Week 4 Report

Topic: Live Data – APIs, CRM, Zendesk, WebSockets, Web Scraping & ETL Pipelines

Tools/Concepts Covered

Live Data, APIs, CRM, Web Scraping, ETL Pipelines

Focus

Understanding real-time data flow and how data is collected, processed, and used in real applications

1. Introduction

In the fourth week of my internship, I focused on understanding the concept of Live Data and how real-world applications continuously collect, update, and manage data. Unlike static datasets, live data keeps changing every minute or second depending on the system.

This week, I explored how live data is handled in real-time projects using APIs, CRM tools, Zendesk ticketing systems, WebSockets, Web Scraping, and ETL pipelines. Automation becomes essential when data is continuously updated.

2. Objectives of Week 4

- • Understand what live data is and how it differs from static data
- • Learn how data is collected from real-time sources using APIs
- • Understand the role of CRM systems in handling customer and business data
- • Explore Zendesk and understand how support tickets work in real-time
- • Learn the basics of WebSockets for real-time communication
- • Understand Web Scraping as an alternative method for collecting data
- • Learn the concept of ETL pipelines for continuous data processing
- • Connect these concepts with real-world data workflows

3. Work Done / Tasks Completed

3.1 Understanding Power BI Basics

Learned how live data concepts can connect with Power BI dashboards for dynamic, up-to-date reporting.

3.2 Importing Data into Power BI

Understood automated updates and pipelines for live data instead of manual file imports.

3.3 Data Cleaning Using Power Query

Learned that live data still requires cleaning continuously: handling missing values, removing duplicates, and correcting formats through automation.

4. Live Data Concepts Covered

1) Live Data

Data continuously updated from sources like websites, sensors, customer interactions, support tickets, and online transactions, allowing companies to make real-time decisions.

2) APIs (Application Programming Interfaces)

APIs allow applications to communicate and share information securely, e.g., weather apps, stock market updates, disaster platforms.

3) CRM (Customer Relationship Management)

CRMs manage customer details, interactions, issues, and service updates, ensuring organized and efficient data handling.

4) Zendesk

Explored ticket-based customer support: emails convert to tickets, replies go back to customers, and AI assists with response quality.

5) WebSockets

Enable real-time communication with continuous client-server connections, used in live chat, sports scores, notifications, and tracking systems.

6) Web Scraping

Collecting data from websites when APIs are unavailable, automatically extracting and storing content for analysis, adhering to ethical practices.

7) ETL Pipelines (Extract → Transform → Load)

- Extract: collect data from APIs, files, websites, CRMs
- Transform: clean, filter, format, remove duplicates, handle missing values
- Load: store into database, dashboard, or storage

5. Key Learnings

- Live data requires continuous updates and automation
- APIs are crucial for fetching real-time data

- CRM platforms efficiently manage business and customer data
- Zendesk enables ticket-based live support
- WebSockets deliver instant updates
- Web Scraping is useful when APIs are not available
- ETL pipelines are essential for structured data processing
- Automation is key for real-time workflows

6. Challenges Faced

- Distinguishing APIs from WebSockets
- Understanding live data updates
- Connecting all concepts into a workflow
- Cleaning data continuously in real-time

7. Outcome of Week 4

- ✅ Understood live data importance
- ✅ Learned API-based real-time data collection
- ✅ Explored CRM and business data management
- ✅ Studied Zendesk ticketing and AI support
- ✅ Learned WebSocket fundamentals
- ✅ Understood web scraping as an alternate data collection
- ✅ Learned ETL pipeline operations

8. Plan for Next Week

- Apply live data concepts to a mini project
- Explore practical API integration
- Work on continuous data storage and updating
- Strengthen understanding of automation pipelines

Conclusion

Week 4 focused on understanding live data systems and real-world data flow. I learned API and web scraping data collection, CRM management, Zendesk ticketing, WebSockets for instant updates, and ETL pipelines for continuous data processing. This week enhanced my understanding of real-time data handling in modern applications.