Tutorial Week 4

Interview Session: Elicitation with Librarian (Mr. Johnson)

Interviewer: Hello Mr. Johnson, thank you for joining us to discuss the new Library Management System. As the head librarian, your perspective is essential. What are the most important features you need from this system?

Mr. Johnson: The system should allow users to search for books, reserve them online, and check borrowing history. For staff, we need tools to manage inventory, track overdue items, and generate usage reports. It has to integrate with our existing barcode scanners.

Interviewer: How do you currently handle library operations, and what problems do you encounter?

Mr. Johnson: We use an old desktop software for check-ins and check-outs, but it's slow and doesn't support online access. Patrons complain about not being able to search catalogs remotely, and we manually send overdue reminders via email, which is time-consuming and error-prone.

Interviewer: What types of notifications would be useful, and how timely should they be?

Mr. Johnson: Notifications for reservation availability, overdue books, and new arrivals—preferably via email or app push, sent immediately for overdues to encourage prompt returns, but daily batches for new arrivals to avoid spam.

Interviewer: What devices or platforms do you and users typically use, and are there any integration requirements?

Mr. Johnson: Staff use desktops and tablets at the counter, while patrons use mobiles and web browsers. It should work on Windows, iOS, and Android, and integrate with our university's single sign-on for student accounts.

Interviewer: What about accessibility, security, or other constraints like performance?

Mr. Johnson: Security is critical—protect patron data with encryption and role-based access. For accessibility, include screen reader support and large fonts. The system should be fast, loading search results in under 2 seconds, even during peak hours, and reliable with minimal downtime.

Interviewer: Thank you, Mr. Johnson. This will help us shape the requirements effectively.

5 Tutorial Questions Based on the Interview

1. **Question:** Based on Mr. Johnson's interview, identify two functional requirements for the Library Management System and explain how they address problems mentioned in the current process.

   Answer: Two functional requirements are: (1) The system shall allow users to search for books and reserve them online, addressing the lack of remote catalog access; (2) The system shall enable staff to track overdue items and generate usage reports, solving manual reminders and error-prone processes by automating tracking and reporting.

2. **Question:** From the interview, derive one non-functional requirement related to performance.

   Answer: Non-functional requirement: The system shall load search results in under 2 seconds, even during peak hours.

3. **Question:** Using the MoSCoW prioritization technique, prioritize the requirement for "notifications for overdue books sent immediately" from Mr. Johnson's interview, and provide a justification.

   Answer: Priority: Must Have. Justification: This is critical as it directly addresses the time-consuming manual overdue reminders, encouraging prompt returns to maintain book availability and reduce errors, which is essential for the system's core objective of efficient library operations.

4. **Question:** Identify a potential ambiguity in Mr. Johnson's requirements from the interview and justify your answer.

   Answer: A potential ambiguity is the request for "notifications for new arrivals in daily batches to avoid spam," as "daily batches" is vague regarding exact timing, or frequency.

Variant of Question 3

Question: Using the MoSCoW prioritization technique, prioritize the following requirement from Mr. Johnson interview:

Requirements	**Priority**	**Justification**
allowing users to search for books and reserve them online	Must Have	This is critical as it addresses the primary patron complaint about lacking remote catalog access in the current system, enabling core library functionality like online reservations, without which the system would fail to

		modernize operations and meet user expectations
integrating with the university's single sign-on for student accounts	Should Have	This is important for seamless user authentication and convenience, especially for students, but it is not essential for basic operations; it could be deferred if integration challenges arise, though it enhances security and user experience significantly.
protecting patron data with encryption and role-based access	Must Have	This is critical due to legal and ethical obligations for data privacy in a library handling personal information; failing to implement it could make the system unusable or expose it to risks, as emphasized by Mr. Johnson's focus on security.
loading search results in under 2 seconds, even during peak hours	Should Have	This enhances user satisfaction by addressing the slowness of the current software, but it is not vital for functionality; a slightly slower response could be tolerated initially, though it is key for adoption in a busy library setting.
including screen reader support and large fonts for accessibility	Must Have	This is essential for inclusivity and compliance with accessibility standards, ensuring the system is usable by all patrons and staff, including those with disabilities; omitting it could lead to legal issues and exclude users, aligning with Mr. Johnson's explicit concerns.

Alternate Answers for Question 4

1. **Ambiguity: "Tools to manage inventory" Answer:** The phrase "tools to manage inventory" in Mr. Johnson's request is ambiguous, as it does not specify what inventory management functions are needed (e.g., adding/removing books, updating statuses, or bulk imports). This could lead to developers implementing incomplete or overly complex features that do not meet staff needs. To resolve this, conduct a follow-up interview with Mr. Johnson to detail required inventory actions (e.g., barcode-based updates, stock auditing), and create a prototype of the inventory management interface for staff feedback to ensure alignment with operational needs.
2. **Ambiguity: "Fast, loading search results in under 2 seconds" Answer:** The term "fast" in Mr. Johnson's requirement for loading search results in under 2 seconds is ambiguous, as it does not clarify whether this applies to all searches (e.g., simple title searches vs. complex queries) or under specific conditions (e.g., network type, user load). This could result in inconsistent performance expectations. To resolve this, hold a workshop with

Mr. Johnson and users to define search types (e.g., by title, author, or category) and test conditions (e.g., peak usage on university Wi-Fi), then validate performance targets through a prototype to confirm feasibility.

3. **Ambiguity: "Integrate with our university's single sign-on for student accounts" Answer:** The request for integration with the university's single sign-on (SSO) is ambiguous, as it lacks details on the SSO protocol (e.g., SAML, OAuth), user types (e.g., only students or also staff), or error handling (e.g., failed logins). This could lead to integration mismatches or security gaps. To resolve this, organize a technical elicitation session with Mr. Johnson and the university's IT team to specify the SSO protocol, user scope, and error scenarios, followed by a requirements review to document and verify integration details.
4. **Ambiguity: "Screen reader support and large fonts" Answer:** Mr. Johnson's requirement for "screen reader support and large fonts" is ambiguous, as it vaguely addresses accessibility without specifying standards (e.g., WCAG level) or additional features for other disabilities (e.g., color contrast, keyboard navigation). This could result in partial accessibility compliance, excluding some users. To resolve this, conduct an accessibility-focused interview with Mr. Johnson and users with disabilities to identify specific needs (e.g., WCAG 2.1 AA compliance, adjustable font sizes), and test a prototype with accessibility tools to ensure usability and compliance.
5. **Ambiguity: "Track overdue items" Answer:** The request to "track overdue items" is ambiguous, as it does not specify how tracking should occur (e.g., real-time monitoring, daily reports, or staff dashboards) or what details are needed (e.g., patron info, fine calculations). This could lead to a tracking system that does not meet staff expectations. To resolve this, use a scenario-based discussion with Mr. Johnson to outline tracking workflows (e.g., viewing overdue lists, sending reminders), followed by a prototype of the tracking interface for validation to ensure it supports efficient staff operations.

Scenario: Warehouse Worker Processes an Incoming Shipment

Actor: Alex (warehouse worker).

Context: Alex receives a new shipment from a supplier and needs to log it into the Warehouse Management System (WMS) to update inventory levels. This is based on interviews where workers mentioned frequent delays due to manual entry and errors in stock counts.

Steps:

1. Alex logs into the WMS using a handheld scanner or tablet with their employee ID.
2. The system prompts Alex to scan the shipment barcode or enter the supplier invoice number.
3. Upon validation, the system displays the expected items (e.g., 50 units of Product A, 30 units of Product B) pre-loaded from the purchase order.
4. Alex scans each item as it is unloaded, and the system updates real-time inventory, flagging any discrepancies (e.g., damaged goods or quantity mismatches).
5. If a discrepancy is found, the system allows Alex to note reasons (e.g., "damaged in transit") and automatically notifies the warehouse manager via email.
6. Once complete, the system generates a confirmation receipt and assigns storage locations based on available space and item categories (e.g., perishables to refrigerated zones).
7. Alex confirms the storage by scanning the location barcode, and the system updates the inventory map.

Exceptions:

- Invalid login: System prompts for retry or password reset.
- Barcode scan failure: Allow manual entry with validation checks.
- No available storage: System suggests alternatives or escalates to manager.

Tutorial Questions Based on the Scenario

Question 1: In the scenario for the Warehouse Management System, what is the main actor and their role?

Answer: The main actor is Alex, who is a warehouse worker responsible for processing incoming shipments.

Question 2: Name one exception mentioned in the scenario and describe what the system does in response.

Answer: One exception is a barcode scan failure; the system allows manual entry with validation checks to ensure accuracy.

Question 3: Based on the scenario, identify one functional requirement for the Warehouse Management System and explain how it supports the worker's process.

Answer: Functional requirement: The system shall update real-time inventory upon scanning items during unloading. This supports the worker's process by automatically tracking stock levels, reducing manual errors, and ensuring accurate records without delays.

Alternate Answer 1: Functional requirement: The system shall generate a confirmation receipt upon completion of shipment processing. This supports the worker's process by providing a verifiable record of the processed shipment, ensuring accountability and enabling quick reference for audits or disputes, addressing the manual errors mentioned in the scenario.
Alternate Answer 2: Functional requirement: The system shall assign storage locations based on available space and item categories (e.g., perishables to refrigerated zones). This supports the worker's process by automating storage decisions, reducing the time Alex spends manually determining where to place items and preventing errors in storing sensitive goods.
Alternate Answer 3: Functional requirement: The system shall allow manual entry of shipment details with validation checks if barcode scanning fails. This supports the worker's process by providing a fallback option during exceptions like scanner malfunctions, ensuring the workflow continues smoothly without delays, as highlighted in the scenario's exception handling.

Question 4: From the scenario, derive one non-functional requirement related to usability and justify its importance.

Answer: Non-functional requirement: The system shall support handheld scanners and tablets for mobile access. This is important because warehouse workers like Alex need to perform tasks on the move, improving efficiency and reducing the need for stationary desktops in a dynamic environment.

Alternate Answer 1: Non-functional requirement: The system shall provide a user interface with clear, intuitive prompts for scanning and data entry. This is important because workers like Alex, who may have varying technical skills, need straightforward guidance to process shipments quickly and accurately, minimizing training time and errors in a fast-paced warehouse.
Alternate Answer 2: Non-functional requirement: The system shall allow navigation and data input via touch or keyboard on tablets and scanners. This is important to ensure usability for workers like Alex, who may prefer different input methods depending on the device or task, enhancing flexibility and reducing frustration during high-pressure operations.
Alternate Answer 3: Non-functional requirement: The system shall display error messages in plain language when discrepancies or exceptions occur. This is important because clear communication helps workers like Alex quickly understand and resolve issues (e.g., barcode failures or discrepancies), improving usability and reducing downtime in the workflow.

Question 5: Identify an ambiguity in the scenario and explain your answer.

Answer: An ambiguity is in "flagging any discrepancies" and "noting reasons," as it does not specify what types of discrepancies (e.g., quantity only or also quality issues) or how notes are structured (e.g., free text vs. predefined categories).

Alternate Answer 1: An ambiguity is in "assigning storage locations based on available space and item categories," as it does not specify how the system prioritizes space (e.g., nearest location vs. optimal capacity) or defines categories (e.g., specific rules for perishables). This could lead to misaligned storage logic.
Alternate Answer 2: An ambiguity is in "automatically notifying the warehouse manager via email" for discrepancies, as it lacks details on notification content (e.g., full discrepancy details vs. summary) or escalation protocols (e.g., who else is notified). This could result in unclear communication.
Alternate Answer 3: An ambiguity is in "prompting Alex to scan the shipment barcode or enter the supplier invoice number," as it does not clarify the validation process for manual entry (e.g., format checks, error handling) or fallback options if both fail. This could cause delays if unclear.