Division / Team: TIS/GPE

University Marketplace Chatbot - Intern Take-Home Assessment

Submission Guidelines

Repository Structure

```
university-marketplace-chatbot-assessment/
├── README.md (overview and approach)
├── prompt.md
├── prompt-analysis.md
├── test-cases.json
├── testing-framework.md
├── update-process.md
├── automation-concept.[py|js]
├── marketplace-insights.md
├── PROCESS_LOG.md (mandatory thinking process documentation)
└── resources/ (any additional files)
```

README Requirements

- Brief introduction and approach overview
- Instructions for reviewing each component
- Assumptions made about the university marketplace
- Time breakdown of effort allocation
- Next steps if this were a real project
- **Personal reflection on most challenging component**
- **Three alternative approaches considered and why they were rejected**
- **Your experience with university marketplaces (buyer/seller perspective)**

Overview

Time Allocation: 1.5-2 hours
 Submission: GitHub repository with documentation and deliverables
 Focus Areas: Prompt engineering, testing methodology, automation design, and marketplace understanding

Background Context

You're designing a chatbot for a university marketplace platform where students can buy, sell, and trade items within their campus community. The chatbot needs to help users navigate the platform, resolve common issues, enforce community guidelines, and escalate complex problems to human moderators. Think Facebook Marketplace meets university-specific needs.

Assessment Components

1. Prompt Design & Engineering (45 minutes)

Task: Create a well-structured prompt for a university marketplace support chatbot following modern prompt engineering best practices.

Deliverables:

- `prompt.md` - A comprehensive system prompt with clear structure
- `prompt-analysis.md` - 2-3 paragraph analysis of your design decisions

Requirements:

- Structure the prompt using XML/markdown formatting for clarity
- Include role definition, task specifications, and conditional logic
- Address different user scenarios (buyers, sellers, new users, safety concerns)
- Implement safety guardrails and escalation pathways for policy violations
- Use structured output formats where appropriate
- Consider university-specific contexts (academic calendar, dorm policies, etc.)

Evaluation Criteria:

- Clarity and specificity of instructions
- Use of structured formatting (XML, markdown)
- Consideration of marketplace-specific scenarios
- Implementation of safety measures and community guidelines
- Professional presentation and documentation

2. Golden Test Design (30 minutes)

Task: Develop a testing framework to validate chatbot prompt performance with "golden tests."

Deliverables:

- `test-cases.json` - 15-20 test cases in structured JSON format
- `testing-framework.md` - Documentation of your testing approach

Test Case Categories (minimum 3 per category):

- **Basic Navigation:** How to post items, search, message sellers
- **Transaction Support:** Payment methods, pickup coordination, disputes
- **Safety & Guidelines:** Prohibited items, scam prevention, reporting users
- **Escalation Triggers:** Complex disputes, policy violations, technical issues
- **Edge Cases:** Unusual requests, multiple topics, unclear intent

JSON Structure Example:

```json
{
  "test_cases": [
    {
      "id": "nav_001",
      "category": "basic_navigation",
      "input": "How do I sell my textbook?",
      "expected_elements": ["posting steps", "pricing guidance",
"photo requirements"],
      "success_criteria": "Provides clear step-by-step posting
instructions",
      "edge_case": false
    }
  ]
}
```

3. Automation & Update Process (20 minutes)

Task: Design a system to simplify the chatbot update process as marketplace features evolve.

Deliverables:

- `update-process.md` - Process documentation with workflow diagram
- `automation-concept.py` or `automation-concept.js` - Basic code structure (pseudo-code acceptable)

Requirements:

- Version control integration
- Automated testing pipeline
- Deployment workflow for prompt updates
- Rollback capabilities for failed updates
- Change approval process for policy updates

4. Marketplace Domain Knowledge (15 minutes)

Task: Demonstrate understanding of university marketplace challenges and user needs.

Deliverables:

- `marketplace-insights.md` - Brief analysis of key chatbot requirements

Topics to Address:

- Common user pain points in student marketplaces
- Safety and trust challenges specific to campus communities
- Seasonal patterns (textbook sales, move-out periods, graduation)
- Integration needs with university systems (email verification, etc.)