Institute of Business Administration Karachi
Leadership and Ideas for Tomorrow

IntelliClaims

Design and Development Document

(Github repo)

BY

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Design Phase (Front-End Experience)

Task DG-2: Expanding the Circle

While developing the front end of IntelliClaim, our initial focus was solely on employees and claim handlers from urban TPL Insurance branches. The interface includes login/sign-up pages, a dashboard, claim management, and AI report generation — all designed with users like us (tech-savvy, fast internet access) in mind.

However, upon ethical reflection, we realized that this approach unintentionally excluded certain important user groups, such as:

- Employees with low digital literacy

These users may struggle with drag-and-drop image uploads, interacting with AI reports, or understanding how to navigate the dashboard. Without clear guidance and simple UX patterns, their workflow may be interrupted, resulting in frustration and processing errors.

- Internet Reliant Functionality

Since image uploads and AI report loading depend on real-time interaction with the server, it could prevent proper claim submission or lead to timeouts, disrupting service delivery.

We realized that we were designing primarily for ourselves — developers working in ideal environments. To “expand the circle” and design for a broader audience, we propose the following enhancements:

- Simplified claim form with tooltip instructions

Adding helpful hints and inline validations will guide users through the process without confusion.

- Mobile-responsive layout

This ensures field agents or users working from phones/tablets can complete claims seamlessly, even in different work environments.

- Training modules or onboarding videos

Short visual tutorials or an FAQ section can help new or low-tech users understand the platform and feel confident using it.

- Accessibility support

Including features like high-contrast mode, support for screen readers (ARIA tags), keyboard navigation, and resizable text would make IntelliClaim more inclusive and compliant with accessibility standards.

This task encouraged us to consider how design affects user trust, equality, and usability. By consciously including these considerations, we ensure the system works for all employees — not just those who are easy to design for.

Task DG-3: Thinking About the Terrible People

Our second ethical reflection focused on misuse and abuse scenarios. In this task, we asked: What could a bad actor do with this frontend if they wanted to exploit it?

Some key risks we identified include:

- Uploading fake or reused damage images

A malicious user could upload old or edited images to trick the AI into generating a higher damage estimate, potentially leading to insurance fraud. This manipulation undermines the system's credibility and financial integrity.

- Bypassing the sign-up form to create fake accounts

Without proper validation, someone could create multiple unauthorized accounts and try to exploit the claims process by repeatedly submitting invalid or cloned data.

- Overtrust in AI-generated reports

If users take the AI output as absolute truth, without checking or adjusting for context, incorrect damage assessments could be submitted. This leads to unfair claim approvals or rejections, damaging customer trust.

To prevent these issues, we implemented the following safeguards:

- Claim submission requires human review

Every AI-generated assessment is shown to the employee, who can edit it before finalizing. This prevents blind reliance on automation.

- AI reports are not downloadable or externally shareable

This ensures no one can misuse the generated report as a "proof document" outside the system.

- Role-based authentication using Firebase

Only authorized users (admins, agents) can access sensitive functionalities, reducing the risk of unauthorized claim handling.

This task helped us shift from idealistic assumptions to practical design against real-world threats. By thinking like bad actors, we've improved the safety, trust, and ethical robustness of IntelliClaim's frontend. This reflection made the system not just more secure — but more responsibly designed.

Together, DG-2 and DG-3 helped us shape a frontend that is inclusive, secure, and ethically aware. Instead of just checking off features, we now consider the social and behavioral impacts of our design choices — ensuring that IntelliClaim is usable by all and resistant to abuse.

Development Phase (Back-End Functionality)

Task DV-2: Keep Thinking About the Terrible People

As we continue building IntelliClaim's backend — which includes modules for AI report processing, user authentication, claim approvals, and data exports — we've applied ethical thinking to dual-use risks and potential misuse. Backend systems carry immense power, and even features designed with good intentions can be repurposed in harmful ways if not properly secured.

Some backend features, if misused or accessed by bad actors, could cause serious harm:

- A dishonest admin could approve or reject claims unfairly without accountability
  For example, an insider might approve fraudulent claims or reject valid ones out of bias or personal benefit. Without a logging mechanism, such actions could go undetected and damage both customer trust and company finances.
- AI-generated reports could be copied or downloaded and used as forged documentation
  If someone screenshots or exports a report showing inflated damage, they might attempt to use it as evidence outside the system, even if it hasn't been reviewed. This poses a risk of insurance fraud and challenges the authenticity of our AI output.
- Claim data exports (e.g., in CSV format) could cause data privacy breaches
  The backend is intended to support filtering and exporting claim data for internal use. However, if this feature is used without strict access control, sensitive customer data like names, policy numbers, and damage history could be leaked, violating data privacy principles and legal requirements.

To mitigate these risks, we are implementing several backend security and ethical safeguards:

- Audit trails for all backend actions
  Every sensitive action (claim approval, rejection, AI report generation, or data export) will be logged with timestamps and user ID. This ensures accountability and enables future traceability in case of suspicious behavior.
- Export restrictions with masking
  Only admin-level users will be allowed to export data, and exported files will be designed to mask or anonymize customer details to reduce the risk of misuse while still enabling reporting.
- AI report watermarks and disclaimers
  All AI-generated reports will include a disclaimer stating: "This is an AI-assisted report — subject to manual verification." This makes it clear that AI outputs are advisory, not final, and protects the system from being misused as fake documentation.

This task reminded us that backend logic is where true system power resides. Ethical backend design is not optional. Without safeguards, even helpful features could be misused. Through this reflection, we are proactively embedding controls to make IntelliClaim's backend secure, transparent, and ethically governed — even as development continues.

Task DV-3: Remember the Ethical Benefits Again

From the beginning, IntelliClaim was envisioned as an ethical and intelligent solution to a very real problem in insurance operations. The goals were:

- To streamline the auto insurance claim process using automation
- To minimize manual errors and delays
- To enhance fairness and consistency with AI support
- To increase customer satisfaction through faster, more transparent service

As development progresses, we paused to ask:
Are we still on track to deliver these benefits — or have we drifted from our purpose?

After reviewing our current progress, we concluded: Yes, we are still aligned — and becoming even more intentional.

- Our AI modules assist, but do not dominate decision-making
  Damage assessments are generated automatically, but always reviewed by an employee. This "human-in-the-loop" structure ensures fairness and context, which is vital for ethical insurance processing.
- Claim traceability is being built into the system
  All updates to claim status (approval, rejection, or edits) are timestamped and attributed to specific users. This builds trust and enables audits.
- The dashboard promotes real-time transparency
  Staff can monitor claim volumes, track progress, and sort by status. This supports both operational efficiency and ethical supervision of workflows.

- We’ve avoided feature bloat and stayed focused on real user needs
  Every module we’re developing — from claim entry to AI assessment — has been justified by actual workflow requirements. This ensures usability, reduces confusion, and keeps the platform ethical and lean.

This task was a powerful reminder that building an ethical product doesn’t stop at idea validation — it must continue through every technical decision. We're confident IntelliClaim remains a socially responsible solution.

Together, DV-2 and DV-3 helped us ensure that IntelliClaim’s backend is not only functional, but accountable and ethically grounded. By identifying dual-use risks early, and ensuring every feature supports our original purpose, we are creating a system that empowers users, respects privacy, and builds trust. Ethics is not something we add at the end — it’s something we’ve woven into the structure of the system as it evolves. This reflection made us more aware of our role as developers, and of the long-term impact IntelliClaim can have beyond code.