Shopping App UI Redesign

CSC 8720: Advanced Human-Computer Interaction Group Project 1: Term Paper

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INTRODUCTION

Why Amazon? In this project, we selected the Amazon Shopping mobile application for our interface redesign. Amazon is one of the most widely used shopping platforms globally, offering millions of products to users with varied browsing and purchasing behaviors.

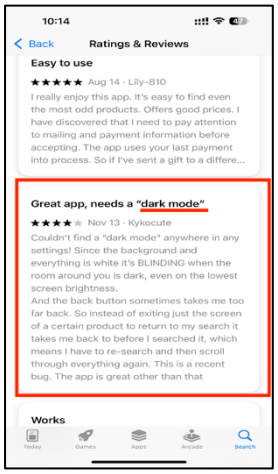
Although the app is robust and feature-rich, its widespread use and frequency of interaction make it a strong candidate for usability review. At first glance, it may seem unnecessary to redesign such a successful application. However, we identified recurring user complaints about the experience through our needfinding, which include the lack of a dark mode, endless scrolling in search results, poor visibility of the "Change Address" option during checkout, and difficulty locating or managing wishlisted items. We will detail these in the next section.

Accessing the Interface: Users can access the Amazon Shopping app by downloading it from the Play Store or App Store and signing in with their credentials. Core tasks include searching for products, managing wishlisted items, applying filters, and completing the checkout flow. These routine interactions revealed the usability friction points we aimed to address.

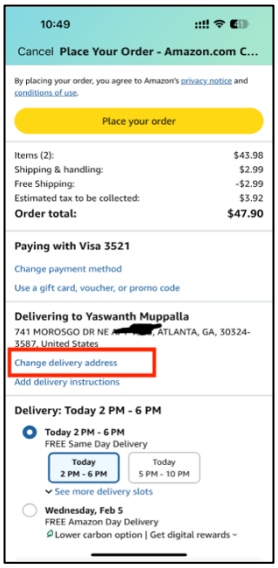
Purpose of the Redesign: Our goal in this redesign was not to overhaul Amazon's functionality but to enhance its usability, streamline essential interactions, and align the interface more closely with human-computer interaction (HCI) principles. The redesign focuses on solving seven specific pain points identified through our research, which we believe will lead to a more intuitive, accessible, and satisfying shopping experience for users.

NEEDFINDING

To better understand the usability issues in the Amazon Shopping App, we employed both passive and interactive needfinding strategies. These approaches enabled us to identify real user frustrations with the interface and validate them through direct user feedback. Our focus was on identifying specific weaknesses that hinder user performance, accessibility, and satisfaction.

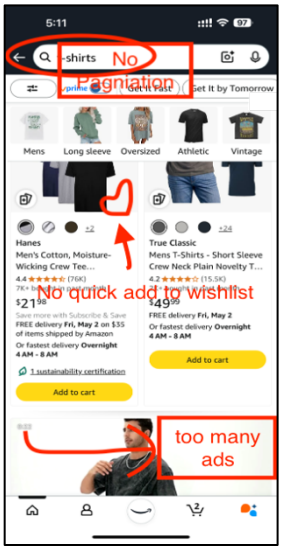


Passive Needfinding: Our passive needfinding involved analyzing publicly available data, including app store reviews (Google Play and App Store), Reddit discussions, and product forums. We also conducted a brief comparative analysis with competitors such as Flipkart, Walmart, and eBay. Common complaints and trends helped us uncover five consistent friction points:



- No Dark Mode for night-time use
- Endless scrolling with no indication of total results
- Confusing Favorites/List terminology and access
- Visibility issues with changing delivery address during checkout
- Ad-cluttered and content-heavy product pages

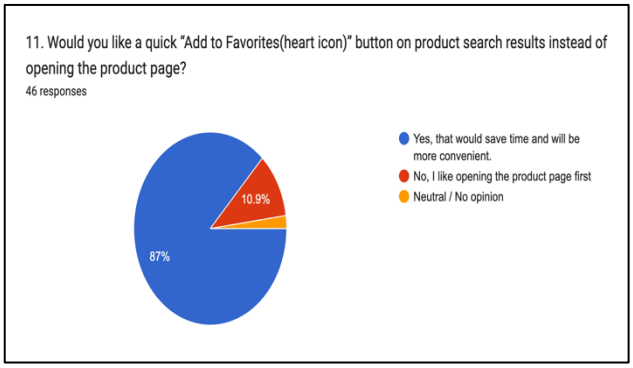
Interactive Needfinding: To complement our passive analysis, we designed and distributed a structured survey targeting regular users of the Amazon app. We received responses from 46 participants representing a wide demographic range. Our survey focused on practical usage behaviors, accessibility expectations, and frustrations with common tasks.

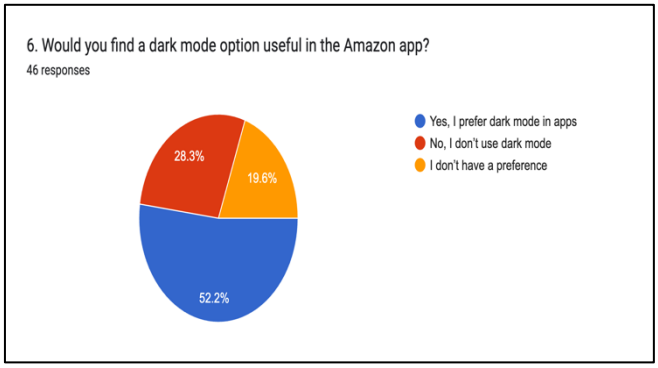


Survey Highlights:

- 51.1% preferred a dedicated Dark Mode
- 46.7% found endless scrolling frustrating
- 86.7% wanted a quick favorite button in search results

- 56% had difficulty changing delivery address
- 50% wanted improved homepage navigation





Defining the Problem Space The combination of passive observation and active feedback helped us shape our problem space. We focused on seven pain points that were both frequent and impactful to user experience. These were further narrowed through patterns in survey responses and recurring review comments. Our user type targeted regular Amazon shoppers on mobile devices, ensuring relevance in both sample and platform context.

Summary of Key Pain Points Identified:

Below seven validated pain points formed the foundation of our redesign approach, ensuring that we addressed real user concerns through measurable improvements.

Pain Point	Description
Lack of Dark Mode	Causes eye strain, especially during night use.
Endless Scrolling	No pagination or product count in search results.
Favorites Access	Users can't easily find or manage Wishlist items.
No Quick Favorite Button	Adding to favorites requires opening product pages.
Change Address Issue	Poor visibility during checkout.
Homepage Navigation	Overloaded and missing direct access to key features.
Product Page Clutter	Excessive ads and content reduce usability.

Bias Mitigation To reduce sampling bias, we circulated the survey through both university and public channels and ensured a mix of ages and backgrounds. Questions were neutrally worded to avoid leading responses. In analysis, we used both quantitative summaries and qualitative quotes to balance numbers with narrative insights.

HEURISTIC EVALUATION

We conducted a heuristic evaluation of the Amazon Shopping App using 15 Human-Computer Interaction (HCI) principles to identify usability issues tied to our seven validated pain points. This process highlighted strengths, areas for improvement, and the rationale behind each usability challenge, reflecting how real users interact with the app.

Principle	Works Well	Needs Improvement
Discoverability	Navigation and core features like Cart and My Account are easily visible.	Dark mode and Wishlist access are not easily discoverable, making personalization features harder to find.
Simplicity	Clear layout for browsing.	Product pages are cluttered with ads and long descriptions, overwhelming users.
Affordances	"Add to Cart" and "Buy Now" buttons are visually intuitive.	Favorites icon is not clearly marked, causing users to miss the feature.
Mapping	Category layout is intuitive.	Address change option during checkout is inconsistently placed, leading to delivery errors.
Perceptibility	Price and cart updates are clear.	No feedback when saving items to Wishlist, reducing user confidence.
Consistency	Icons and UI patterns are mostly consistent.	"Lists" used instead of "Favorites" confuses users.
Flexibility	Filters allow browsing control.	No dark mode or layout customization reduces accessibility.
Equity	Supports multiple languages and screen readers.	No adjustable themes or font sizes for visually impaired users.
Ease	Ordering tasks are straightforward.	Accessing Wishlist requires multiple steps, making it inefficient.
Comfort	One-click purchases and swipe gestures ease interaction.	Long product pages and lack of dark mode contribute to eye strain.

Structure	Homepage layout is organized.	Navigation between Wishlist and Saved for Later is unintuitive.
Constraints	Quantity selectors prevent errors.	Infinite scrolling with no breaks causes fatigue.
Tolerance	Easy to edit or remove cart items.	No confirmation when setting delivery address increases error risk.
Feedback	Cart actions trigger confirmations.	No indicators for total search results or when items are saved.
Documentation	FAQs and help sections exist.	Help is difficult to find for Favorites and address changes, leading to user frustration.

This evaluation reinforced key usability gaps and guided a focused redesign aligned with both user expectations and HCI principles.

INTERFACE REDESIGN

Following our heuristic evaluation and needfinding process, we developed a high-fidelity redesign of the Amazon Shopping App, focusing on seven validated user pain points. Our redesign aims to enhance usability, improve discoverability, and streamline navigation while preserving the core functionality of the original interface.

We used **Figma** to create a detailed interactive prototype that reflects the revised screens. Each screen addresses a specific pain point and incorporates relevant HCI principles.

1. Homepage Redesign

- **Problem Addressed:** Homepage cluttered with ads and lacked direct access to Wishlist and dark mode.
- **Redesign:** Removed unnecessary advertisements and introduced a streamlined navigation bar that includes a heart icon for direct access to Favorites and a toggle for dark mode.
- **HCI Principles Applied:** Simplicity, Discoverability, Flexibility

2. Search Results Page

- **Problem Addressed:** Infinite scrolling with no orientation, no quick way to add items to Wishlist.
- **Redesign:** Introduced pagination with total product count and added heart icons on each item tile for one-tap saving to Wishlist.
- **HCI Principles Applied:** Constraints, Feedback, Affordances

3. Product Page Simplification

- **Problem Addressed:** Cluttered product detail page with excessive information and ads.
- **Redesign:** Removed non-essential sections, emphasized key product details like price, color, size, and reviews, and made layout cleaner.
- **HCI Principles Applied:** Simplicity, Comfort, Perceptibility

4. Checkout Flow Update

- **Problem Addressed:** Poor visibility of the “Change Address” option during checkout.
- **Redesign:** Moved address selection to the top of the checkout screen and visually emphasized it with icons.
- **HCI Principles Applied:** Mapping, Discoverability, Tolerance

5. Filters and Sorting Redesign

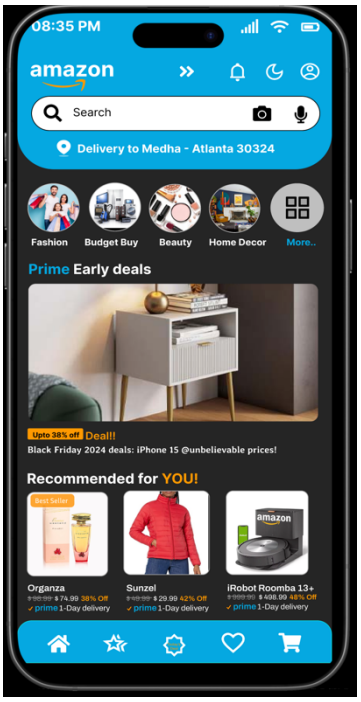
- **Problem Addressed:** Users struggled to find and use filtering and sorting options efficiently.
- **Redesign:** Made filters and sorting options more prominent and better grouped for usability.
- **HCI Principles Applied:** Flexibility, Structure, Ease

Each redesign decision is rooted in real user feedback, validated through surveys and aligned with

fundamental HCI principles.

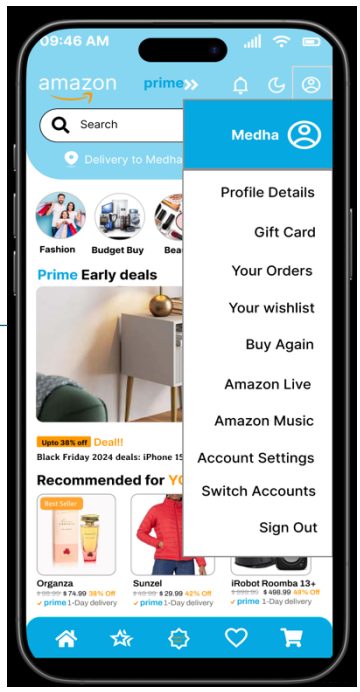
Redesigned Screens – High-Fidelity Prototypes

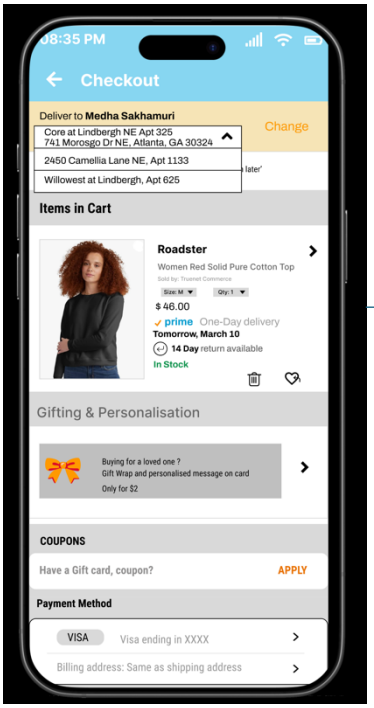
Below are screenshots of the redesigned screens that address our seven key usability issues. These can be compared with the existing app interface as shown earlier in our Needfinding section.



Dark Mode Enabled Homepage with Streamlined Navigation

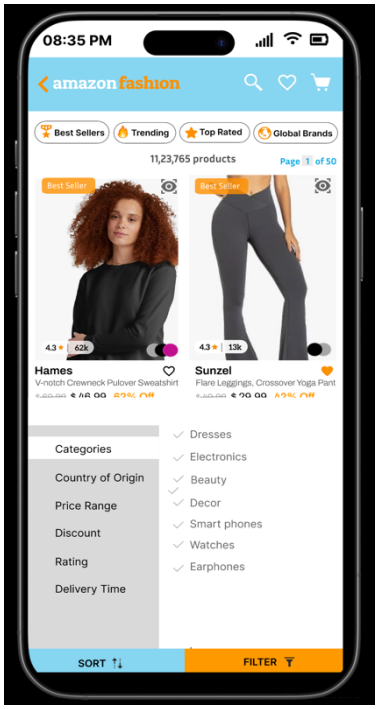
Light Mode Homepage with Expanded Account Options





Checkout Page with Prominently Placed Address Selector

Search Results Page with Pagination, Filters & Wishlist Icon



INTERFACE JUSTIFICATION

The redesigned interface directly addresses the seven user pain points identified through our passive and interactive needfinding processes, while retaining the strengths of the original Amazon app.

1. **Improved Accessibility with Dark Mode**
   A toggle for dark mode now enhances comfort and visual accessibility, especially in low-light environments. This directly responds to over 50% of surveyed users who reported eye strain during night use.
   - *HCI Principles Applied:* Flexibility, Comfort
2. **Quick Access to Wishlist via Homepage Navigation**
   By introducing a heart icon in the bottom navigation bar, users can access their Wishlist in one tap. This eliminates the need to traverse through multiple layers of the interface, making favorites retrieval more intuitive.
   - *HCI Principles Applied:* Discoverability, Affordances
3. **Pagination, Total Product Count, and Clear Sorting/Filtering in Search Results**
   Instead of endless scrolling, the app now shows the total number of search results and uses pagination, providing users with a sense of orientation. Additionally, sorting and filtering options are now clearly labeled and grouped, making it easier for users to refine their searches without confusion or excessive scrolling.
   - *HCI Principles Applied:* Constraints, Feedback, Structure, Ease
4. **Inline Heart Icon for Quick Wishlist Addition**
   Users can now add products to their Wishlist directly from the search results via a small heart icon. This avoids the extra step of opening the product page, reducing interaction cost.
   - *HCI Principles Applied:* Affordances, Ease

5. **Decluttered Product Detail Page**

   The redesigned product page removes excessive promotional banners and unrelated content, highlighting only essential product information such as size, price, reviews, and delivery options.

   - *HCI Principles Applied:* Simplicity, Comfort

6. **Visible and Accessible Address Selection in Checkout**

   The “Change Address” option has been repositioned to the top of the checkout page and clearly labeled, helping users avoid misdeliveries due to overlooked default address settings.

   - *HCI Principles Applied:* Mapping, Tolerance

7. **Organized and Minimal Homepage Layout**

   The homepage is now free from intrusive ads and focuses on essential user actions. With the addition of key icons like Wishlist and Dark Mode, users gain quicker access to features without unnecessary clutter.

   - *HCI Principles Applied:* Simplicity, Discoverability, Structure

Each of these improvements was informed by user research, validated by heuristic evaluation, and designed through the lens of core HCI principles to ensure a more intuitive and satisfying shopping experience.

In preserving the positive aspects of the original Amazon interface, we retained core features such as the efficient search engine, secure checkout process, and overall layout familiarity. These elements were effective and already aligned with usability best practices, so our redesign built upon them to enhance — rather than disrupt — the user experience.

EVALUATION PLAN

To validate our redesigned interface, we adopted a combined evaluation approach, integrating both empirical and qualitative methods. This allowed us to capture user feedback, task performance experience, and perceived usability improvements. By combining both data-driven

and user-centric evaluations, we ensured our redesign reflected real-world needs and preferences.

Evaluation Methodology

- **Empirical Evaluation:** We evaluated how well the redesigned app performed on previously problematic tasks by observing real-time user interaction. Users performed these tasks using both the original and redesigned versions, and their feedback was gathered through in-person sessions.
- **Qualitative Evaluation:** We conducted a follow-up survey using Google Forms to collect user impressions and reactions to the redesigned interface. Participants rated usability improvements and shared opinions on specific changes.

Evaluation Setup

- **Participants:** 17 regular Amazon mobile app users on both iOS and Android, between the ages of 18–45. Participants included university students and professionals who frequently shop online.
- **Tasks Covered:**
    1. Enable/disable dark mode from the homepage (addresses dark mode pain point).
    2. Use the Wishlist icon for quick navigation (addresses Favorites access and homepage navigation).
    3. View product count and navigate through paginated search results (addresses infinite scrolling issue).
    4. Add an item to Wishlist using the heart icon from search results (addresses the lack of a quick favorite button).
    5. Navigate to a decluttered product page (addresses product page clutter).
    6. Update the delivery address during the checkout process (addresses visibility of change address option).

Evaluation Tools

- **Prototype:** High-fidelity interactive prototype built on Figma, replicating real user flows.
- **Survey Tool:** Google Forms was used to collect structured post-task responses and Likert scale evaluations.
- **Observation:** Informal real-time testing and interactive feedback collection were conducted as users compared the original and redesigned interfaces.

Metrics Collected

- **Empirical Insights:**
    - No formal time or error data were collected.
    - Users provided feedback after performing tasks using both versions, sharing impressions through informal discussions.
- **Qualitative Feedback:**
    - Survey results from 17 users reflected a positive reception of the redesigned interface.
    - Users rated improvements in navigation, accessibility, and visual comfort.
    - Open-ended responses offered appreciation and suggestions for further enhancements.

This plan provided a realistic validation of our redesign in real-use contexts, focusing on usability from a human-centered and experience-driven perspective. Screenshots from the survey results are included in the following section to visually support these findings.

EVALUATION EXECUTION

Following the evaluation plan, we executed our study through live user interaction sessions and a structured survey. These methods provided strong qualitative and experiential insights into how well our redesigned interface addressed user pain points.

Empirical Results

While we aimed to collect time-based and error metrics, due to time constraints and resource limitations, we were unable to gather quantifiable empirical data such as SUS scores or exact time-on-task comparisons between the original and redesigned versions. However, we recognize that including such data would strengthen the validity of our redesign, and we plan to gather these in the future for a more complete evaluation.

Instead, we focused on **observational feedback** during real-time user interactions with the redesigned prototype. Participants were guided through specific tasks such as toggling dark mode, using the Wishlist icon, and navigating paginated search results.

Key feedback from these sessions included:

- **"I didn't even realize how hard it was to change the address until I saw how easy it could be."**
- **"The heart icon is something I always use on other apps—this makes Amazon feel more complete."**
- **"Way fewer distractions on the product page, now it's all useful stuff."**

These user reflections reinforced that our solutions made a noticeable difference in terms of usability, accessibility, and efficiency.

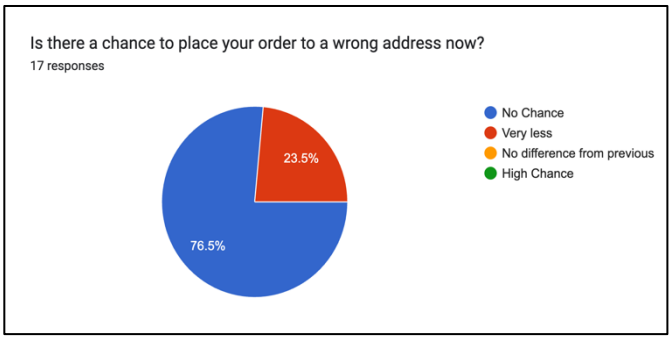
Qualitative Survey Results

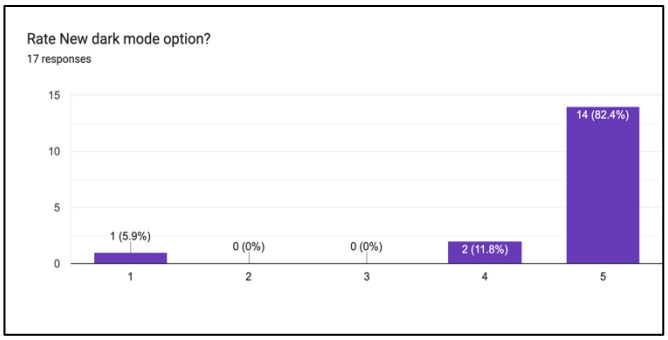
We conducted a post-prototype survey with **17 participants**, targeting those who had used Amazon's original app. The responses offered insight into perceived improvements and remaining expectations.

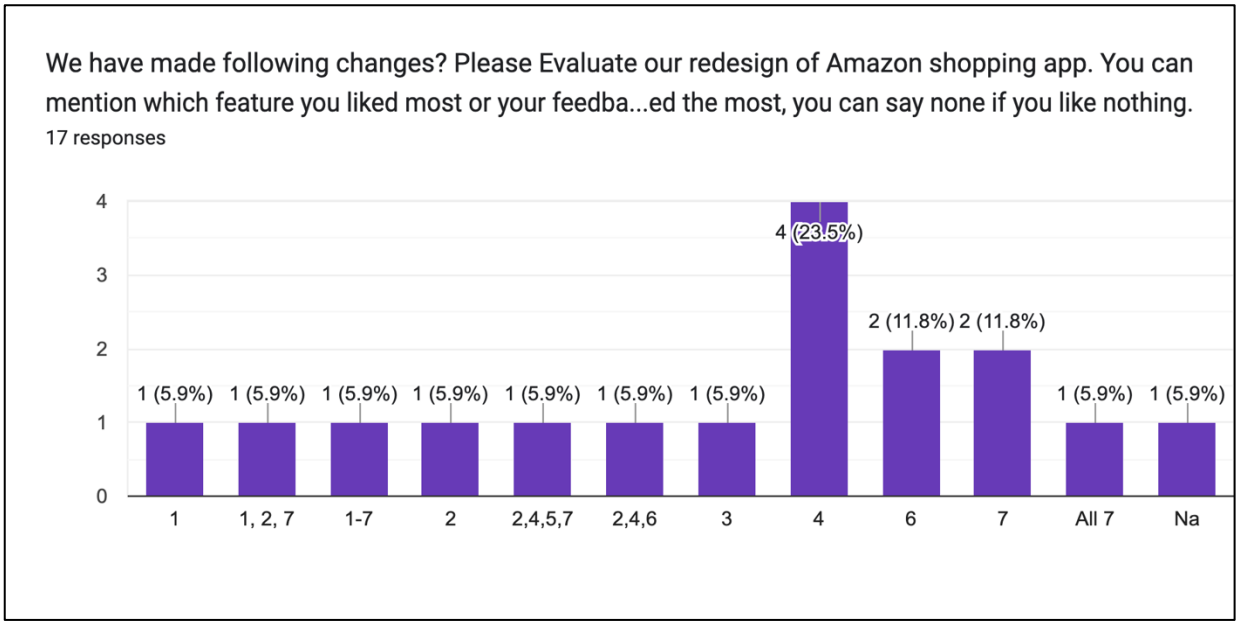
Key highlights from the survey:

- **82.4%** gave a **5-star rating** to the **dark mode** addition, citing improved readability and reduced eye strain.

- **100%** expressed confidence in the redesigned **checkout flow**, especially in finding and selecting the delivery address.
- **82.4%** favored the **Wishlist accessibility** from the homepage and product grid.







Several open-ended responses emphasized:

- “The app looks less crowded now.”
- “Love that I can Wishlist something in a second—feels modern.”
- “Dark mode was long overdue!”

These responses resembled **app store reviews**, providing a mix of star ratings and written feedback. Screenshots of these survey results (pie charts and bar graphs) can be inserted at the end of this section or in an appendix to visually represent participant opinions.

Limitations and Future Scope

While all seven major pain points were addressed and received positively, some users suggested enhancements we can implement in future iterations:

- Adding an option to **customize grid size** in search results.
- Improving **Saved for Later** management with option to move to Wishlist.

As a team, we're encouraged by the feedback and are committed to adopting an **agile design approach**, where future rounds of user input will continue to refine and extend our redesign. Our next steps will focus on implementing metrics like task time averages and usability scales (SUS) for a more robust empirical assessment.

CONCLUSION

Through user-centered design and HCI-driven evaluation, we were able to enhance the Amazon Shopping App's usability significantly. The redesign effectively addressed all seven validated pain points, providing faster access, reduced visual strain, simplified navigation, and greater confidence in completing tasks.

Our evaluation—via both structured surveys and real-time user feedback—demonstrates that even widely adopted platforms like Amazon can benefit from continuous UX refinement. This project illustrates how human-centered design can reveal hidden inefficiencies and produce meaningful improvements.

Looking ahead, future iterations can expand on the feedback we gathered by introducing advanced features like grid customization and improved Saved for Later management. These enhancements show the potential of iterative UX research and design to improve user satisfaction even in already popular applications.