### Construction of LongFaith-SFT and LongFaith-PO using Chosen Sample and Rejected Samples

#### **Instruction**

You are provided with documents, a complex logical reasoning question, and the correct answer.

You must refer to the documents to perform step-by-step logical reasoning and reach the correct answer.

Each reasoning step must be on a separate line, ending with a newline character.

Cite the document properly during reasoning, e.g., `[1]`, `[2]`, etc.

End your reasoning with `The answer is` followed by the correct answer.

#### DOCUMENTS:

- [1] Muammar Gaddafi: From childhood, Gaddafi was aware of the involvement of European colonialists in Libya......
- [2] Muammar Gaddafi: On 16 April 1973, Gaddafi proclaimed the start of a "Popular Revolution" in a Zuwarah speech......

. . . . .

[9] Bogotá: Bogotá (/ 'bougəta: /, / ˌbɒgə'ta: /, / ˌboʊ - /; Spanish pronunciation: (boɣo'ta) (listen))......

[10] Alanje: Alanje is a corregimiento in Alanje District, Chiriquí Province, Panama. It is the seat of Alanje District......

. . . . .

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[20] All Saints Church, Lockerbie: All Saints Church is in Ashgrove Terrace, Lockerbie, Dumfries and Galloway, Scotland......

#### **QUESTION:**

When was the country containing Alanje colonized by the country housing the All Saints Church in the town known for the bombing by Gaddafi's Libya?

### **Chosen Output (Sample: Highest Faithfulness)**

Step 1: Identify the country where Alanje is located.

From Document [10], Alanje is in the Alanje District, Chiriquí Province, Panama. Thus, Alanje is located in Panama.

Step 2: Identify the country where All Saints Church is located.

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The answer is 1698.

#### **Rejected Output (Sample: Misinformation due to Lack of Verification)**

The All Saints Church is located in Lockerbie, Scotland, which is part of the United Kingdom.

The UK was involved in colonizing various territories, including Panama, where Alanje is located. [10]

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The answer is 1903.

## **Rejected Output (Sample: Reasoning without Attribution)**

Step 1: Identify the country containing Alanje.

From the document on Alanje, it is stated that Alanje is located in Panama.

Step 2: Identify the country housing the All Saints Church in Lockerbie.

. . . . .

The answer is 1698.

# **Rejected Output (Sample: Potential Knowledge Conflicts)**

Alanje is a location, so we need to determine which country contains Alanje. Alanje is located in Panama.

. . . . .

However, Panama was not colonized by the United Kingdom; Panama was colonized by Spain.

So, we need to determine the connection between the United Kingdom and Spain regarding the colonization of Panama.

. . . . .

The answer is 1698.



LongFaith -PO