CP630 Project Proposal

Inventory Management Analytics Dashboard

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1) Introduction

The inventory management world is filled with data, information, and decisions that need to be made. Managers at different levels need to see information about the inventory that is relevant to them so that they can make good decisions and take action. Analysis at regular intervals is a common activity. Instead of digging deeply into data in a system themselves, taking time and effort away from other responsibilities, managers often need to see a high-level overview of the latest information and state of the system. An analytics dashboard is one solution to such needs.

The proposed Inventory Management Analytics Dashboard (IMAD) application presents a high-level, no-input view of inventory for the desired scope, store, region, or entire organization. IMAD presents details that will detect trends, issues, and opportunities.

2) Problem solving and algorithms

Application Data

The data for this application will be a combination of created data and other datasets from publicly available sources. The data will be designed to represent the various sites within the company, the inventory at those sites, and the transactions that represent the changes in the inventory across the company.

Models

Application transactional data will be stored in a relational database. This data will be accessible to the business layer in order to extract, transform, and load the manipulated data into an analytical model containing the information and intelligence needed by the analytics dashboards.

Algorithms

The dashboard will present a series of business intelligence relevant to the specific user. This project will demonstrate the different pieces of intelligence through scripted scenarios, highlighting the manipulated models. Each scenario will exercise multiple algorithms transforming the raw data into meaningful business insights.

3) Proposed System Design

System Components

Persistence Layer:

MySQL

- Master data and totals table manipulated from middleware jobs

Middleware:

JBoss: JEE EJB, MDB, JPA

- Algorithm scenarios
- Provide distributed objects populated in memory from database
- Manipulate models (applying ETL from transactional data to analytical data)

Services:

JBoss: JEE Rest, SAPUI5

Client (Browser):

Corporate & store dashboard

- Cards using tables, chart and analytical micro-charts

MD page with scenarios links

Platform and Tools

Using a design thinking approach, the project will use Java EE components learned from the CP630 Enterprise Computing course. The tools and technologies proposed for the project include:

- VSCode
- MySQL
- JBoss, Java EE (EJB, MDB, JPA, SOAP and Rest)
- SAPUI5

4) Project plan and schedule

Roles and Responsibilities

Donna: Business Analysis, Testing Lead
Valter: System Architecture, Programming Lead

Schedule

Task ID	Description	Due date	Lead
1	Project research & team up	Day 7 of week 9	all members
2	Project proposal	Day 6 of week 11	all members
3	Problem solving, dataset	Day 6 of week 12	all members
4	Algorithms and model R&D	Day 6 of week 13	all members
5	Component development	Day 6 of week 14	all members
6	Execute final testing and prepare presentation	Day 6 of week 14	all members

5) References

A. https://news.sap.com/2022/10/sap-nhl-develop-nhl-venue-metrics/
B. https://www.ibm.com/in-en/topics/inventory-management
C. https://en.wikipedia.org/wiki/Design_thinking