ADBMS Project

Team Members:

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Data Model: Document (NoSQL)

Target Platform: Cosmos DB SQL API
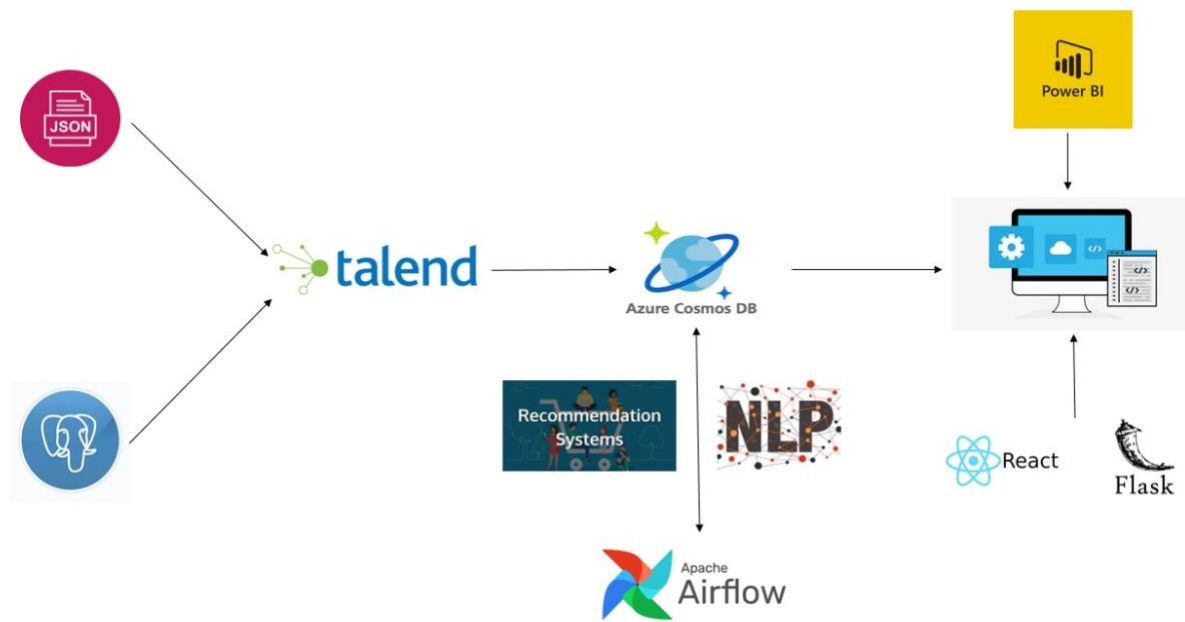
Objective/Scope:

1. Store e-commerce data in Cosmos DB and leverage its SQL API for higher throughput and low latency data access & analytics
2. Process the data by implementing ETL pipelines in Talend
3. Analyze e-commerce data and derive product insights from a stakeholder's perspective
4. Apply sentiment analysis on customer review data to highlight high vs low performing products
5. Display top sellers for products based on pricing & offers
6. Recommend similar products based on user purchase history and similar users
7. Render both stakeholder and user-based analytics via Microsoft PowerBI visualization and ML model deployment respectively on a UI powered by React & Flask backend

UI & Backend: React, Flask
ETL Tool: Talend
Visualization: Microsoft PowerBI

Architecture Diagram:

Entity-Relation Diagram:

PRODUCT

PK	product_id int NOT NULL
	product_name char(50) NOT NULL
	manufacturer char(50) NOT NULL
	product_desc char(50) NOT NULL
	in_stock int NOT NULL
	product_desc char(50) NOT NULL
	items_bought_after_this varchar NOT NULL
	average_review_rating decimal(5,2)NOT NULL
	number_of_reviews int NOT NULL

PRODUCT_REVIEW

FK1	product_id int NOT NULL
	product_reviews varchar NOT NULL
	review_rating decimal(5,2) NOT NULL

SALES BRIDGE

PK	seller_id int NOT NULL
PK	product_id int NOT NULL

SALESORDERDETAIL

PK	order_detail_id int NOT NULL
	order_id int NOT NULL
	order_qty int NOT NULL
	product_id int NOT NULL
	seller_id int NOT NULL
	unit_price int NOT NULL
	line_total int NOT NULL

Product Recommendations

	product_id char(50) NOT NULL
	product_name char (50) NOT NULL
	similarity_score decimal(5,2) NOT NULL

SELLER

PK	seller_id int NOT NULL
PK	order_detail_id int NOT NULL
	seller_name char(50) NOT NULL

CUSTOMER

PK	Cust_ID int NOT NULL
FK1	order_id int NOT NULL
	Name varchar NOT NULL
	Address varchar NOT NULL
	Sex varchar NOT NULL
	Contact varchar NOT NULL
	DOB date NOT NULL
	email varchar NOT NULL
	Subscribed? boolean NOT NULL
	Premium? boolean NOT NULL
	Membership_from date NOT NULL
	Membership_to date NOT NULL

SALESORDERHEADER

PK	order_id int NOT NULL
FK1	Cust_ID int NOT NULL
	order_date date NOT NULL
	ship_date int NOT NULL
	status varchar NOT NULL
	ProductOrderNumber int NOT NULL
	sub_total int NOT NULL
	tax_amt int NOT NULL
	total_due int NOT NULL