Software Requirements Specification
Mess Management System

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Group Members

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1. Overview of Requirement Gathering Techniques

Requirement gathering is a crucial phase in software development that involves collecting, analyzing, and documenting stakeholders' needs to ensure the successful development of a system. Below are the key techniques we used for gathering requirements:

1.1 Interviews

Description: We conducted one-on-one discussions with key stakeholders, including mess staff, cooks, waiters, the mess supervisor, and the accountant, to gather detailed insights into their

challenges and expectations from the system. This method helped us understand real-world issues that surveys or observations alone might not reveal.

- **Use Case:** Interviewing mess management staff, students, mess supervisor and accountant to understand their workflow in meal preparation, serving, and attendance and billing.
- **Process:**
  - **Identified Key Stakeholders** (students, mess staff, supervisor, and accountant).
  - **Prepared Structured & Open-Ended Questions** to ensure comprehensive discussions.
  - **Conducted Interviews** in person, encouraging honest feedback about the current mess system.
  - **Documented & Analyzed Responses** to define key system requirements and areas for improvement.
- **Advantages:** Provides in-depth, personalized feedback and helps uncover hidden requirements.
- **Disadvantages:** Can be time-consuming and subjective, making it difficult to scale for large groups.

1.2 Surveys (Google Forms)

Description: We distributed structured questionnaires via Google Forms to collect quantitative data and overall opinions from students regarding their experiences with the current mess management system. The survey helped us understand student expectations, identify pain points, and gather insights into necessary features for the software.

Use Case: Conducting surveys among students to gather insights into their challenges with the current mess management system.

- **Process:**
  - Design survey questions focusing on expectations, difficulties, and desired features.
  - Distribute surveys via Google Forms.
  - Analyze results using data visualization techniques (pie chart, bar graph).
- **Advantages:** This method was efficient for us as we collected feedback from many students with ease and little efforts.
- **Disadvantages:** Responses may lack depth, and interpretation depends on respondents' clarity and honesty.

1.3 Observations

Description: As students, we observed the daily operations of the mess system, including how students register for meals, how attendance is recorded, and how staff members handle billing and complaints.

- **Use Case:**
  - Identifying inefficiencies in manual attendance tracking and billing.
  - Observing how mess staff handle meal shortages and student requests.
- **Process:**
  - Spent time observing mess staff and students during meal hours.
  - Recorded workflow inefficiencies and delays in service.
  - Compared findings with feedback from interviews and surveys.
- **Advantages:** Provided real-world insights into operational challenges. It also allowed us to validate issues reported in surveys and interviews.
- **Disadvantages:** Requires time, effort, and careful interpretation to avoid bias.

1.4 Focus Group Discussions

- **Description:** We conducted group discussions with mess staff to gain diverse perspectives and explore potential improvements in the mess system.
- **Use Case:**
  - Addressing issues related to meal booking, billing errors, and complaint handling with students and mess administrators.
- **Process:**
  - Selected participants from different roles.
  - Facilitated discussions to identify challenges and brainstorm solutions. Documented insights to refine system requirements.
- **Advantages:**
  - Encouraged collaboration and diverse viewpoints. Helped validate survey and interview findings.
- **Disadvantages:**
  - We didn't face any such difficulties, but it was time consuming.

1.5 Document Analysis

- **Description:** We reviewed existing mess records, including student attendance logs, billing statements, and complaint reports, to extract relevant requirements. We also analyzed documentation of FAST University's Mess Management Software that gave us deeper understanding of functional and non-functional requirements.
- **Use Case:**
  - Understanding the current billing and meal tracking policies.
- **Advantages:**
  - Helped in identifying financial and operational constraints.
- **Disadvantages:**

- No such disadvantage but it was much time consuming as we had to read documentations.

2. Why Requirement Gathering is Critical for Successful Software Development

2.1 Ensures the Software Meets Stakeholder Needs

- Requirement gathering ensures the system aligns with the expectations and workflows of mess administrators, staff, and students.

2.2 Reduces the Risk of Project Failure

- Identifies key issues early in the project lifecycle, minimizing costly rework or system rejection later.

2.3 Helps in Creating a Clear and Comprehensive SRS (Software Requirements Specification)

- A well-defined SRS document serves as a blueprint for developers, testers, and stakeholders.

2.4 Saves Time and Resources

- Clearly defined requirements prevent unnecessary delays and reduce the need for changes during development.

2.5 Improves User Satisfaction

- Involving users during requirement gathering leads to higher adoption rates and a better user experience.

3. Our Requirement Gathering Plan

3.1 Focus Group Discussion

- **Objective:** Identify key areas that need improvement in the mess system.
- **Activity:**
  - We held discussions with students and mess staff to understand common challenges.
  - Gathered feedback on attendance tracking, meal registration, billing, and complaint handling.

- Explored possible solutions and validated initial system requirements.
- **Outcome:** Established a clear scope for system development and identified priority areas for automation and improvement.

3.2 Observations

- **Objective:** Gain firsthand insights into mess operations and identify inefficiencies.
- **Activity:**
  - We observed meal attendance recording, billing processes, and complaint handling.
  - Noted inefficiencies such as manual errors in attendance tracking and delays in billing.
  - Compared findings with student feedback from surveys.
- **Outcome:** Identified critical pain points that require automation.

3.3 Surveys (Google Forms)

- **Objective:** Collect feedback from students regarding mess-related issues.
- **Outcome:**
  - Strong demand for automated meal registration and billing.
  - High preference for a structured complaint submission system.
  - Need for notifications regarding meal schedules and billing updates. **3.4**

Interviews

- **Objective:** Gather detailed insights from mess staff, students, and administrators.
- **Outcome:**
  - Confirmed the need for an automated billing and attendance system.
  - Highlighted the importance of real-time notifications for meal booking and payments.
  - Emphasized the necessity of a feedback system for service improvement.

3.5 Document Analysis

- **Objective:** Extract requirements from existing records, documents and policies.
- **Outcome:**
  - This helped us define billing rules, meal tracking policies, and administrative procedures.
  - Ensured the system complies with mess regulations and financial tracking requirements.

3.7 Timeline

Activity	Timeline	Outcome

Surveys (Google Forms)	Day 1-2	Collected student feedback on challenges and desired features.
Observations	Day 2-3	Observed manual processes and inefficiencies in room allocation and maintenance.
Interviews	Day 3-5	Gathered detailed insights from Hostel Director and wardens.
Focus Group Discussion	Day 4-5	Identified key areas: room allocation, maintenance requests, security management.
Document Analysis	Day 6	Extracted rules and constraints from hostel policies and manuals.

3.7 Key Findings

Based on surveys, focus group discussions, observations, and interviews, the following key findings were identified:

1. **Billing & Payment Issues**
   - Manual **billing leads to errors and delays in fee submission**.
   - Students prefer **online payment options** for convenience. Difficulty in **tracking meal consumption vs. charges**.
2. **Attendance & Waste Reduction**
   - No proper **meal attendance tracking**, leading to food wastage.
   - Need for **pre-booking meals** to reduce unnecessary food preparation.
   - Suggestion to implement a **QR-based or biometric attendance system**.
3. **Complaint & Feedback Handling**
   - No structured way to **submit complaints or suggestions**.
   - Demand for **a transparent complaint resolution system**.
4. **Staff & Resource Management**
   - Mess staff struggles with **manual inventory tracking**, causing shortages.
   - Poor **communication between students and mess management**.
   - Need for **automated stock management** to track ingredients and supplies.

These findings emphasize the **need for an automated, transparent, and user-friendly Mess Management System** to enhance efficiency, satisfaction, and resource optimization.

Conclusion

By employing multiple requirements gathering techniques, we gained a comprehensive understanding of the mess management system's needs. These insights helped us identify inefficiencies, define key requirements, and lay a strong foundation for developing an efficient and user-friendly mess management system.