

CSCE 689: Special Topics in Trustworthy NLP

Lecture 15: Position Bias

Kuan-Hao Huang
khhuang@tamu.edu



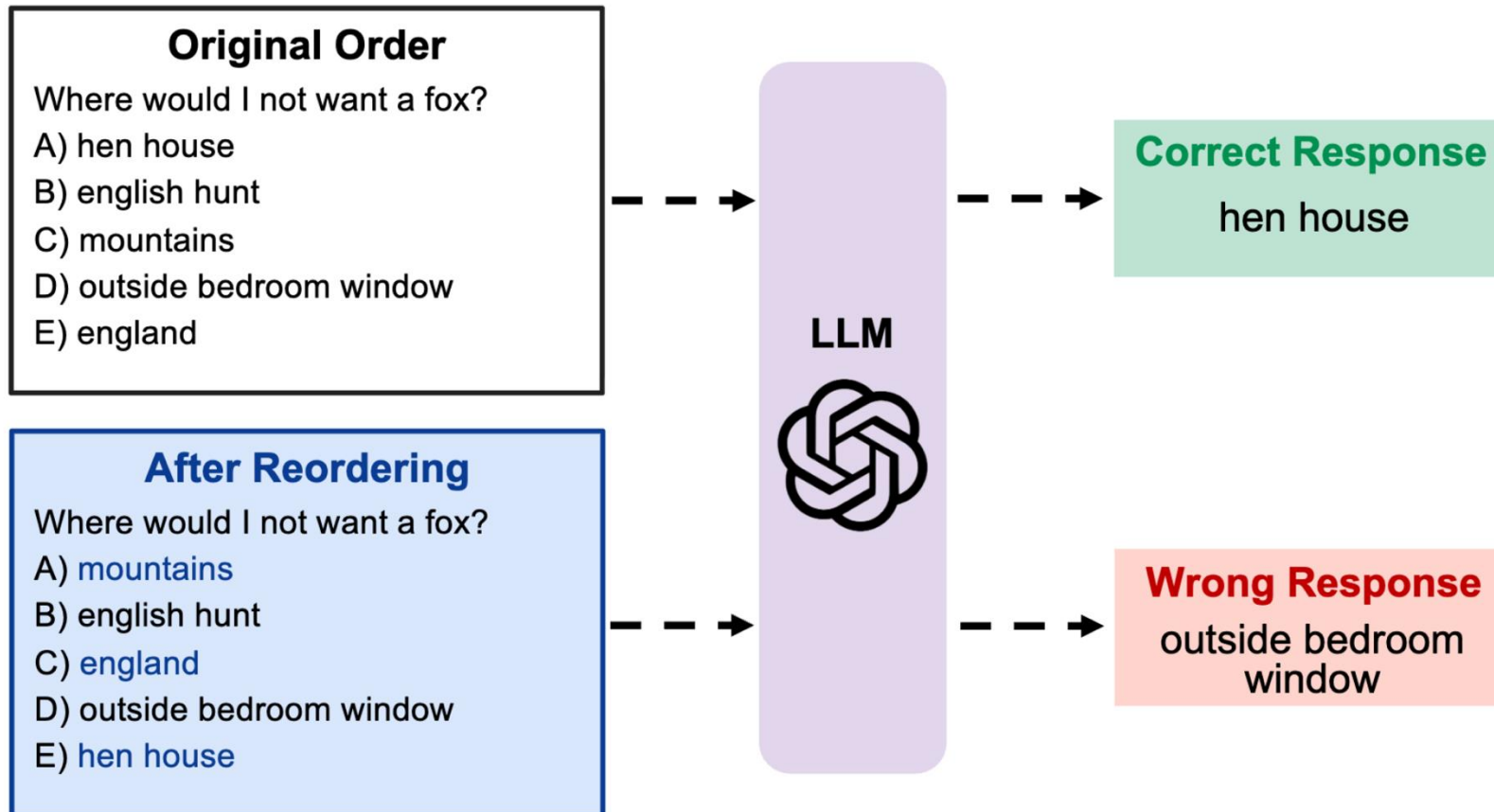
Topic Presentation

- For presenters
 - Email your slides to the instructor **at least 2 days** before your presentation
- For audience
 - Provide feedback on your classmates' presentations
 - **Bring a pen**

Course Project – Midterm Report

- Due: 11/6
- Page limit: 4 pages (excluding reference)
- Format: [ACL style](#)
- The report should include
 - Introduction to the topic you choose and problem definition
 - Related literature and overview of existing progress and challenges
 - Proposed solutions, novelty, and expected contributions
 - Evaluation metrics
 - Planned implementation details, including dataset, models, codebases, etc.
 - Current progress (preliminary results, baseline results, etc.)
 - Next steps and expected timeline

Input Matters?



Input Matters?

✓ Original → correct

Thomas withdraws \$1000 in 20 dollar bills from the bank account. **He loses 10 bills while getting home.** After that, he uses half of the remaining bills to pay for a bill. Thomas then triples his money. He then converts all his bills to 5 dollar bills. How many 5 dollar bills does he have?

Let's break down the problem step by step:

1. Thomas withdraws \$1000 in \$20 bills.
 $\$1000 / \$20 = 50$ bills
 2. **He loses 10 of those bills. 50 bills - 10 bills = 40 bills**
 3. He uses half of the remaining bills to pay for a bill. Half of 40 bills is 20 bills. 40 bills - 20 bills = 20 bills remaining
 4. Thomas then triples his money. He has 20 bills of \$20, which is $20 * \$20 = \400 . Tripling \$400 gives us $\$400 * 3 = \1200 .
 5. He converts all his money to \$5 bills.
 $\$1200 / \$5 = 240$ bills
- So, Thomas has 240 five-dollar bills.



✗ Reordered → incorrect

Thomas withdraws \$1000 in 20 dollar bills from the bank account. After getting home, he uses half of the remaining bills to pay for a bill. Thomas then triples his money. He then converts all his bills to 5 dollar bills. **He lost 10 bills while getting home.** How many 5 dollar bills does he have?

Let's break down the problem step by step:

1. Thomas withdraws \$1000 in \$20 bills from the bank. $\$1000 / \$20 = 50$ bills
 2. He uses half of the remaining bills to pay for a bill. Half of 50 bills is 25 bills. So, he uses 25 bills and has 25 bills left.
 3. Thomas then triples his money. Since he had 25 bills of \$20 each, he had $25 * \$20 = \500 before tripling his money. Tripling \$500 gives him $\$500 * 3 = \1500 .
 4. He then converts all his bills to \$5 bills.
 $\$1500 / \$5 = 300$ bills
 5. **He lost 10 bills while getting home. 300 bills - 10 bills = 290 bills**
- So, Thomas has 290 \$5 bills.



Input Matters?

Question: if n is an integer and $101 \times n^2$ is less than or equal to 10,000, what is the greatest possible value of n ?

Options: A) 7, B) 8, C) 9, D) 10, E) 11

Direct Prompt: What are the **correct** answers?

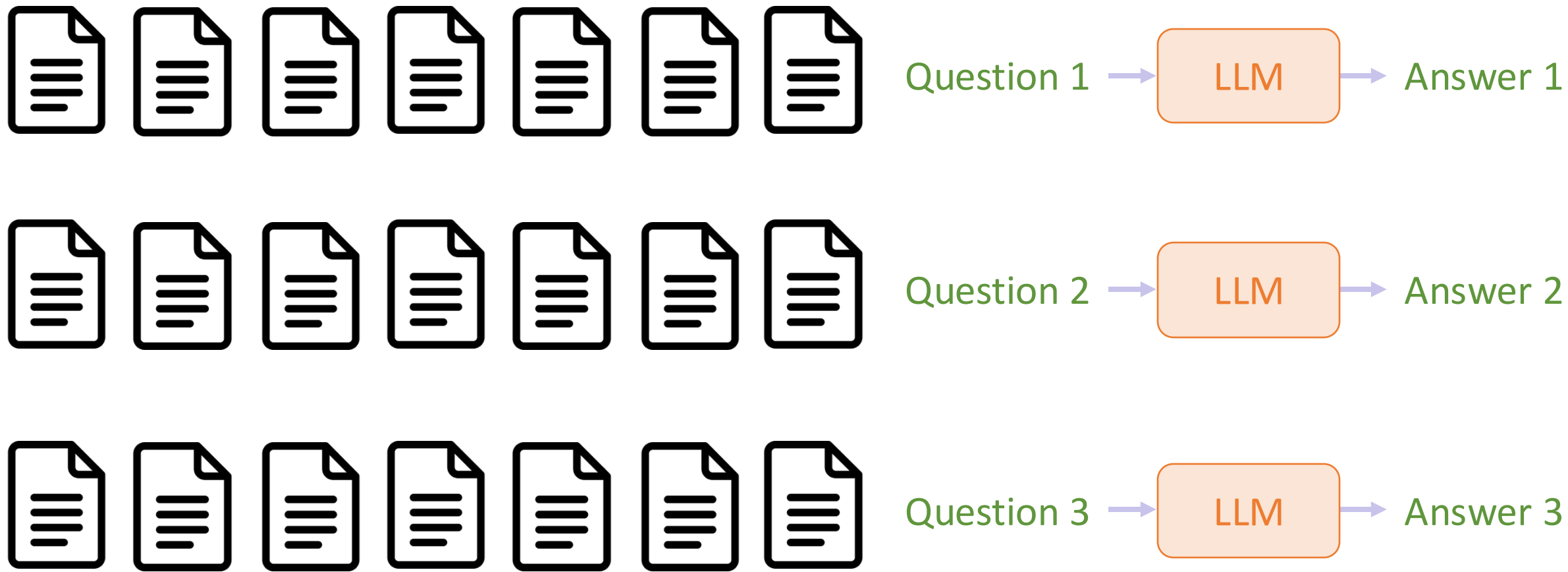
GPT4: “C”

Reverse Prompt: What are the **incorrect** answers?

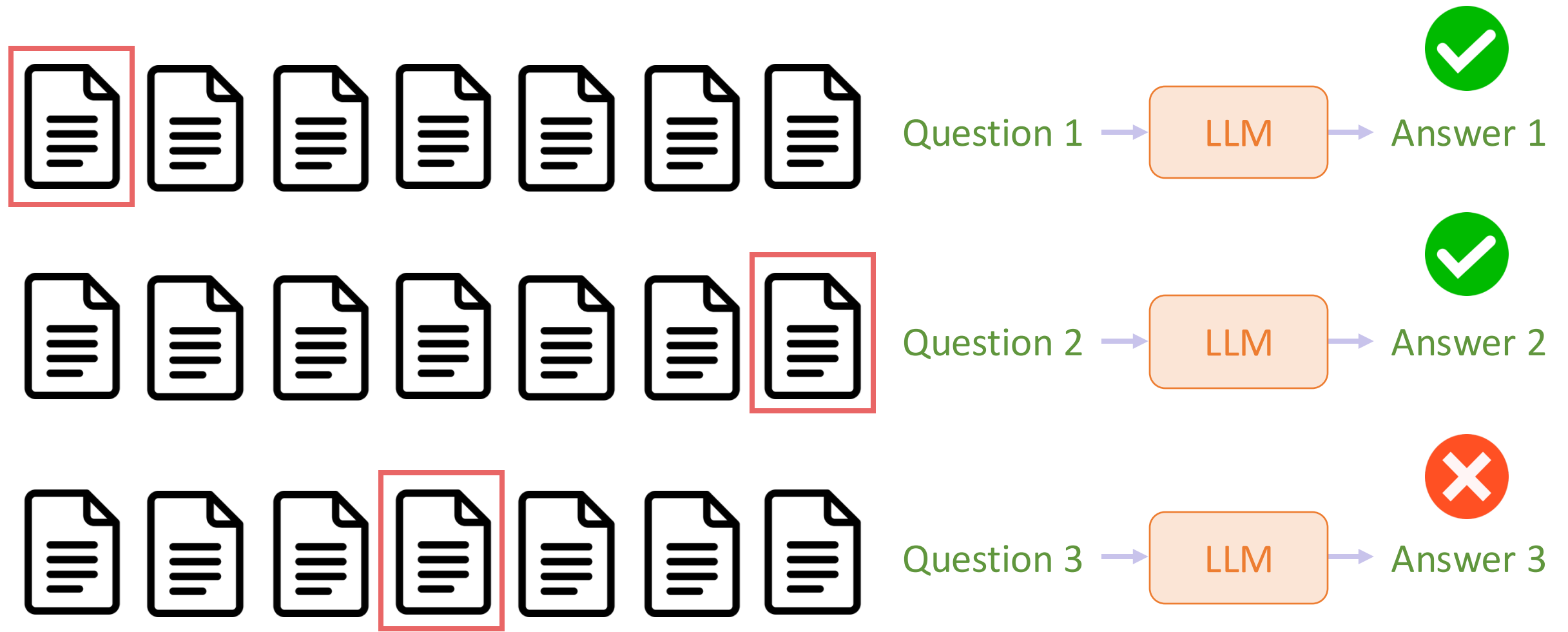
GPT4: “C, D, E”

Positional Bias Example: Supporting Documents

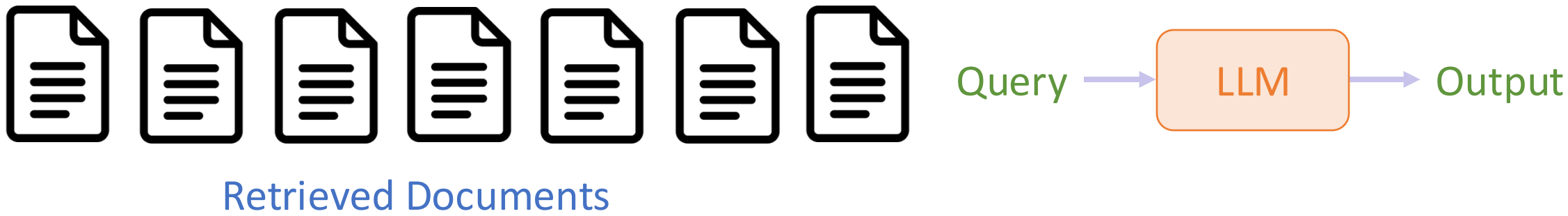
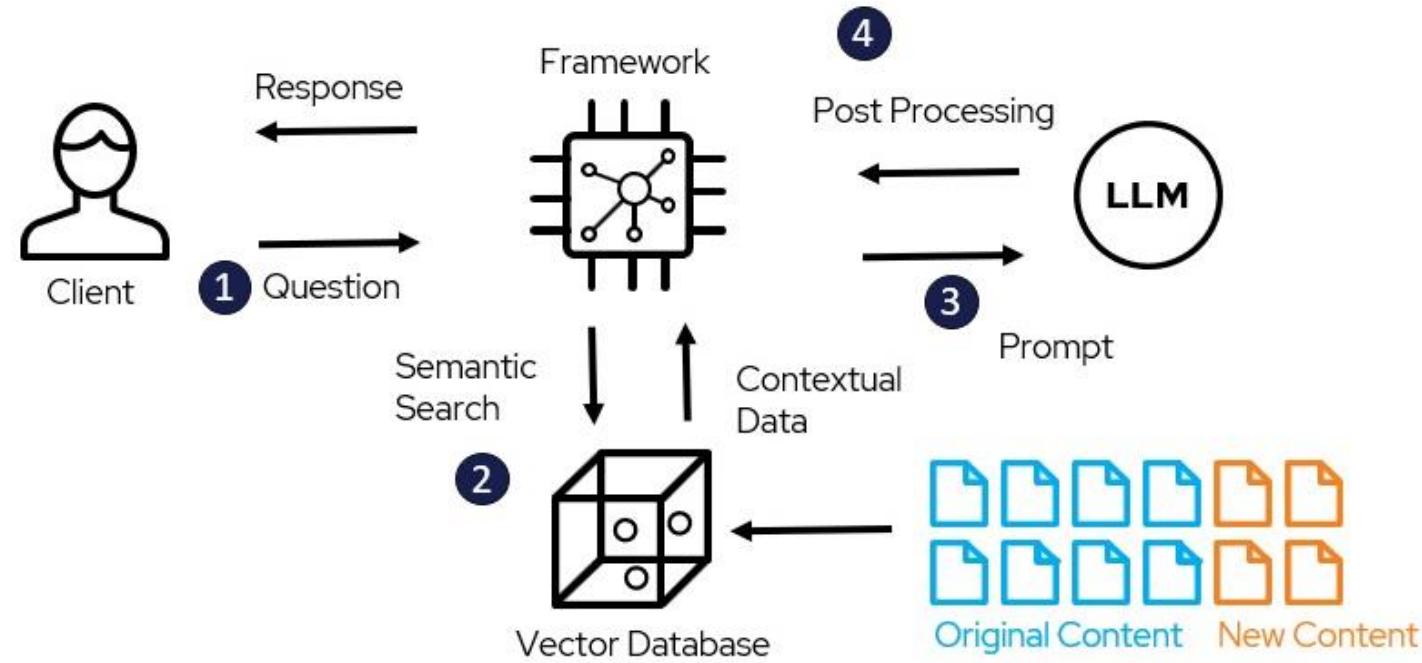
Documents



Positional Bias Example: Supporting Documents



Retrieval-Augmented Generation



Long Text Understanding



Long Document

