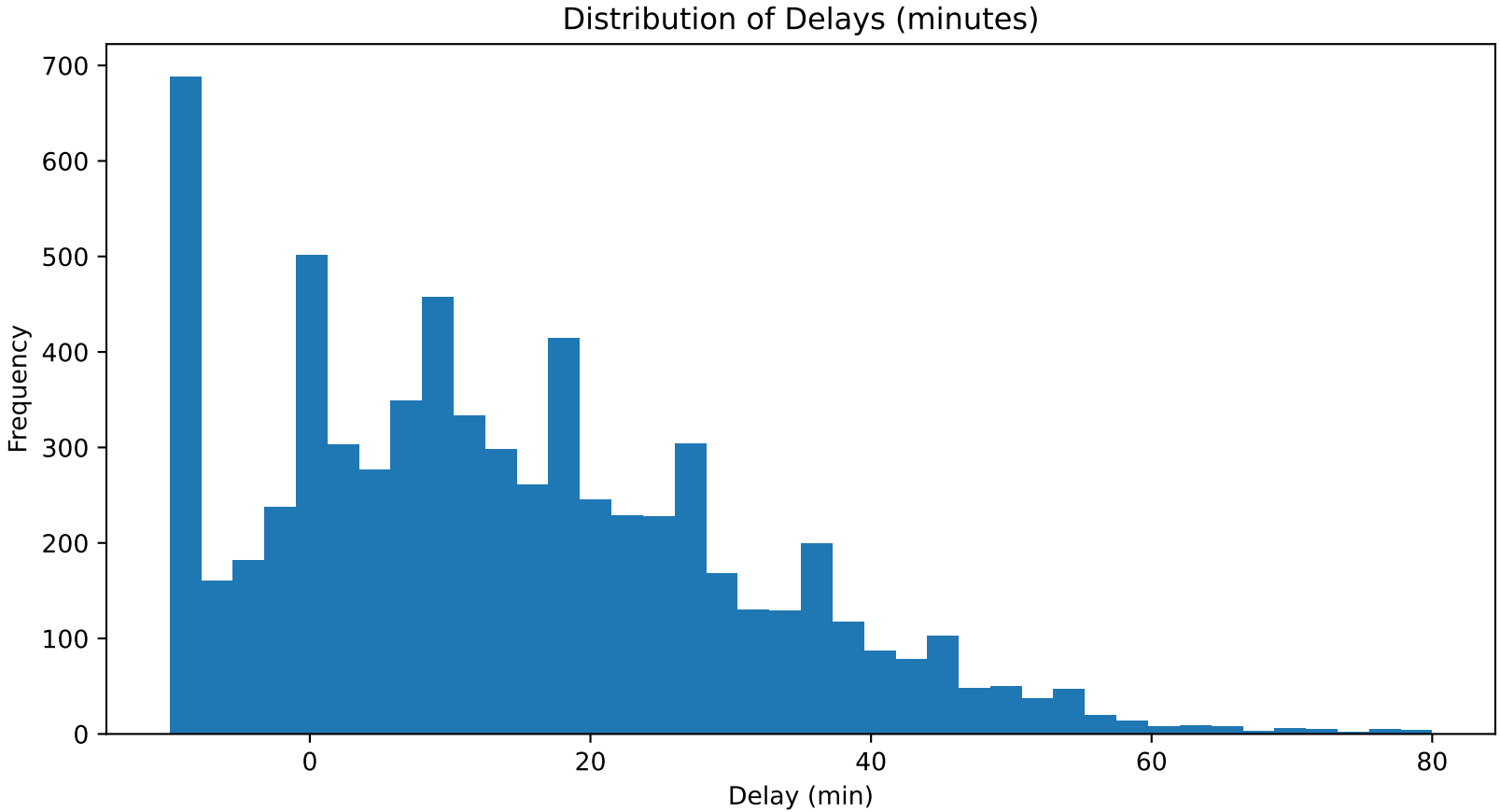
Find best windows • Analyze delays • Simulate schedule shifts • Spot cascade risks

Data: 7 days synthetic (no paid historical API). Peak-hour delays modeled higher.
Use this report to: (1) pick low-delay windows, (2) shift schedules ±30 min,
(3) reduce tight turnarounds that cause cascades.


Busiest Hours by Operations
Ops Count
100
200
300
400
500
0
5
10
15
20
Hour of Day


Average Delay by Scheduled Hour
Average Delay (min)
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
0
5
10
15
20
Hour of Day


Mean Delay by Day-of-Week vs Hour
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Mean Delay (min)
0
5
10
15
20
25

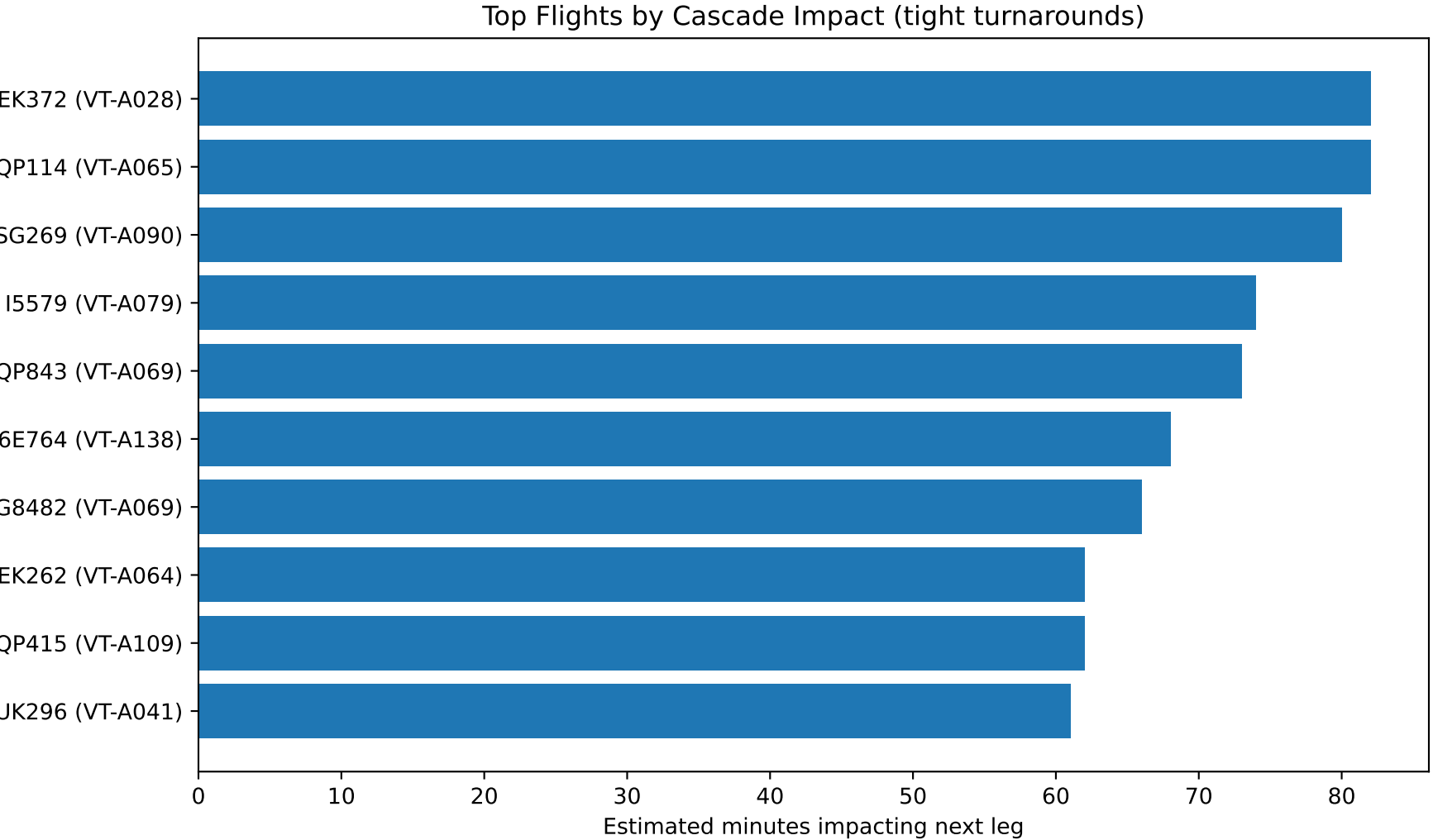

Distribution of Delays (minutes)
Frequency
Delay (min)
0
100
200
300
400
500
600
700
0
20
40
60
80

Best Scheduling Windows (lowest mean delay):

- Hour 01:00 → ~3.4 min
- Hour 02:00 → ~4.0 min
- Hour 03:00 → ~4.2 min
- Hour 00:00 → ~5.2 min
- Hour 05:00 → ~5.9 min

Schedule Tuning – sample shifts

QR513 DEL→BOM @ Sun 10:37 → +30 min (target hour 11)
I5851 BOM→MAA @ Tue 13:43 → +30 min (target hour 14)
UK163 PNQ→BOM @ Mon 10:09 → +30 min (target hour 11)
6E689 BOM→HYD @ Sun 13:11 → +30 min (target hour 14)
QP765 PNQ→BOM @ Thu 15:03 → -30 min (target hour 14)
UK720 PNQ→BOM @ Wed 04:57 → -30 min (target hour 3)
UK521 MAA→BOM @ Mon 23:51 → +30 min (target hour 0)
AI110 BOM→MAA @ Tue 12:44 → +30 min (target hour 13)
AI968 BOM→MAA @ Tue 11:53 → +30 min (target hour 12)
QR382 BOM→LHR @ Mon 21:08 → +30 min (target hour 22)


Top Flights by Cascade Impact (tight turnarounds)
EK372 (VT-A028)
QP114 (VT-A065)
SG269 (VT-A090)
I5579 (VT-A079)
QP843 (VT-A069)
6E764 (VT-A138)
G8482 (VT-A069)
EK262 (VT-A064)
QP415 (VT-A109)
UK296 (VT-A041)
0
10
20
30
40
50
60
70
80
Estimated minutes impacting next leg

Assumptions & Method:
• Synthetic data approximates BOM patterns; peak hours have higher delays.
• Cascade = next-leg turnaround buffer <45 min.
• Schedule shift recommender picks neighbor hour with lower mean delay.

Deliverables to upload:
1) flight_scheduling_report.pdf
2) bom_week_flights_synthetic.csv
3) Outline text (paste below).