

01010111 01100101 01110010 01101011 01110011 01110100 01110101 01100101 01100011 01101011 00100000 01000001

</ Programming Lab

@PizzaHub Franchise

} /> [

/>

team

```
{ Tristan Buls (1440643), Peter Hofmann  
(1437782), Fatima Irhzal (1352346), Yannis  
Körner (1432965), Daniel Schor (1435234) }
```

examiner

„Prof. Dr. Sebastian Bremm“

1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 1 1 1 0 1

</ Table of content

{01}

Pizza data

{04}

Old version

{07}

Live Demo

{02}

Mock-up

{05}

Insights

{08}

Conclusion

{03}

Planning

{06}

Frameworks & Technologies

</>

Pizza data

01

} /> [

1 0 1 1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 1 1 1 0 1

Data scheme

```
< Analyze Pizza csv data files>  
  { customer.csv,  
    orderItems.csv,  
    orders.csv,  
    products.csv }
```

ER-scheme

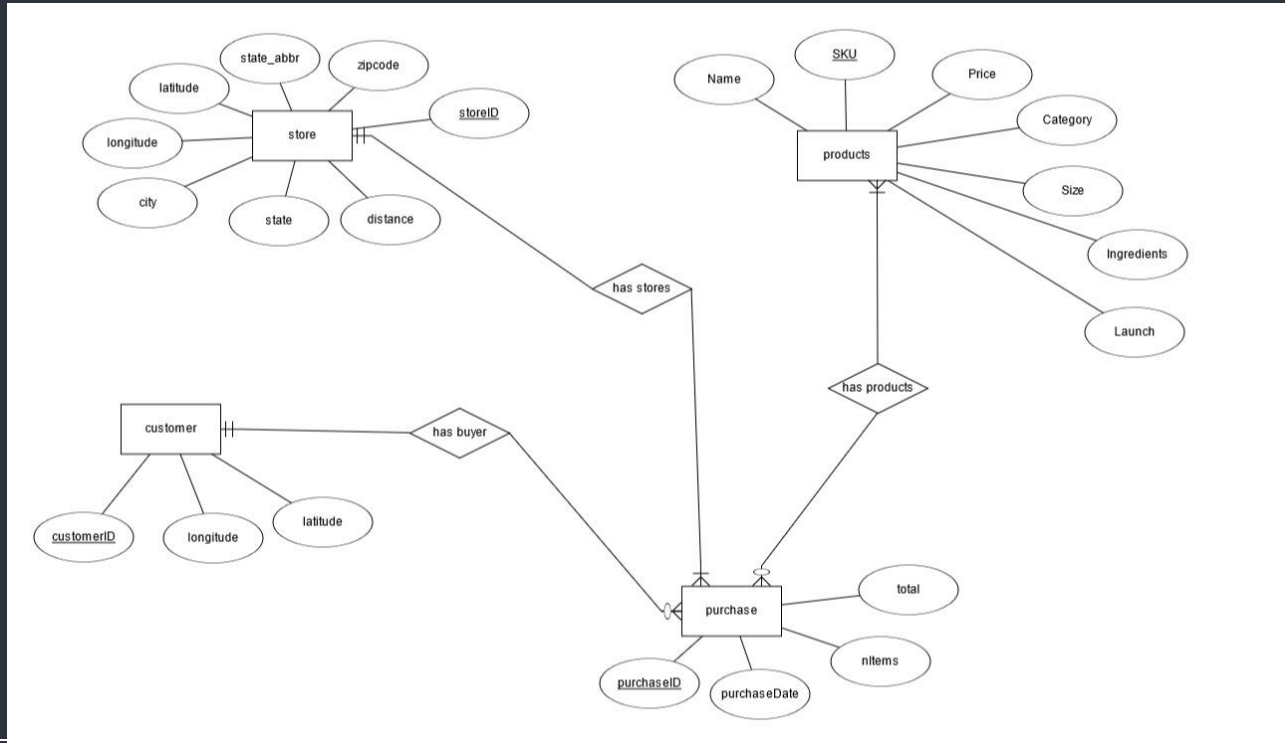
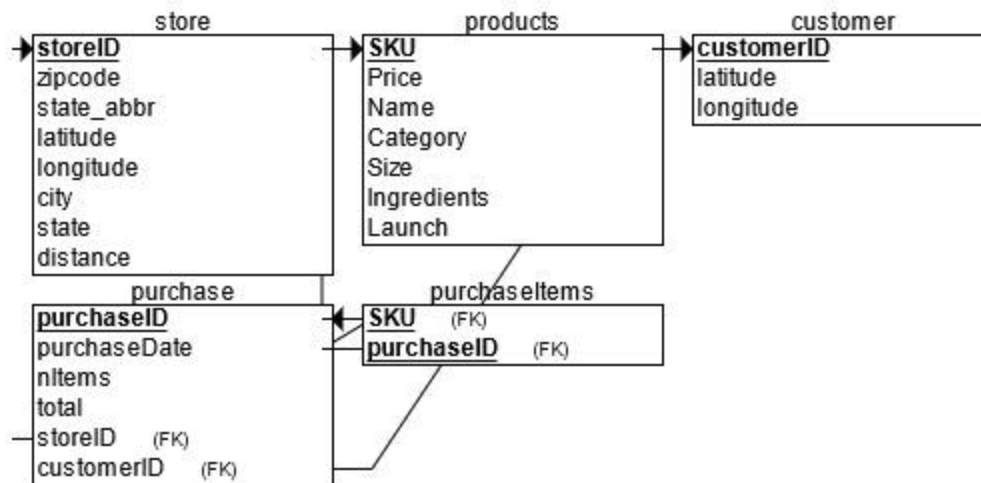


Table schema



</>

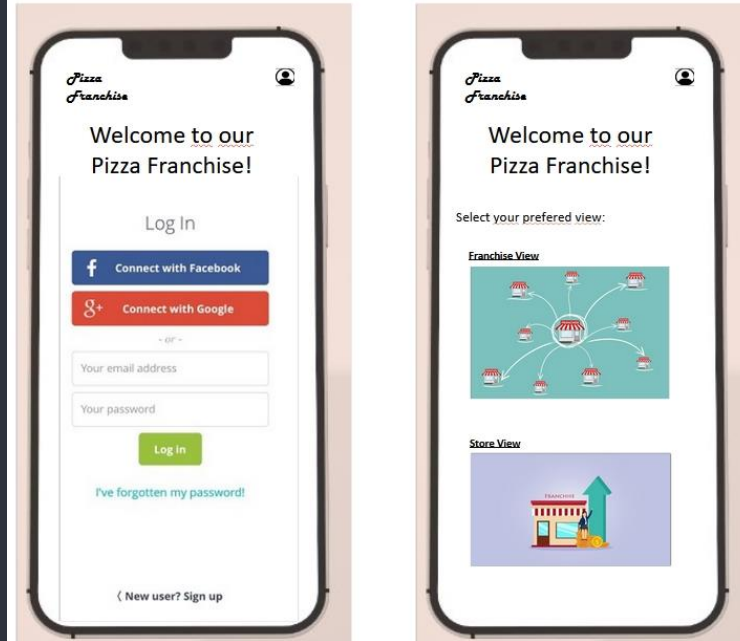
Mock-up

02

} /> [

</ Franchise

Homepage



1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1

</ Franchise



To see, which category does not bring in enough revenue -> to be discontinued

</ Franchise



Prognose Sektor (volle Zeiten u.ä.)

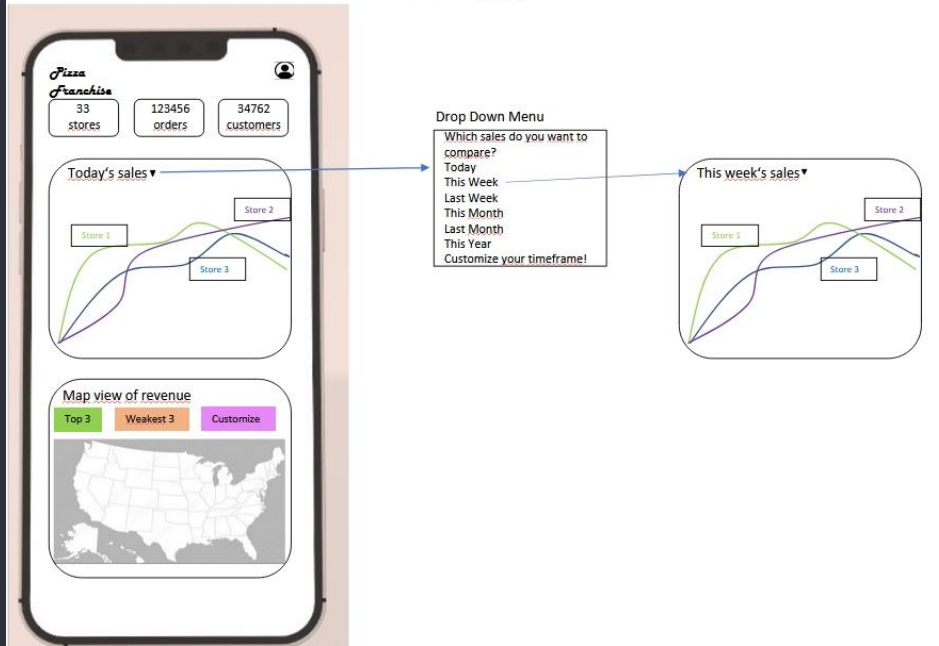
Average Zahlen übersicht zuerst, SEKTOREN EINTEILUNG

→ Ranking of ... (Button zum sortieren mit best oder worst)

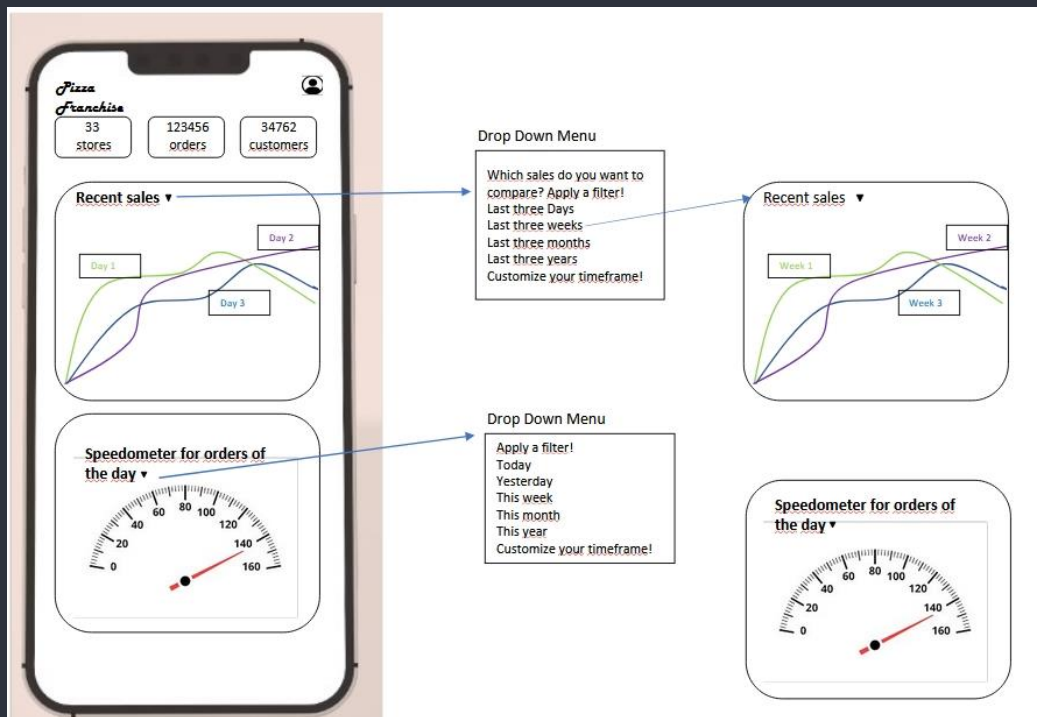


</ Franchise

First Page of Franchise View



</ Franchise



</ Franchise



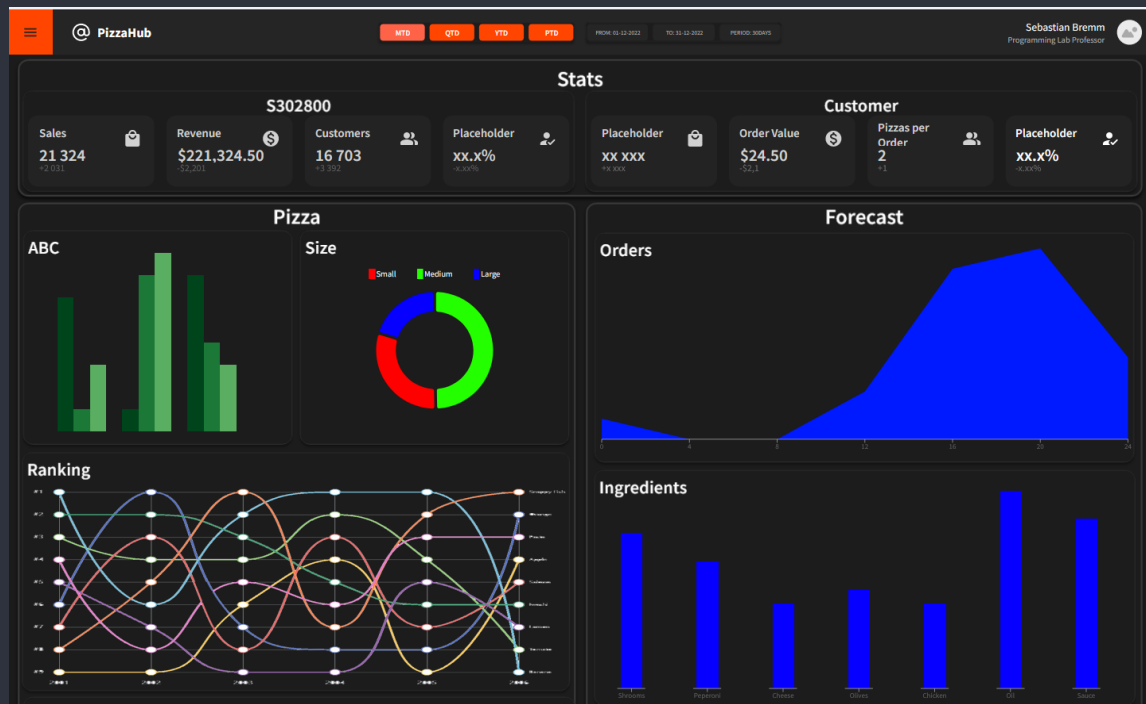
1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 1 0 1 1 1 1 0 1

</ Franchise SideBar



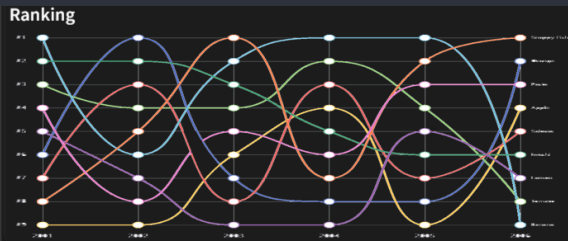
1 0 1 1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 1 1 0 1

</ Store 1

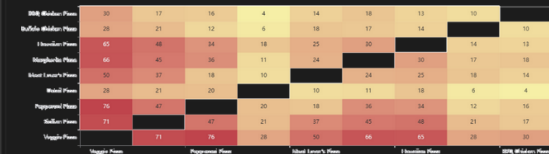


1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 1 1 1 0 1

</ Store 2



Pizza Pairs



relationship between price and popularity of the pizzas



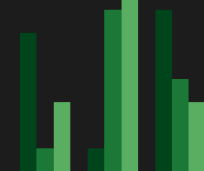
Pizzas
45

Placeholder
XX.XX

Revenue
\$221.50

Customers
32

Placeholder
xx.x%



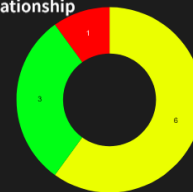
Placeholder
XX.XX

Placeholder
XX.XX

\$ Placeholder
\$xx.xx

Placeholder
XX

Placeholder
XX.X%



A dark blue background with white and yellow text and symbols. The word "Planning" is in white. The number "03" is in white. The symbols "</>" are in yellow. The symbols "}>[" are in yellow, green, and red.

03

} /> [

</ Relationship between price and popularity of pizza

Tech stack

Database

- PostgreSQL

Backend

- Node.js
- Typescript
- AJAX

Frontend

- Echarts
- Typescript
- Html
- (CSS)
- (AJAX)
- (Single page application)

</ Relationship between price and popularity of pizza

Design

Main page (Stats for franchise / Stats of Stores)

- Top
 - o Customer Count
 - o Order Count
 - o Average Order value
- Left
 - o Revenue
 - Diagram
 - Curve diagram
 - All Stores
- Right
 - o Stores for Diagram
 - o Customer Quality
 - Score per Store
 - Color with % (Speedometer chart)
 - Store with best score is reference point for 100%
 - Positive for Score: Loyal customers in comparison to all customers
 - Negative for Score: One-Time customers in comparison to all customers (whose first order is older than 30 days)
- Bottom
 - o Filter
 - Store
 - State
 - City
 - Timeframe

Secondary page (Stats for Store)

- Top
 - o As in main page
 - o Only information of selected store
- Left
 - o As in main page
 - o Only information of selected store
 - o (Maybe additional stuff)
- Right
 - o Best product
 - o Worst product
 - o ABC-Products
- Bottom
 - o Filter
 - Category

</ Relationship between price and popularity of pizza

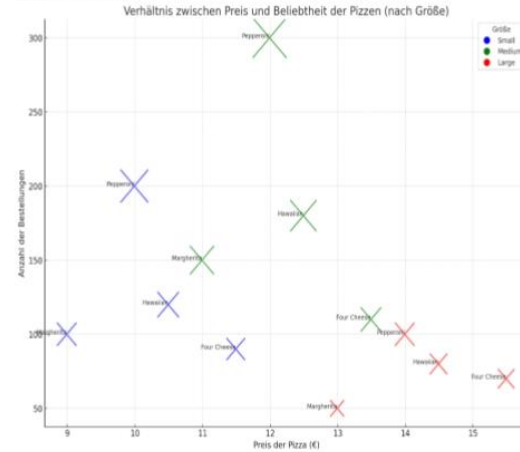
1. Relationship between price and popularity of pizzas

Frontend: DONE, Yannis **Backend:** DONE, Yannis **SQL:** DONE, Yannis

Objective: To investigate whether there is a correlation between the price of pizza and its popularity.

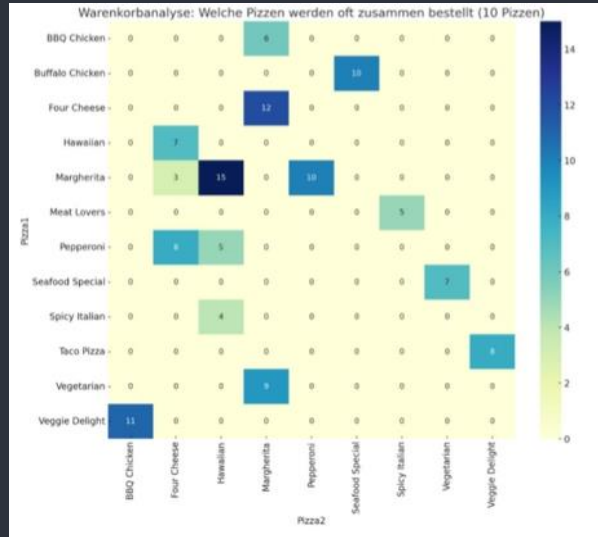
Diagrammtyp: Bubble Chart

View: Franchise



Filter which type and size of pizza you want to see

</ Shopping basket analysis



2. Shopping basket analysis (which pizzas are often ordered together)

Frontend: DONE, **Backend:** DONE, Daniel **SQL:** DONE, Daniel

Objective: Understand which pizzas are often ordered together in order to create bundled offers.

Diagrammtyp: Heatmap

View: Store

Information:

Connections between pizzas that often appear together in orders

Strength of the connection: frequency of co-occurrence

Locally adapted offers:

Each store can customize its offerings based on the specific order patterns of its customers.

Local promotions can be tailored to the most frequent orders.

File management:

Stores can better plan their stock levels based on pizzas that are often ordered together to avoid shortages.

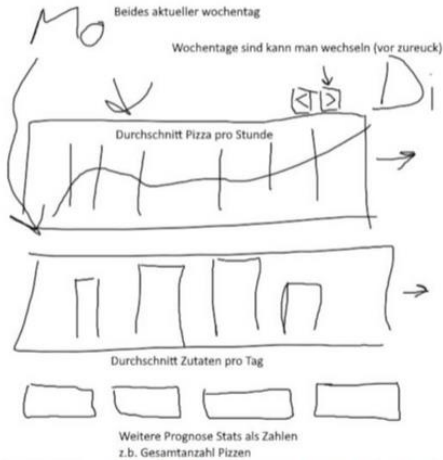
</ Initial Dashboard view

3. Numerical Presentation (Tristan)

- Total Revenue all stores by date
- total pizzas sold
- total orders
- avg order value
- pizzas per order

Total Revenue	Avg Order Value	Total Pizzas sold	Total Orders	Avg Pizzas per Order
\$817,860	\$38.31	49574	21350	2.32

4. Average of ingredients per day of the week



****Inventory Management and Optimization**:** By monitoring ingredient usage, store owners can better manage inventory and ensure they have enough ingredients to operate without having too much in stock, which could lead to waste.

****Cost savings**:** By knowing which ingredients are used more often, store owners can better plan their orders and take advantage of volume discounts to reduce costs.

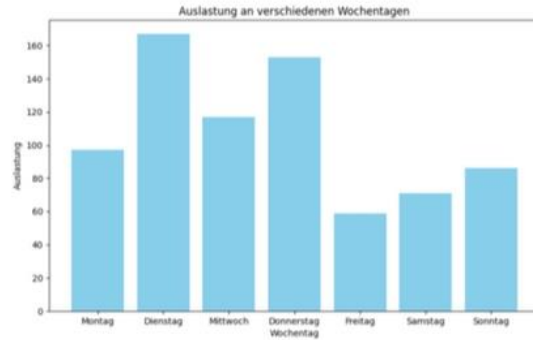
****Product optimization**:** By analyzing ingredient popularity, store owners can decide which ingredients should remain on the menu, which should be removed, and whether new ingredients should be added to meet customers' tastes.

****Quality Control**:** Monitoring ingredient usage allows store owners to ensure that ingredient quality remains consistent and that no expired or low-quality ingredients are used.

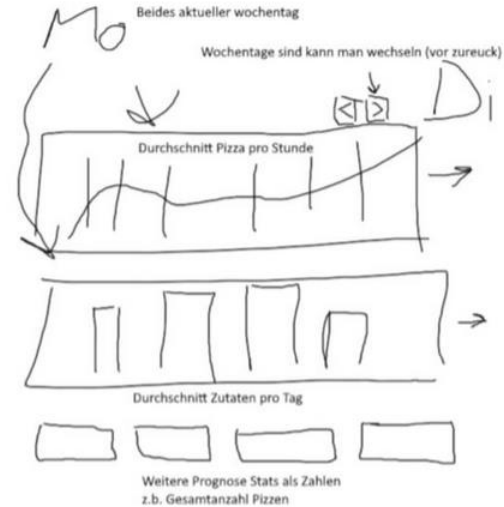
****Customer satisfaction**:** By providing high-quality pizzas with fresh and popular ingredients, store owners can increase customer satisfaction and foster loyalty.

</ Workload per Weekday

5. Workload on weekdays



Helps for weekday deals e.g. Super Friday
So days with fewer orders can be pushed



</ Sold Pizza Size Analysis

6. Percentage of sales of different pizza sizes (Peter)

Pie Chart

This makes it possible to show which size is bought the most

1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 1 1 0 1

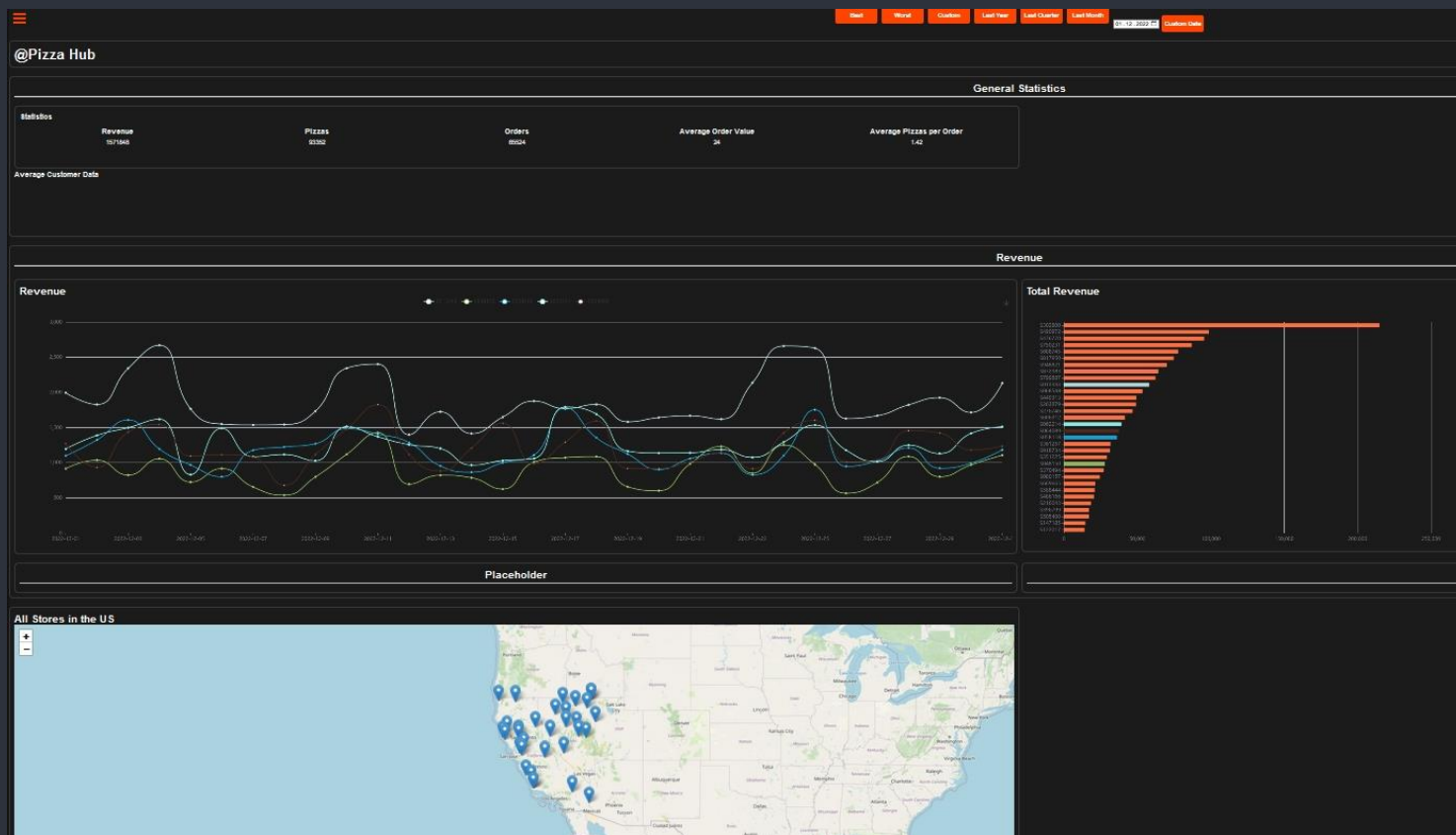
</>

Old Version

04

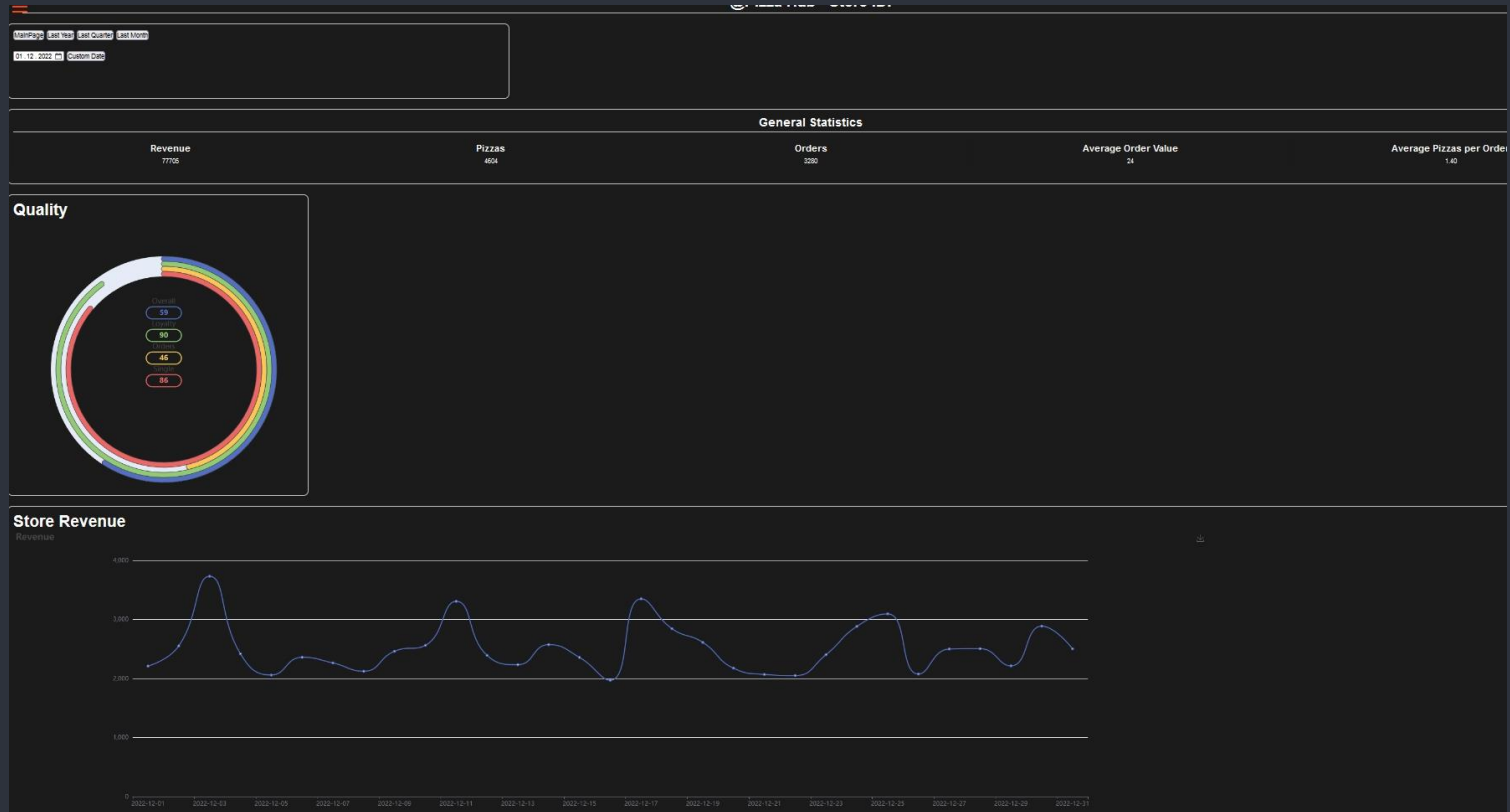
} /> [

</ Initial Dashboard view



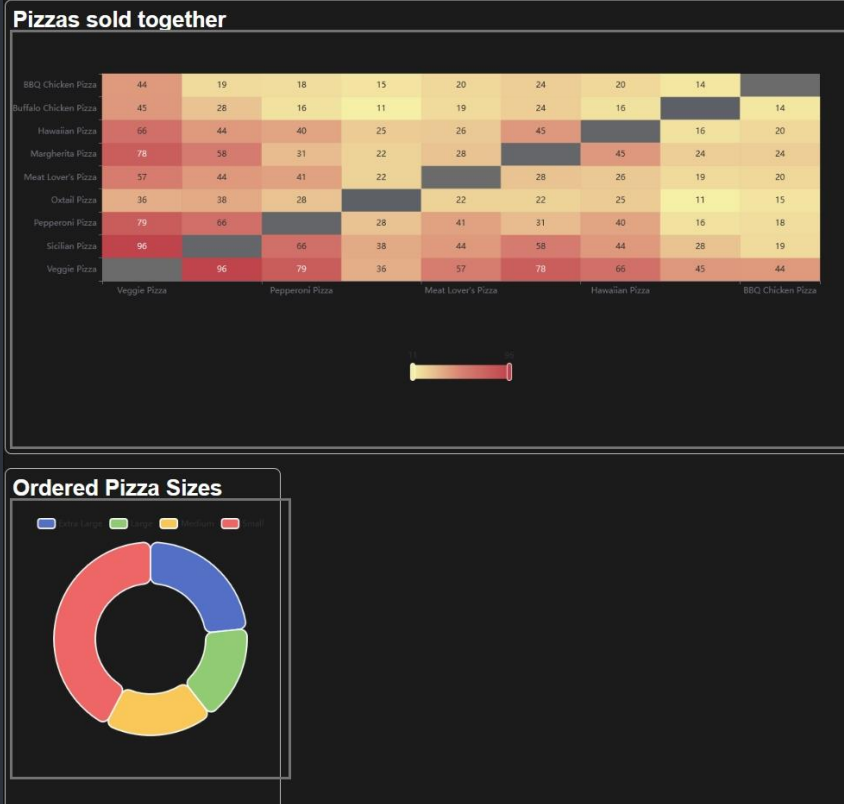
1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 1 1 0 1

</ Initial Store view



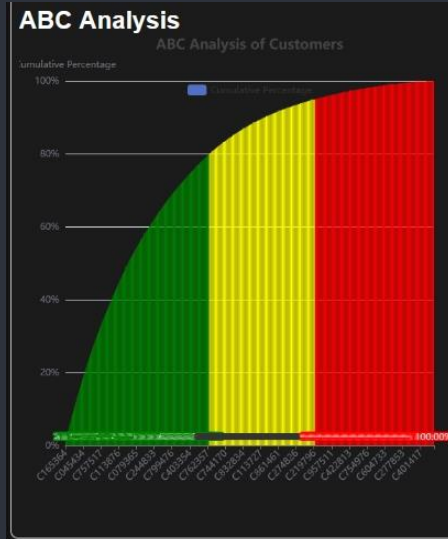
1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 1 1 1 0 1

</ Pizza Product Analysis



1 0 1 1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 0 1 1 0 1 1 1 1 1 0 1

</ Analysis of Customers and Ingredient Consumption



1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 1 1 1 0 1



Insights

05



Insights Pizza

Veggie Pizza

Overall the best
selling pizza in
allstores

Declining sales

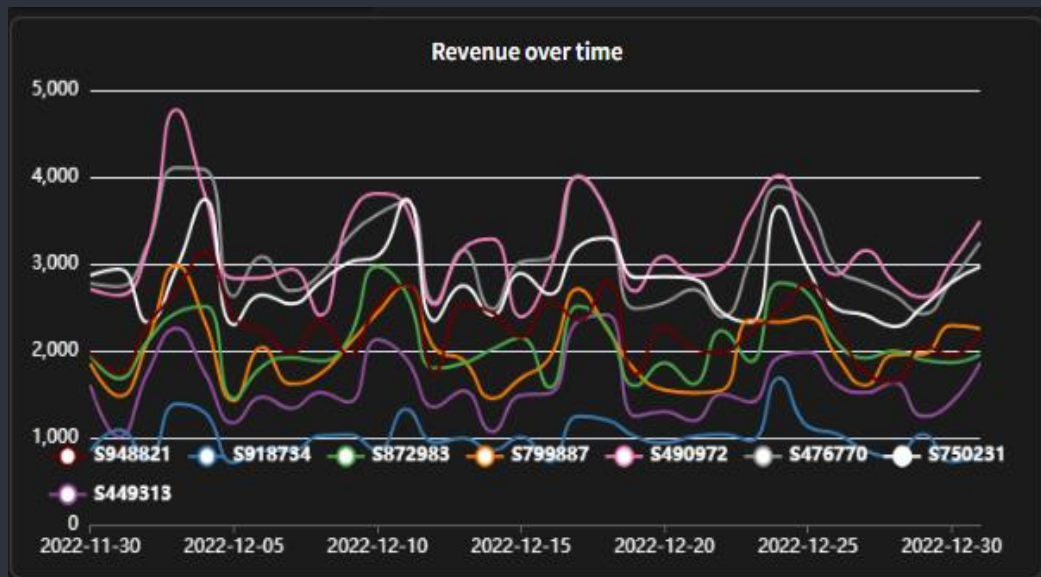
Buffalo Chicken
Pizza
BBQ Chicken Pizza

Rising sales

Sicilian Pizza
Pepperoni Pizza
Hawaiian Pizza

Insights - Last Month's Revenue

- higher revenues every weekend





Frameworks & Technologies

06



PostgreSQL

Advantages

- Strong performance despite large data volumes
- Scalable
- Very popular: many support options
- SQL standard compliant
- Open source: for free

Disadvantages

- Complex configuration
- Ressource-intensive

Node.js and Typescript

Node.js

- Efficient request handling of simultaneous requests or connections
- Large ecosystem
- Flexibility: highly adaptable to a wide range of applications

Typescript

- Great for managing large codebases when system grows
- increased code quality
- Ensures consistent and reliable data processing

Frameworks

Express.js

- Simple & minimalistic
- Very popular
 - > many tutorials & examples
- Seamless integration of PostgreSQL and other databases

Others - Springboot

- Fast development
- Popular
 - > many tutorials & examples
- high complexity
- time consuming learning curve

</>

Live Demo

07

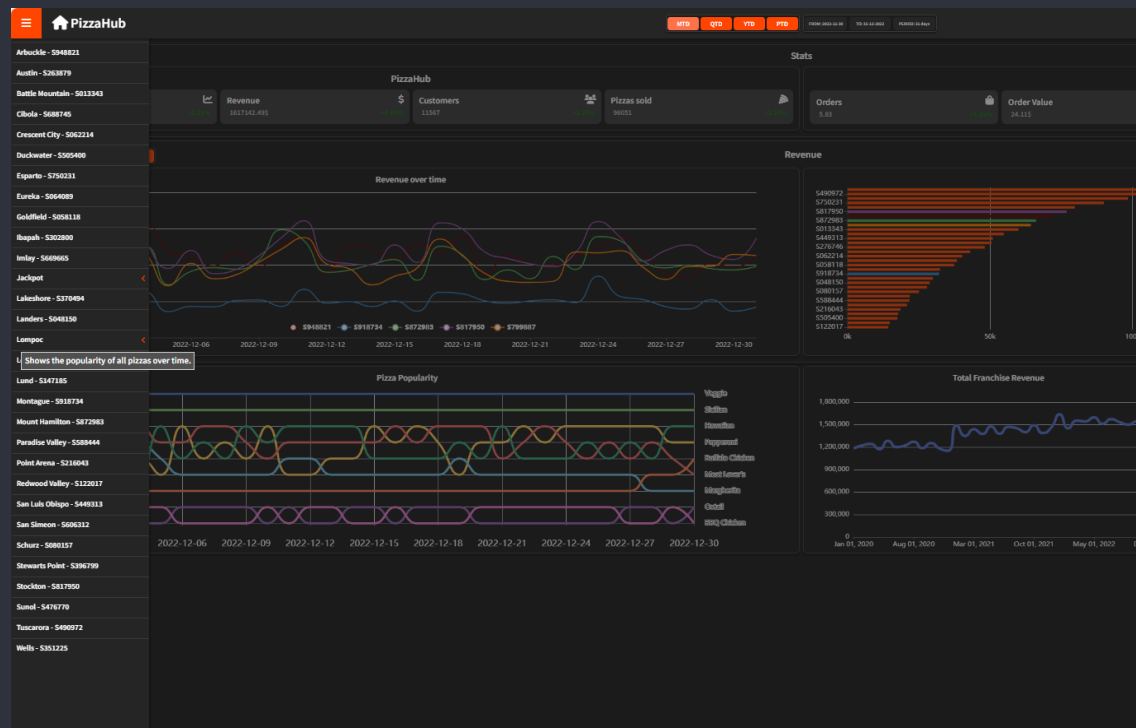
} /> [

</ Franchise Dashboard

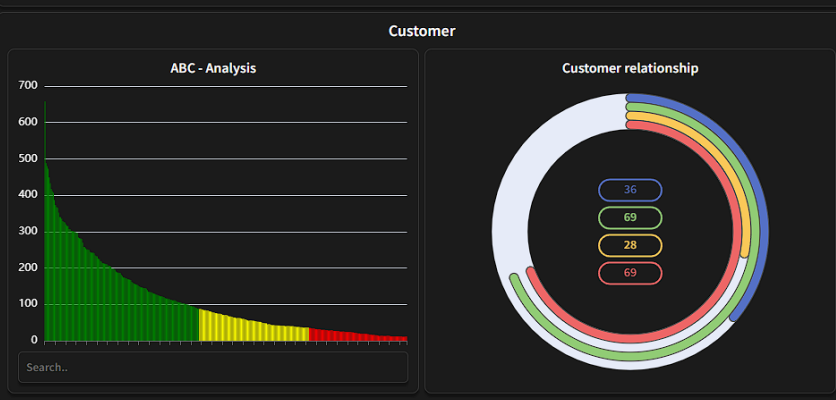
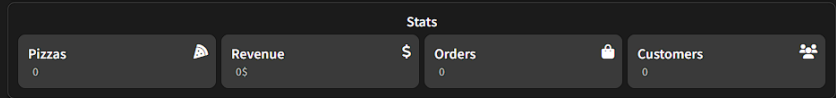
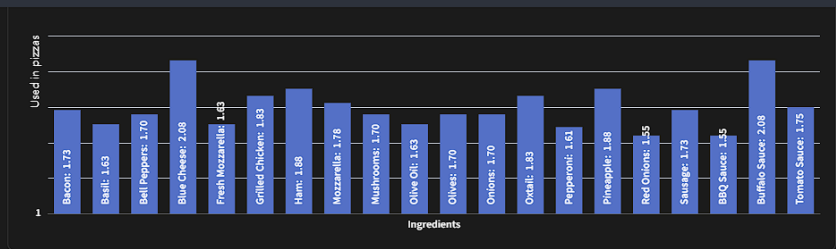
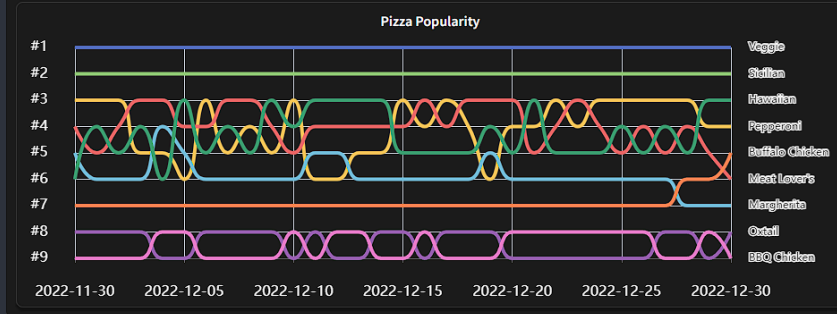
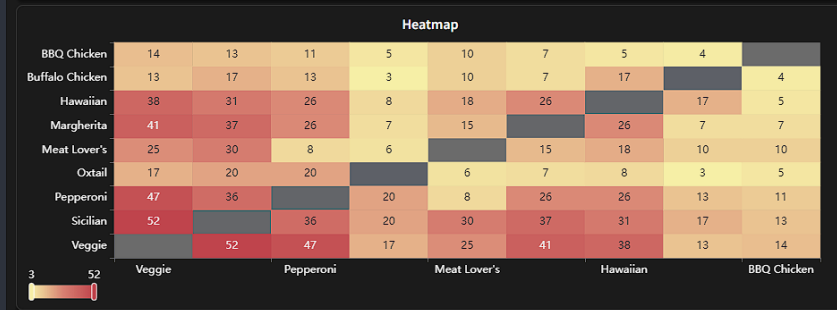
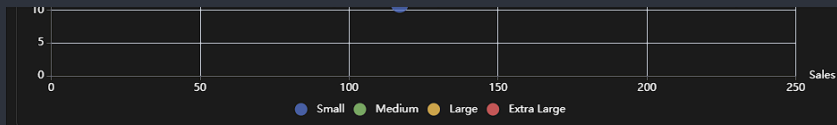


1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 1 1 0 1

</ Franchise Dashboard Sidebar



1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1



1 0 1 1 0 1 1 0 1 1 0 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 0 1 1 1 0 1 1 1 1 1 0 1

</>

Conclusion

08

} /> [

Thank you
very much!

