[1 pt] Project Description

LogistX is a mobile app designed to revolutionize how logistics companies manage their delivery operations and inventory systems. Informed by the principles of Human-Computer Interaction (HCI), our solution addresses major operational pain points such as manual inventory tracking errors, lack of real-time delivery monitoring, inefficient data entry processes, and the absence of centralized management systems. A key motivation behind this design is that most logistics companies still rely on outdated paper-based systems or fragmented digital tools that lack integration and mobile accessibility. Users have reported encountering delays in inventory updates, frequent human errors during manual data entry, difficulty in generating timely reports, and poor coordination between delivery tracking and inventory management. LogistX provides a focused, mobile-optimized solution that enhances operational efficiency through intuitive QR code scanning, tracking interfaces, automated reporting, and centralized management capabilities. The intended users range from warehouse staff and delivery personnel to operations managers and business owners who require streamlined, error-free logistics management that supports quick decision-making and improved coordination.

[4 pts] Requirements Summary

LogistX is designed exclusively for Android devices to ensure optimal performance and cost-effective deployment across logistics operations. To accommodate the varying capabilities of users' smartphones and tablets, we propose the following minimum and recommended system requirements.

Table 1. System Requirements for LogistX (Android)

Category	**Minimum Requirements**	**Recommended Requirements**
OS	Android 6.0	Android 10.0
RAM	2 GB	4 GB
Processor	Dual-core	Quad-core
Screen Size	4.5” or higher	5.5” or higher
Connectivity	3G/Wi-Fi	4G LTE/ Wi-Fi
Permissions Required	Camera (QR), Location	Camera (QR), Location

The app is lightweight and optimized for real-time syncing on unstable connections. QR scanning and tracking can work even with low-end devices to accommodate varied users.

[15 pts] Overview: Evaluation Techniques, Tasks, and Users

Evaluation Techniques Used

We employed a comprehensive multi-method approach to thoroughly assess LogistX's interface design and operational workflow. Our evaluation included:

1. **Benchmark Task Evaluation** – Users performed key logistics tasks designed to reflect real-world operational scenarios, with detailed observations, time tracking, and error logging.
2. **Heuristic Evaluation** – Our team conducted expert reviews using Nielsen's 10 Usability Heuristics to analyze user control, system feedback, error prevention, visual clarity, and workflow efficiency.
3. **Post-Test Feedback Survey** – Participants completed a comprehensive questionnaire rating their experience with interface clarity, task completion confidence, and operational satisfaction using a 5-point Likert scale, supplemented by detailed qualitative feedback.

Evaluation Tasks

Each task was designed based on critical daily operational goals in logistics management:

- **Login and access dashboard** to view operational overview and system status
- **Scan QR codes** to update inventory and process deliveries
- **Track delivery status** and update delivery progress
- **Generate inventory reports** and export data for management review
- **Manage delivery assignments** and coordinate with delivery personnel
- **Handle error scenarios** such as incorrect scans or network connectivity issues

These tasks helped us evaluate core usability factors: operational efficiency, task success rates, user satisfaction, system reliability, and workflow integration.

User Profiles

We selected 9 target users representing our intended logistics population:

- **5 warehouse staff** (ages 22–35)
- **4 operations managers** (ages 30–45)

These participants were chosen to reflect the diverse range of users interacting with logistics management systems — from hands-on operational staff to management personnel who may face barriers in adopting new technology. This diversity helped validate our design's usability across skill levels, device familiarity, and operational contexts.

[60 pts] Evaluation Results

Table 1. Task Completion Summary

Task	Target Time	Avg. Time	Success Rate	Errors Noted
Login and View Dashboard	≤ 30 seconds	18 seconds	100%	Seamlessly completed; participants understood layout immediately.
QR Code Scanning for Inventory	≤ 1 minute	45 seconds	89%	Scanner would sometimes crash.
Track Delivery Progress	≤ 90 seconds	1 min 20 sec	78%	Real-time updates clear; delivery completion workflow needed clarification.
Inventory Reports	≤ 1 minute	52 seconds	100%	Report generation intuitive despite being simulated through static screens.
Assign Delivery Tasks	≤ 1 minute	48 seconds	89%	Assignment process clear; system well understood.

Table 2. Likert-Scale Feedback

Criterion	Avg. Score
Navigation was easy and intuitive	4.56
Clarity of inventory information	4.44
Satisfaction with QR code scanning	4.22
Confidence in delivery tracking	4.11
Usefulness of automated reporting	4.67
Overall satisfaction with the interface	4.56

Table 3. Qualitative Feedback (Recurring Themes)

Theme	Participant Statement
Visual Design & Usability	"The interface is clean, professional, and easy to navigate for daily operations."
QR Code Scanning	"The scanning feature is helpful, but it sometimes doesn't work"
Simplicity and Navigation	"Everything was straightforward to find and use—very practical for busy warehouse work."
Feature Suggestions	"It would be great to have voice commands for hands-free operation during deliveries."

Data Analysis: What the Data Tells Us

Overall, the evaluation affirmed that LogistX meets many of its usability goals, despite being a non-functional prototype. Users navigated the prototype with ease, indicating strong conceptual clarity and information hierarchy.

- **Effectiveness**: Participants were able to locate, interpret, and move through the interface with minimal instruction.
- **Efficiency**: Average interaction times were well within the target limits.

- **Satisfaction**: High ratings across all Likert items suggest positive user impressions and emotional responses.
- **Usability Gaps**: Some visual elements (e.g., QR scanning, delivery completion workflow) require refinement for better intuitiveness.

Design Implications

Strengths:

- The simplified dashboard and prioritization of inventory/delivery alerts make core functions highly accessible.
- QR code integration and automated workflows improve operational efficiency.
- Consistency in iconography and color use increases user confidence.

Improvements Needed:

- Enhance QR code scanning interface with better visual guidance and feedback.
- Users requested larger buttons and clearer scanning instructions, especially for warehouse staff working in various lighting conditions.
- Update report export options for clarity and better workflow integration.

Revisions Made Based on Feedback:

- **Refined QR scanning interface** to better guide users on proper scanning technique.
- **Enlarged key action buttons** and improved visual hierarchy for better accessibility.
- **Added separate UI screens** for delivery assignment, completion confirmation, and inventory updates for better operational flow.
- **Introduced simple popup confirmations** for inventory updates, delivery assignments, and other critical tasks to provide clear task completion feedback.

[60 pts] Critique and Summary

What Went Well

The project successfully embodied the principles of HCI by prioritizing operational efficiency, user workflow optimization, and clarity over technical complexity. Despite the static nature of the prototype, users consistently reported high satisfaction with navigation, operational comprehension, and visual appeal. The system addressed many existing pain points of traditional logistics operations, especially the lack of real-time tracking capabilities and inefficient manual inventory processes.

What Could Have Been Better

Design-wise:

- Including an onboarding tutorial or step-by-step operational guide would have eased entry for first-time users unfamiliar with digital logistics systems.
- Adding night mode and greater visual contrast could make the system more inclusive, especially for users working in varying lighting conditions.

Evaluation-wise:

- Testing with a larger population, particularly users aged 45+ in management roles — would have provided deeper insights into cross-generational usability.
- Real-environment testing (e.g., mobile use in actual warehouse and delivery settings) could better evaluate UI robustness under operational conditions.
- Using Figma limited interactivity; no live logic could be tested (e.g., actual QR code scanning, real-time GPS tracking, or dynamic report generation).

With More Resources...:

- Develop a higher-fidelity prototype that simulates backend features like live inventory updates and real-time delivery tracking.
- Conduct field testing in actual logistics environments to test responsiveness and usability during real operations.
- Expand participant base to 15-20 users to gain statistically significant feedback across different logistics company sizes.

Final Takeaway

This project has given us a deeper understanding of what it truly means to apply Human-Computer Interaction principles — not just to create interfaces, but to solve real operational problems for real logistics professionals. LogistX was developed in response to specific and recurring issues faced by logistics companies: outdated manual systems, frequent inventory errors, lack of real-time visibility, and inefficient coordination between delivery and inventory management.

Despite being a static prototype created in Figma, our design evaluation showed that usability can be meaningfully assessed even without full interactivity. Users were able to navigate key operational features with ease and expressed high satisfaction with the structure, layout, and operational flow of the interface. The positive reception from participants across different roles, including both operational staff and management personnel, reinforced the importance of designing for clarity, efficiency, and practical usability.

We also identified areas for improvement, such as enhancing QR code scanning guidance, improving delivery workflow clarity, and providing better onboarding support. These findings emphasize that HCI is a continuous process of learning, testing, and refining — grounded in real operational feedback and practical use cases. Ultimately, LogistX is a step toward that goal. It's not perfect, but it's purposeful.