DELIOPT

The Tinder of Food

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Business Problem and Use Case

Filling the gap in the market for a system to efficiently match restaurants with fitting suppliers

Suppliers	Restaurants
• Manual client searching is time consuming, costly, and inefficient. • Long-delayed communication due to asymmetrical information. • Business exposure is limited due to the lack of access to restaurants' profile in one place.	• Restaurants face challenges in determining the optimal supplier to fulfill their specific requirements. • Restaurants allocate too much resources (labor, time) in food ordering management instead of focusing on running the core business.

➡️ Business Use Case

• Develop an application to seamlessly and efficiently connect restaurants with suppliers.

• Facilitate communication between the two parties by using instant messaging.

Yelp Fusion API to gather information about restaurants in New York City

GET API Calls Information	
Restaurant Details	Get name, address, phone number, photos, Yelp rating, price levels and hours of operation
Restaurant reviews	Get up to three review excerpts for a restaurant.
Autocomplete	Provide autocomplete suggestions for businesses, search keywords and categories.

Procurement

1 Acquire Yelp Fusion API key

2 Call API GET requests to gather information

3 Clean data and store in desired structure

4 Load business reviews into MongoDB

5 Load business details data into Apache Spark Database

6 Set up interactive Flask Desk Application

Rationale for Selected Technology

yelp fusion

API access to Yelp's database

APACHE Spark™

Store all the data except for reviews and being called in the map and matching function

mongoDB®

Store the reviews. Being called in the map and matching function.

Restaurant Data
API Parameters:
Location = New York (zip code)
Categories = restaurants
Database with **name, location, rating, price, review counts, categories, phone number, and zip code**

Flask
web development,
one drop at a time

Renders a map and matches and returns query results from the database.

Database with **name** and **business reviews**
{'restaurant-alias': ['review1', 'review12, 'review3', ...]
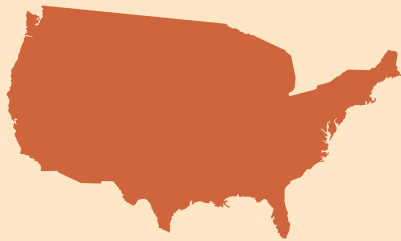{'restaurant-alias': ['review1', 'review12, 'review3', ...]}

Scalability

3-Year Expansion Plan

NYC Market

US Market Expansion

01

Delivery Track Optimization

Track recommendation based on location and required delivery time for suppliers

Order Management

Order management system to place, automatize orders over time, and track deliveries for restaurants and suppliers

02

03

B2B Matchmaking

Recommendation system to bridge communication between suppliers and restaurants
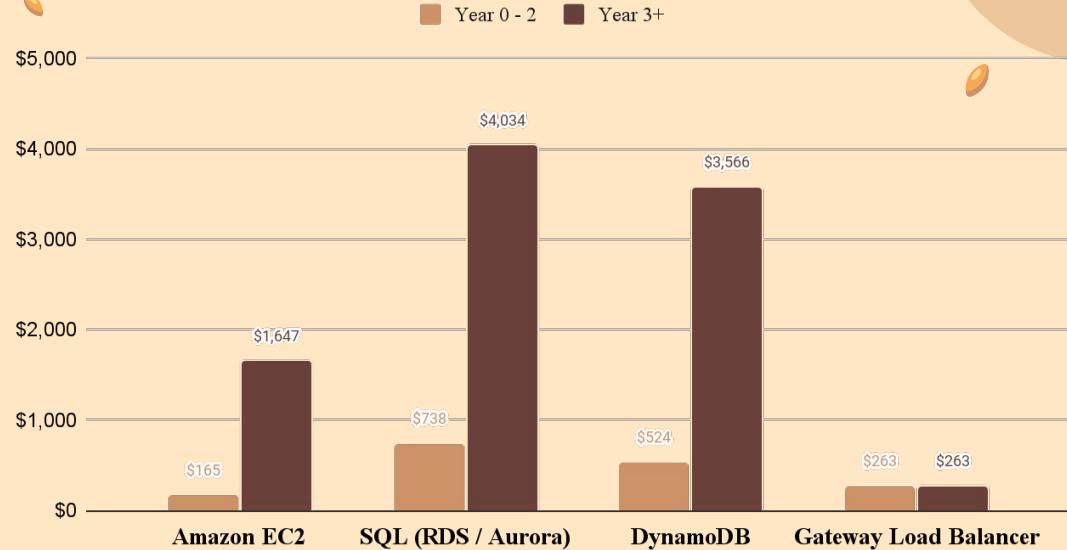
Order and Stockout prediction

Recommended predicted stockout and order quantities

04

Technology Cost Pre versus Post Expansion

Year 0-2	
Amazon EC2	Number of instances : 1
Amazon DynamoDB	Data storage size (10 GB)
Amazon RDS	Storage and backup storage amount (50 GB), Instance type (db.t4g.micro)

Year 3+	
Amazon EC2	Number of instances: 10
Amazon DynamoDB	Data storage size (1 TB)
Amazon Aurora	Storage and backup amount storage (1 TB), Instance Type (db.r6g.large), Instance Family (Memory optimized)

Year 0 - 2   Year 3+

Chart data:
- Amazon EC2: $165, $1,647
- SQL (RDS / Aurora): $738, $4,034
- DynamoDB: $524, $3,566
- Gateway Load Balancer: $263, $263

(Y-axis: $0, $1,000, $2,000, $3,000, $4,000, $5,000)

Pre-expansion
- Upfront cost: $180
- Monthly cost: $163.13
- Annual cost: $2,137.61

Post-expansion
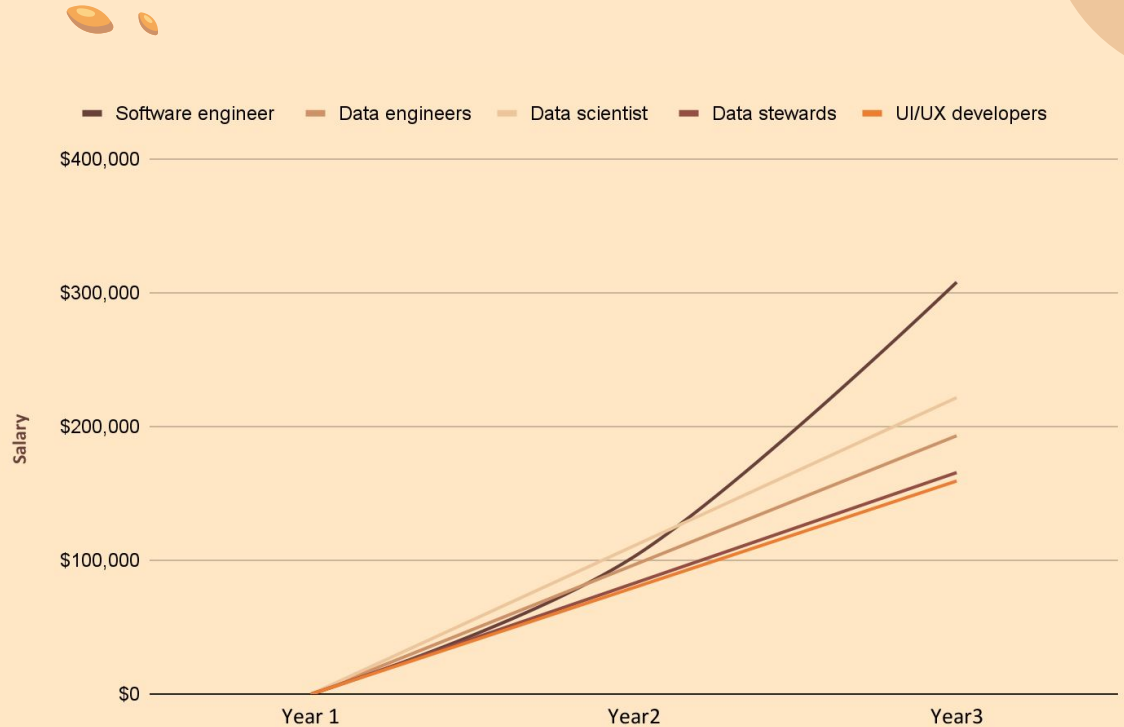- Monthly cost: $814.77
- Annual cost: $9,777.24

Labor Cost

Unit Labor Cost/ Year

Software engineer	**$102,726**
Data engineers	**$96,661**
Data scientist	**$110,910**
Data stewards	**$82,889**
UI/UX developers	**$79,733**

No. Of Employees :

- Year1 :0
- Year 2: 5
- Year 3:11

Data Quality

- **Data Quality dimensions: Accuracy, consistency and Up-to-date.**
- **Invest in Employee training to ensure data quality standards are maintained (Cost per employee= $1400).**
- **Establish and implement data governance guidelines**
- **Quarterly data auditing**
- **Data stewards to manage and ensure data quality and integrity**

Data Governance

Design and build data governance framework and identify distinct use cases

Data privacy: Amazon KMS to generate and store master keys and data keys to ensure data privacy. Encrypt customer information.

Manage Data Access: Use Role Based Access Control to give employees access to only necessary data.

Establish KPIs to quantify impact of governance: No. of data audits passed No. of data issues remediated, data quality scores.

Evaluate and adapt strategy.

RACI Matrix

Roles Communication Items	Software Engineers	Data Engineers & Scientists	Data Stewards	Executives	UI/UX designers
Sponsorship & Charter	I	C	C	R	I
Data ownership	R	A	A	I	I
Policies	I	A	A	R	I
Data quality reports and metrics	A	R	R	I	I
Processes and Procedures	I	A	A	R	C

R-Responsible   A-Accountable   Consulted   I-Informed

Future Recommendations

Sustainability	Performance Metrics	Deliopt KPI
- User Experience Enhancement - Competitive Analysis - Search Engine Optimization (SEO) - Capability of tracking the website performance and user behavior	- Attributes of the restaurants are upgraded instantly - Partnered with more suppliers and restaurants in order to boost the revenue	- Number of active suppliers is doubled in Year 2 - Number of active restaurants' profiles will increase 15% in Year 2 approximately. - Add more searching filters to fulfill more needs from customers

Now, let's see Deliopt in action!