Introduction [10 secs]

What is Thumbworx? [30 secs]

The Data Science Internship Program brings together interns from Web Development, AI, Data Science, and UX/UI to collaborate on building the Thumbworx Smart Logistics System.

Our team, the Insights & Dashboard subteam within Data Science, developed an interactive analytics dashboard to support real-time operational insights for the TWX delivery platform.

What is TWX Insights and Trends Dashboard? [30 secs]

It is a Flask-based web analytics feature developed for the Thumbworx Smart Logistics System. It aims to provide real-time visibility into logistics operations through dynamic data visualizations and performance metrics.

Connected to a MySQL database, it pulls structured data, such as delivery records, driver activity, and support tickets, and serves it via RESTful APIs to an interactive frontend. This shall enable users to monitor KPIs, analyze trends, and support data-driven decision-making.

Objectives [30 secs]

1. Data Visualization: Deliver interactive charts displaying key delivery, driver, and operations metrics
2. Real-Time Analytics: Provide up-to-date insights into delivery trends and customer behavior
3. Performance Monitoring: Track route efficiency, service quality, and driver KPIs

Team Deliverables [1 minute]

Backend Development

- Database Integration: Complete database.py with 6 data retrieval methods
- REST API Endpoints: Implement all analytics endpoints in app.py
- Configuration: Centralized settings in config.py

Frontend Development

- Dashboard UI: Responsive HTML template
- Interactive Charts: Chart.js implementation for all data types
- Data Filtering: Date ranges, driver filters, real-time updates

Testing & Optimization

- API Testing: Unit tests with 95% coverage
- Performance: Query optimization and caching
- Documentation: API reference and user manual

Integration & Deployment

- System Integration: Connect with main TWX platform
- Security: Input validation and SQL injection prevention
- Production Deployment: Live system with monitoring

Team Contributions [30 secs]

John Lloyd Legaspi – Backend Lead

- Designed and optimized MySQL database schema
- Developed Flask-based REST API with 6 key data endpoints
- Handled backend testing (95% coverage), query optimization, and security

Jimalyn Del Rosario – Frontend Lead

- Designed and built the dashboard UI using HTML/CSS and Chart.js
- Implemented dynamic visualizations for KPIs, driver stats, and delivery trends
- Managed interactive filters and ensured responsive layout

Challenges Faced [30 secs]

Data-related

Generation of sufficient amounts of synthetic data to populate the db.

Technical

Ensuring API stability during real-time updates and filtering

Coordination

Merging backend and frontend smoothly under shared repository

Domain-specific

Understanding logistics KPIs and how they impact decision-making

Overall, the entire process went smoothly and all the challenges were solved through researching and debugging errors.

Implementation & Workflow [1 minute]

Backend - Python, Flask, REST APIs

Database - MySQL

Frontend - HTML/CSS, JavaScript, Chart.js

Testing - PyTest, Postman

Deployment - Localhost via Flask + MySQL (production-ready)

Collab Tools - GitHub (shared repo), Discord (team sync)

Demonstration [3 minutes]

Key Learnings & Conclusion [2 minutes]

Technical Learnings

- Learned how to build and use REST APIs with Flask to serve real-time data to the dashboard.
- Got better at writing efficient SQL queries and connecting everything to a MySQL database.
- Used Chart.js to make interactive and clean-looking visualizations.
- Practiced writing modular backend code that's easier to manage and scale.
- Figured out how to test and secure our APIs, like validating inputs and optimizing performance.

Soft Skills

- Worked closely with other teams (backend, AI, UX/UI) and subteams and learned how to collaborate effectively.
- Managed our work through GitHub and Discord, including dealing with merge conflicts and syncing up on tasks.
- Solved issues together when we ran into bugs or data problems.
- Improved our communication and teamwork through daily check-ins, demos, and feedback sessions.

Industry Knowledge

- Got a better understanding of how logistics companies track performance and deliveries.
- Understood how real-time data can really help improve decisions and operations.
- Learned how to turn raw logistics data into useful business insights using visuals.

Conclusion

Working on the TWX Insights & Trends Dashboard was a great learning experience for us. We built a real-time analytics tool that helps visualize important logistics data like driver performance and delivery trends. It's rewarding to know our work has a potential to contribute to smarter, faster decision-making in real operations.

We see a lot of potential for this project to grow like adding real-time traffic data, predictive features, and better user access. This internship helped us grow both technically and professionally, and we're proud of what we were able to accomplish as a team.

We look forward to utilizing and enhancing these new-found skills for more real-life applications in the future.

Outro [10 secs]