

CSCI 3202

Lecture 5

September 3, 2025



Wumo. <http://wumo.com/>

Announcements

- Homework 2 released today
 - Due in 1 week on Wed, Sept 10 by 11:59 pm
 - Covers BFS, DFS, path

Quiz 1

- Average was 88%
- Quiz 2 is Friday in class
- Review results

Readings

- AIMA sections 3.4-3.6 for today
- Subjects: UCS, Greedy

Lecture

- Posted an annotated version of my slides with the solutions on them in Canvas
 - [Lecture 3 Slides Annotated.pdf](#)
- Review BFS, DFS

BFS Example

BFS

Start at A. Goal is I
F is FIFO

Step	F	R	Action	Notes
0.	A	A		Check to see if A is goal when we initialize.
1.	C B	A, B, C	A → B, C	F is FIFO Check node as we expand. Add to reached when we expand
2.	D C	A, B, C, D	B → D	
3.	H G D	A, B, C, D, G, H	C → G, H	
4.	F E H G	A, B, C, D, E, F, G, H	D → E, F	
5.	F E H	A, B, C, D, E, F, G, H	G → ∅	For this example, R doesn't check anything, but if we have cycles, it will stop the algorithm from following them.
6.			H → I ✓	

DFS Example

DFS

Start at A. Goal is I
F is a stack (FILO)

Step	F	R	Action	Notes
∅	A	A		Initialization
1	C B	A, B, C	A → B, C	
2.	H G B	A, B, C, G, H	C → G, H	
3.			H → I ✓	What if the goal was E?

- UCS Search
- Greedy Search
 - Defines a heuristic function

- Heuristic is distance from a node to the goal (straight line)
- [UCS Greedy and AStar Slides.pdf](#)

Path

- For a GPS system, the path is the important item most people want. How do you construct the path?
- Start at the end and work backwards
 - Start at destination
 - Find the most recent node that explored the destination
 - Mark this node as being on path
 - Repeat with this node as destination
 - Done when you reach the starting node
- Often implemented as a Python dictionary
 - Each node is a key
 - Value is node that visited or explored it
 - If there are multiple explorations, dictionary only keeps most recent one

Next Class

- A*
- Heuristics