

10 Lecture - CS402

Important Mcqs

1. What is nondeterminism?

- A. A property of systems with multiple possible outcomes.
- B. A property of systems with a single possible outcome.
- C. A property of systems that are deterministic.

Answer: A

Which of the following is an example of a nondeterministic system?

- A. A vending machine that always dispenses the correct product.
- B. A lottery system where the winning numbers are drawn at random.
- C. A calculator that always gives the correct result.

Answer: B

What is a nondeterministic algorithm?

- A. An algorithm that always produces the same output for a given input.
- B. An algorithm that may produce different outputs for a given input.
- C. An algorithm that cannot produce any output.

Answer: B

Which of the following is a common use of nondeterminism in computer science?

- A. In modeling deterministic systems.
- B. In modeling probabilistic systems.
- C. In modeling chaotic systems.

Answer: B

What is the difference between nondeterminism and randomness?

- A. Nondeterminism is a property of a system, while randomness is a property of an event.
- B. Nondeterminism always leads to unpredictable outcomes, while randomness may or may not.
- C. Nondeterminism and randomness are the same thing.

Answer: A

What is the nondeterministic complexity of an algorithm?

- A. The minimum number of steps required to solve a problem deterministically.
- B. The maximum number of steps required to solve a problem deterministically.
- C. The maximum number of steps required to solve a problem on average.

Answer: B

Which of the following is an example of a nondeterministic decision problem?

- A. Sorting a list of numbers in ascending order.
- B. Finding the shortest path between two points in a graph.
- C. Deciding if a given Boolean formula is satisfiable.

Answer: C

Can a nondeterministic algorithm be implemented on a deterministic computer?

- A. Yes, by using randomization.

- B. Yes, by using backtracking or guessing.
- C. No, it is not possible.

Answer: B

Which of the following is a drawback of using nondeterminism in algorithms?

- A. It can lead to incorrect results.
- B. It can make the algorithm slower.
- C. It can make the algorithm more complex.

Answer: A

What is the advantage of using nondeterminism in algorithms?

- A. It can lead to faster algorithms.
- B. It can make the algorithm more efficient.
- C. It can simplify the problem being solved.

Answer: A (Note: While nondeterminism can lead to faster algorithms in some cases, this is not always true and can be a disadvantage in other cases.)