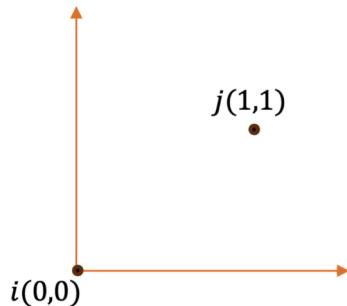


# CS 506 Lab 2 Questions

February 2026

## Problems

1. What is the Euclidean Distance between i and j?



- (a)  $\sqrt{2}$
- (b) 2
- (c) 4
- (d)  $\frac{\sqrt{2}}{2}$

2. What is the manhattan distance between i and j (using coordinates from above)?

- (a)  $\sqrt{2}$
- (b) 2
- (c) 4
- (d)  $\frac{\sqrt{2}}{2}$

3. What is the Jaccard similarity between image 1 and image 2?

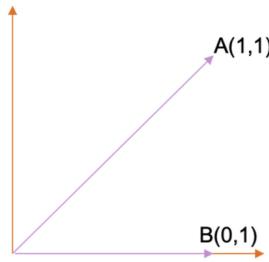
- (a)  $\frac{1}{4}$
- (b)  $\frac{1}{2}$

	$p_1$	$p_2$	$p_3$	$p_4$
Image 1	1	1	0	1
Image 2	0	1	1	0

(c) 1

(d) 0

4. What is the cosine similarity between A and B?



$$\text{Hint: } \cos(\theta) = \frac{A \cdot B}{|A||B|}$$

(a)  $\frac{\sqrt{2}}{2}$

(b)  $\frac{\pi}{4}$

(c) 1

(d) -1

5. What is the jaccard similarity between user 1 and user 0?

	The Matrix	Arrival	Dune	Star Wars	Iron Man
User 1	1	0	0	1	1
User 2	0	1	0	1	1

(a)  $\frac{1}{2}$

(b)  $\frac{3}{4}$

(c) 1

(d) 0

## Solutions

1. (a)  $\sqrt{2}$

2. (b) 2

3. (a)  $\frac{1}{4}$

4. (a)  $\frac{\sqrt{2}}{2}$

5. (a)  $\frac{1}{2}$