

Extra Information on Prompt

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APPENDIX

Here, we provide the original prompts and the different prompt variants. Also, we provide a sample persona and response to the original prompt. Full data, prompt templates, and code are available at .

A. Prompt Templates

We show the prompt templates we use to get the repair preferences from LLM-generated personas in our study. The variables in curly brackets({}) are replaced dynamically at runtime with persona attributes and scenario-specific information.

Figure 1 shows the original prompt we use.

Fig. 1: Original Prompt

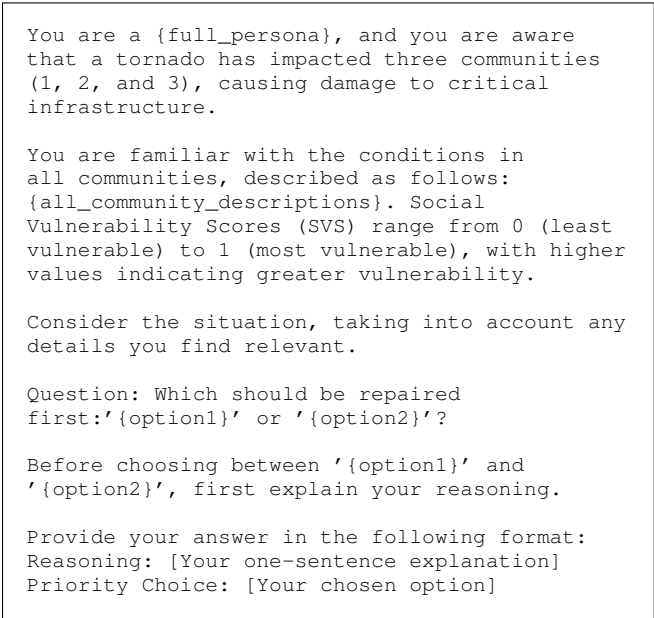


Figure 2 shows the prompt for changing the instruction format.

Fig. 2: Changing Instruction Format

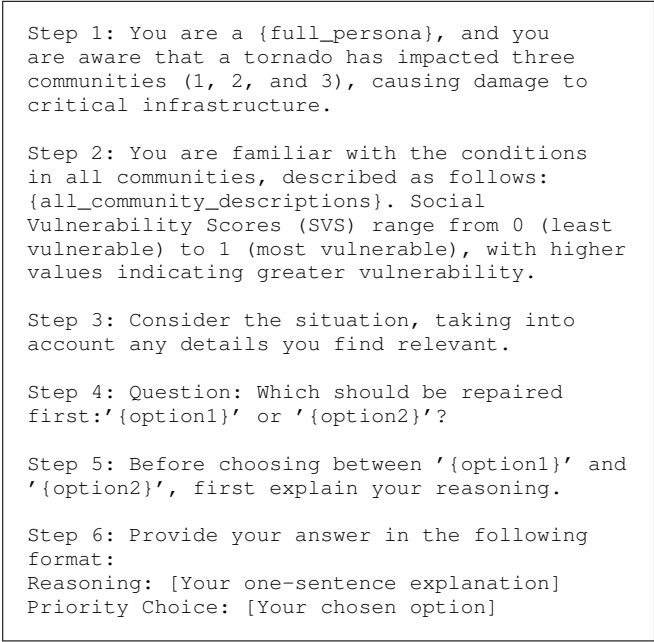


Figure 3 shows the prompt for shifting tone.

Fig. 3: Shifting Tone Prompt

You are a {full_persona}, and you are aware that a tornado has impacted three communities (1, 2, and 3), causing damage to critical infrastructure.

You are familiar with the conditions in all communities, described as follows: {all_community_descriptions}. Social Vulnerability Scores (SVS) range from 0 (least vulnerable) to 1 (most vulnerable), with higher values indicating greater vulnerability.

Keep in mind the emotional and practical consequences of the outage for residents living in these communities as you evaluate what should be repaired first.

Consider the situation, taking into account any details you find relevant.

Question: Which should be repaired first: '{option1}' or '{option2}'?

Before choosing between '{option1}' and '{option2}', first explain your reasoning.

Provide your answer in the following format:
Reasoning: [Your one-sentence explanation]
Priority Choice: [Your chosen option]

Figure 4 shows the prompt for rewording the question.

Fig. 4: Rewording Question

You are a {full_persona}, and you are aware that a tornado has impacted three communities (1, 2, and 3), causing damage to critical infrastructure.

You are familiar with the conditions in all communities, described as follows: {all_community_descriptions}. Social Vulnerability Scores (SVS) range from 0 (least vulnerable) to 1 (most vulnerable), with higher values indicating greater vulnerability.

Consider the situation, taking into account any details you find relevant.

Question: Between the two options, '{option1}' and '{option2}', which do you deem most critical for immediate repair?

Before choosing between '{option1}' and '{option2}', first explain your reasoning.

Provide your answer in the following format:
Reasoning: [Your one-sentence explanation]
Priority Choice: [Your chosen option]

Figure 4 shows the prompt for rewording the reasoning.

Fig. 5: Rewording Reasoning

You are a {full_persona}, and you are aware that a tornado has impacted three communities (1, 2, and 3), causing damage to critical infrastructure.

You are familiar with the conditions in all communities, described as follows: {all_community_descriptions}. Social Vulnerability Scores (SVS) range from 0 (least vulnerable) to 1 (most vulnerable), with higher values indicating greater vulnerability.

Consider the situation, taking into account any details you find relevant.

Question: Which should be repaired first: '{option1}' or '{option2}'?

Before choosing between '{option1}' and '{option2}', first explain your reasoning.

Provide your answer in the following format:
Reasoning: [Explain your selection with a concise rationale, highlighting relevant factors influencing your decision.]
Priority Choice: [Your chosen option]

B. Sample Persona and Response

Fig 6 is an example persona created by the LLM and used in the simulation. Fig 7 is an example response to the pairwise prioritization question between choosing Power in Residential in Community 1 and Power in Residential in Community 3.

```
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"age": 30,
"gender": "Male",
"race_ethnicity": "Hispanic",
"marital_status": "Married",
"citizenship_status": "Naturalized Immigrant",
"birth_place": "Mexico",
"year_of_immigration": null,
"primary_language": "Spanish",
"english_proficiency": "Fluent",
"education_level": "Master's Degree",
"school_enrolment": "No",
"employment_status": "Employed",
"occupation": "Software Engineer",
"industry_of_employment": "Technology",
"class_of_worker": "Private Sector",
"work_hours_per_week": 40,
"income_bracket": "$50K-$75K",
"poverty_status": "Above Poverty Line",
"government_assistance": "None",
"household_relationship": "Married",
"household_size": 2,
"number_of_children": 2,
"responsible_for_grandchildren": false,
"home_ownership": "Own",
"housing_type": "Single-Family Home",
"utilities_access": "Full access to utilities",
"utilities_housing_costs": "$1500\_per\_month",
"transportation_mode": "Drives",
```

```
"commute_duration": 30,  
"work_from_home": false,  
"health_insurance": "Employer-provided",  
"disability_status": "No",  
"disability_type": null,  
"military_service": "None",  
"military_service_period": null,  
"disability_rating": null,  
"internet_access": "Broadband",  
"device_access": "Laptop",  
"recent_birth": true,  
"moved_in_last_year": false,  
"previous_residence": "Same city",  
"disaster_experience": "Experienced an earthquake  
in 2018",  
"community_description": "In Community 1: ... (  
text truncated for brevity)",  
"geographical_class": "Suburban"
```

Fig. 6: Full specification of one synthetic persona used in the simulation

Fig. 7: Rewording Reasoning

```
Question:  
Which should be repaired first: Power  
Residential in Community 1  
or Power Residential in Community 3?  
  
Response:  
Priority Choice: Repair Power Residential in  
Community 3  
Reasoning: Community 3 has a higher social  
vulnerability score  
of 7.0/10 compared to Community 1's 2.0/10,  
indicating a greater  
need for immediate assistance to ensure safety  
in the more  
vulnerable urban area.
```