Appendix B. ARLO's Prompts

We have used the following prompts to implement ARLO:

I have provided a set of software requirements. I want you to extract the following information:

- Whether it is architecturally significant. A requirement is architecturally significant if it satisfies both of these conditions:
    - It explicitly states a key decision regarding high-level software architecture.
    - It specifies one or more of the following quality attributes regarding software architecture:
    - Performance Efficiency: Achieving high performance under economic resource utilization.
    - Compatibility: Interoperability and co-existence.
    - Usability: A user-friendly app with straightforward and elegant UX and UI.
    - Reliability: Stability under different conditions.
    - Security: Protecting data and preventing breaches.
    - Maintainability: Easy to modify and improve.
    - Portability: Adaptable to different environments.
    - Cost Efficiency: Keep the overall cost (including development, operations, and maintenance) as low as possible.
- Find the quality attributes mentioned in the list above. (Do not include anything outside of the above list.)
- The ConditionText is a conditional statement provided in the requirement that should be true when the quality attributes are expected, e.g., 'if bandwidth is low,' 'when traffic is high,' 'under normal conditions,' or 'all the time.' (If there is no condition, return N/A.)

Prompt 1. Parse Requirments

If the following conditions mean the same thing, one can infer another or be considered a subset of another, return 'True.' Otherwise, return 'False.'

Prompt 2. Determine Condition Groups

Organize the provided set of conditions into groups where conditions in the same group can be true simultaneously. Once grouped, simply return the IDs of the conditions in each group enclosed in parentheses. For instance, if there are two groups where the first group includes requirements 1 and 3, and the second group includes requirements 3 and 4, your response should be formatted as ((1,3),(3,4)), where each number indicates the ID of the corresponding condition.

- One condition may be part of more than one group.
- If a condition is called 'under any circumstances,' include it in all groups.
- Just return the ID inside parentheses. Do not return the conditions or text before or after the requested format.

Prompt 3. Determine Concurrent Condition Groups