



Introduction to Artificial Intelligence

**Faculty of DS & AI
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Hanoi Tourism Route Planning: Greedy vs A*

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Problem Overview

1

Tourist has 6 hours to explore
Hanoi

2

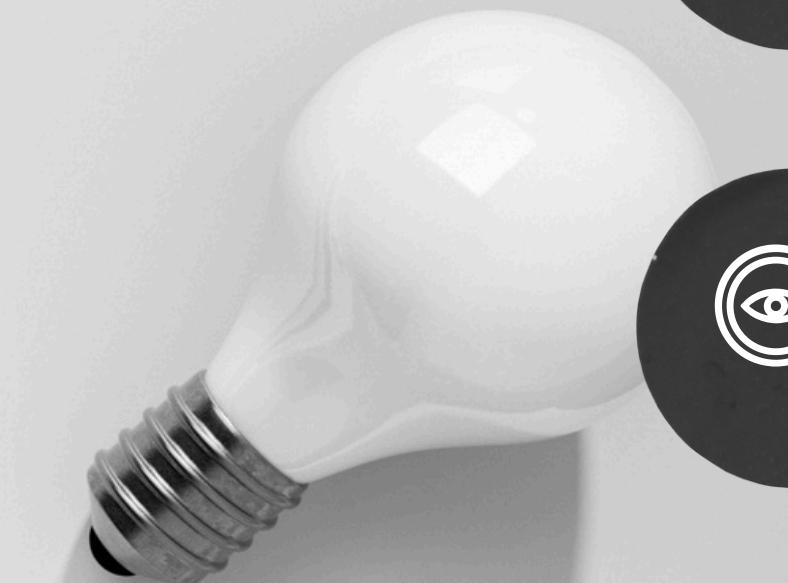
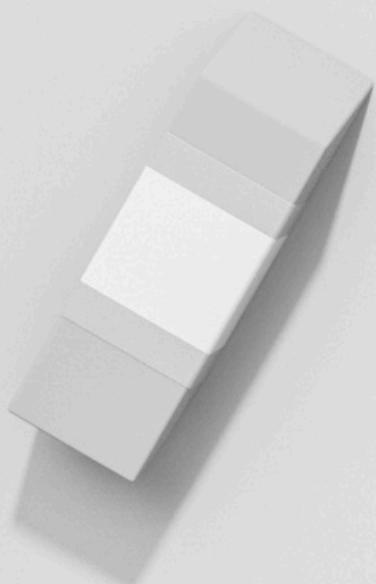
Goal: Maximize visited
locations

3

Must respect opening hours
and travel time



Research Objectives



Compare Greedy vs A*
performance

Analyze speed vs quality
trade-off

Identify when Greedy finds
optimal solutions

Algorithm Overview



Greedy Algorithm

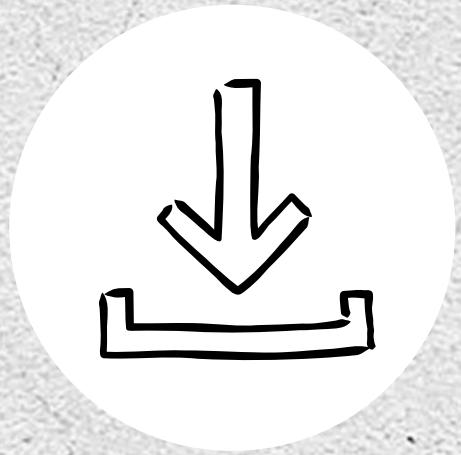
- Picks nearest location at each step
- Fast & simple ($O(n^2)$)
- No guarantee of optimality
- Short-sighted decision-making

A* Algorithm

- Uses formula $f(n) = g(n) + h(n)$
- Finds optimal path (with admissible heuristic)
- Systematic, goal-oriented search
- Slower and memory-heavy

Problem Definition

Input



7 locations, start at 08:00,
6-hour budget

State



location, visited_set,
current_time,
total_time

Constraints



Time limit, Opening
hours, Visit once

Goal



Maximize number of
locations visited

Implementation

- Language: Python 3
- Distance: $d[i][j] = |t[i] - t[j]| + 5$
- Same dataset for both algorithms



Table of 7 locations

Location	Travel Time	Visit Time	Opening Time
Hoan Kiem Lake	0	0	24/7
One Pillar Pagoda	5	30	8:00-18:00
Old Quarter	10	90	24/7
History Museum	15	90	8:00-17:00
Temple of Literature	15	90	8:00-17:00
Imperial Citadel	20	90	8:00-17:00
Ho Chi Minh Mausoleum	20	90	8:00-11:00