Result

Greedy result

1. Route:

   HKL → OPP → OQ → HM → TL

2. Metrics:

- Locations: 5/7 (71.4%)
- Total: 330 min (5.5h)
- Travel: 30 min (9.1%)
- Visit: 300 min (90.9%)
- End: 13:30
- States: ~7

A* result

1. Route:

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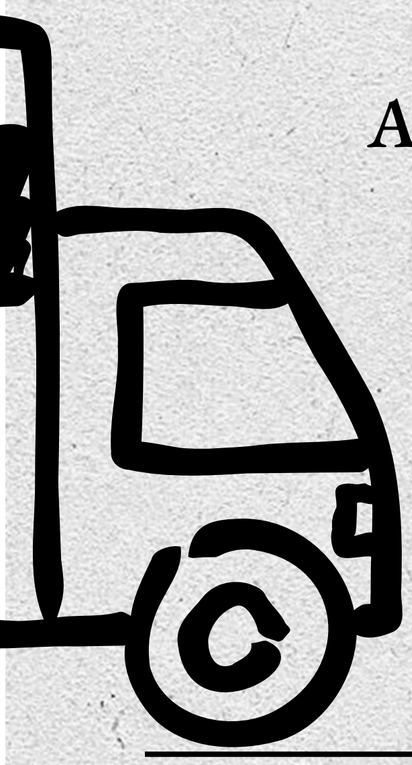
Side-by-Side Comparison

Metric	Greedy	A*	Winner
Route	HKL→OPP→OQ→HM→TL	HKL→OPP→OQ→HM→TL	Same
Locations	5/7	5/7	Same
Total time	330 min	330 min	Same
States	7	266	Greedy
Guarantee	None	Optimal	A*
Speed	<0.1s	<1s	Greedy

Critical Decision Point



At History Museum (11:55), 2 options:

- Option A: Temple of LiteratureTravel: 5 min
  → Total: 330 min
- Option B: Imperial CitadelTravel: 10 min
  → Total: 335 min

Critical Decision Point

- Greedy chose: TL (5 < 10, nearest)
- A chose:* TL (330 < 335, global optimal)

Result: Both agreed!

Problem characteristics favoring Greedy:

- **Small size (7 locations)**
- **Simple constraints (time + opening hours)**
- **Regular distance structure**
- **Single objective (minimize time)**

Greedy "got lucky" - nearest also happened to be globally optimal

A verified* - explored 266 states to PROVE it's optimal

Trade-offs & Recommendations

Use Greedy when:

01 Instant results needed

02 Mobile / real-time apps

03 Large-scale problems

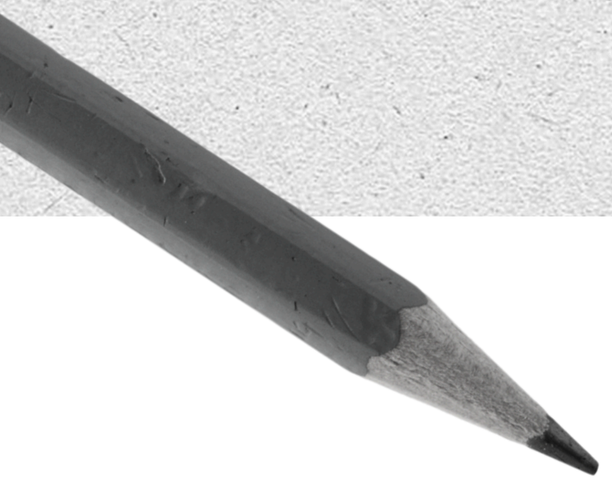
Trade-offs & Recommendations

Use A* when:

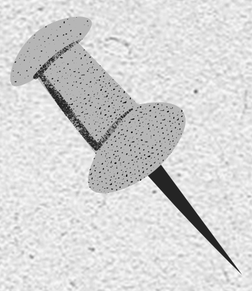
01 Quality and optimality matter

02 Small–medium problems

03 Need proof of optimality



Conclusion



- Both found same optimal route (330 min)
- A* explored 38× more states
- Greedy succeeded by luck (~35%)
- Trade-off: Speed vs Guarantee


Thank
You