



Beta Presentation

Web-Based FGL Ticket Emulator & Interpreter

The Capstone Experience

Team Ludus

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*From Students...
...to Professionals*

Fall 2025

Project Overview

- Provides services to over 4,200 Organizations
- Ticket creation limitations
- Increased ticket stock waste and costs
- Emulator to view ticket prior to printing



Team Member's Technical Tasks

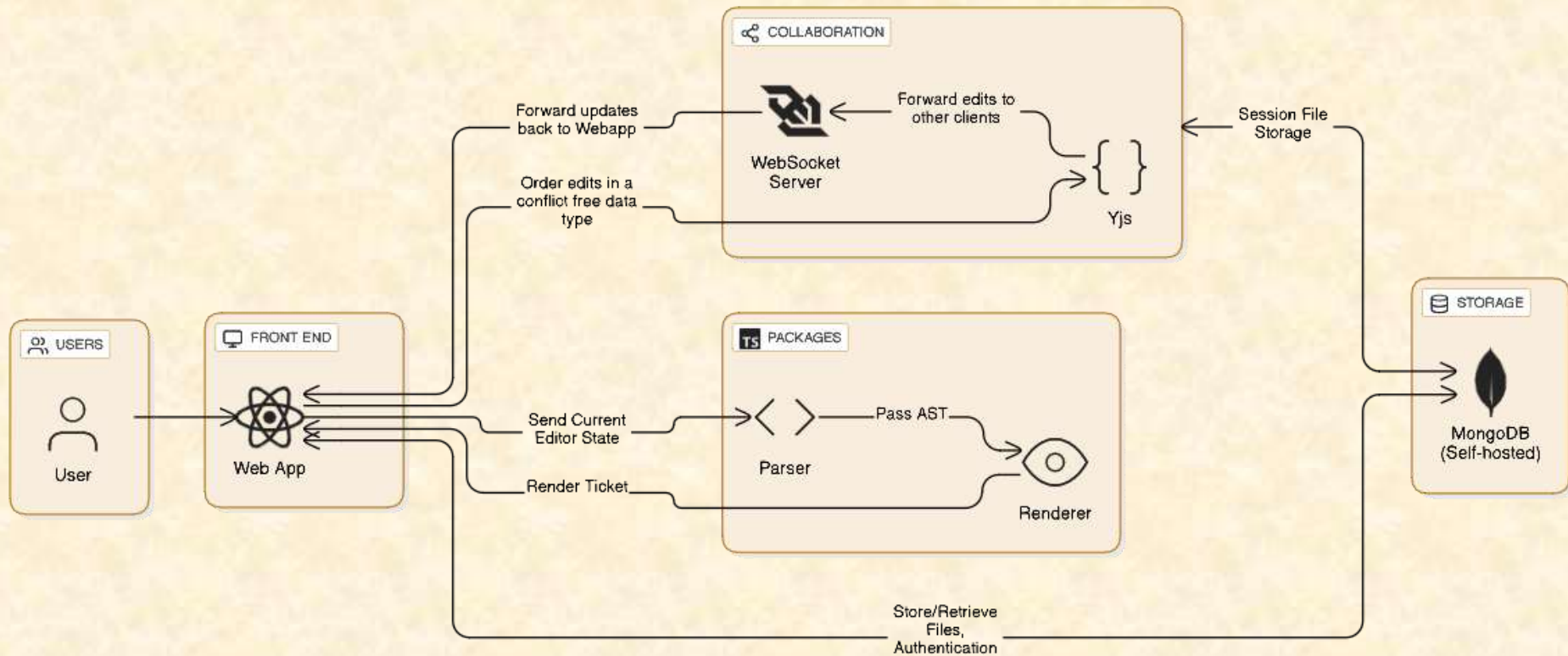
Technical Tasks Assigned

- Abhay Saji
 - Various Rendering Commands
 - Initial implementation of AI features
 - Collaborative Editing
- Nicholas Seals
 - Barcode and QR Code Implementation
 - Basic Command Rendering Functionality
 - Font Selection and formatting
- Isabella Nelsen
 - UI frontend design
 - Size and DPI selection and zoom/scrolling in preview window
 - Ludus and custom ticket logo stub preview
 - Copy and PNG download of ticket preview
 - AI: diff acceptance, window layout, and polish
- Umut Temel
 - Full file explorer implementation integrated into cloud
 - Authentication for the file explorer
 - Getting the backend set up for file collaboration
- Zakariya Sattar
 - Implemented syntax highlighting for FGL & ESC/POS languages
 - Implemented user-friendly custom merge tag editor
 - Added UI support for new language
- David Oh
 - FGL Interpreter: Initial lexing and parsing phases
 - Merge Tags: Helped implement the parsing and substitution
 - ESC/POS Interpreter: Initial lexing and parsing phases

Technical Tasks Completed

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System Architecture



Editor

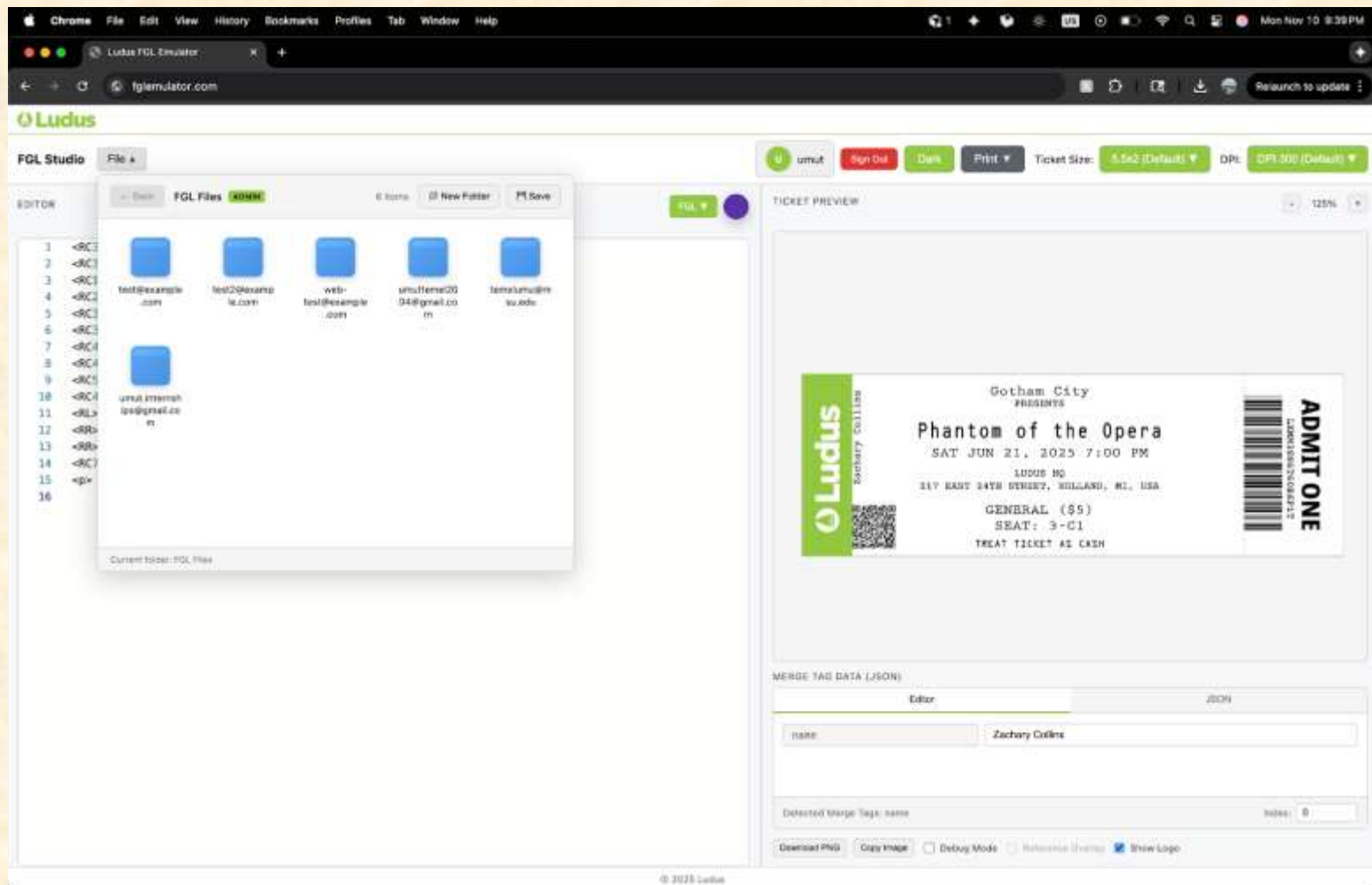
The screenshot displays the Ludus FGL Studio interface. The top bar includes the Ludus logo, a 'File' menu, and buttons for 'Dark' theme, 'Print', 'Ticket Size' (8.5x2 (Default)), and 'DPI' (DPI 300 (Default)). The main workspace is divided into two panels. The left panel, titled 'EDITOR', contains a code editor with the following XML-like code:

```
1 <RC35,0><F10>
2 <RC35,0><F10><CTR1500>~Gotham City~<RC00,0><FB><CTR1500>~PRESENTS~
3 <RC150,0><FB><HMI,3><CTR1500>~Phantom of the Opera~
4 <RC230,0><F10><HMI,1><CTR1500>~SAT JUN 21, 2025 7:00 PM~
5 <RC300,0><FB><CTR1500>~LUDUS HQ~
6 <RC340,0><FB><CTR1500>~217 EAST 24TH STREET, HOLLAND, MI, USA~
7 <RC410,0><F10><CTR1500>~GENERAL ($5)~
8 <RC460,0><F10><CTR1500>~SEAT: 3-C1~
9 <RC525,0><F7><CTR1500>~TREAT TICKET AS CASH~
10 <RC415,160><QR3>{130174393}
11 <RL><RC350,160><FB>`name`
12 <RR><RC00,1640><F12>ADMIT ONE
13 <RR><RC140,1555><FB>LXMM38N6TG0B8P1T
14 <RC70,1515><NL15><X3>*130174393*
15 <p>
```

The right panel, titled 'TICKET PREVIEW', shows a visual representation of the ticket. It includes a 'Download PNG' button, a 'Copy Image' button, and checkboxes for 'Debug Mode', 'Reference Overlay', and 'Custom Size'. The ticket itself is for 'Gotham City PRESENTS Phantom of the Opera' on 'SAT JUN 21, 2025 7:00 PM' at 'LUDUS HQ 217 EAST 24TH STREET, HOLLAND, MI, USA'. The ticket is for 'GENERAL (\$5)' and 'SEAT: 3-C1', with the instruction 'TREAT TICKET AS CASH'. It features a QR code on the left and a barcode on the right labeled 'ADMIT ONE'. Below the ticket preview, there is a 'MERGE TAG DATA (JSON)' section with tabs for 'Editor' and 'JSON'. The 'Editor' tab shows a 'name' field with the value 'Zachary Collins'. At the bottom, there is a field for 'Detected Merge Tags: name' and a dropdown for 'Index'.

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File System



AI

The screenshot displays the Ludus FGL Emulator interface. The top bar shows the browser address 'fglemulator.com' and a 'Relaunch to update' button. The main interface is divided into several sections:

- FGL Studio:** Includes a 'File' menu and buttons for 'Dark', 'Print', 'Ticket Size' (set to 5.5x2), and 'DPi' (set to 300).
- EDITOR:** A code editor showing a ticket template with 15 lines of FGL code. The code defines a ticket for 'Phantom of the Opera' on 'SAT JUN 21, 2025 7:00 PM' at '217 EAST 24TH STREET, HOLLAND, MI, USA'. It also sets the ticket price to '\$5' and the seat to '3-C1'. The code includes a QR code and a barcode.
- AI ASSISTANT:** A chat interface with a message: 'Hi I'm your ticket assistant. Ask me to tweak or explain the template on the left.' and a 'Send' button.
- TICKET PREVIEW:** A preview of the generated ticket. The ticket is for 'Phantom of the Opera' on 'SAT JUN 21, 2025 7:00 PM' at '217 EAST 24TH STREET, HOLLAND, MI, USA'. It includes a QR code, a barcode, and the text 'ADMIT ONE'.
- MERGE TAG DATA (JSON):** A section for editing the JSON data for the ticket. It shows a table with columns 'name' and 'value'. The 'name' column is currently empty, and the 'value' column contains 'Zachary Collins'.

At the bottom of the interface, there is a copyright notice: '© 2025 Ludus'.

Print

The screenshot displays the Ludus FGL Studio web application. The interface is divided into several sections:

- EDITOR:** A code editor on the left containing FGL (Font Glyph Language) code for a ticket. The code includes details for a "Phantom of the Opera" event, such as the date "SAT JUN 21, 2025 7:00 PM", location "217 EAST 24TH STREET, HOLLAND, MI, USA", and seat information "SEAT: 3-C1".
- TICKET PREVIEW:** A central area showing a visual representation of the generated ticket. The ticket features the Ludus logo, a QR code, and the event details: "Phantom of the Opera", "SAT JUN 21, 2025 7:00 PM", "217 EAST 24TH STREET, HOLLAND, MI, USA", "SEAT: 3-C1", and "TREAT TICKET".
- Print Settings:** A panel on the right that allows users to configure printing options. It includes a "Printer Setup Guide" dropdown, a status indicator "Connected to QZ Tray" with a "Disconnect" button, a "Select Printer" dropdown menu currently set to "boos", and a large green "Print" button.
- MERGE TAG DATA (JSON):** A section at the bottom for managing tag data. It includes an "Editor" and a "JSON" tab. The "name" field is populated with "Zachary Collins".

At the bottom of the interface, there are links for "Download PNG", "Copy Image", "Debug Mode", "Reference Images", and "Show Logo". The footer indicates "© 2025 Ludus".

What's left to do?

- Stretch Goals
 - Full ESC/POS implementation and rendering
 - Multimodal AI implementation
- Other Tasks
 - Polishing AI responses
 - Polishing collaboration
 - Fixing state management bugs



Questions?

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