Appetize
CPSC 547
Information Visualization
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Appetize digitizes the whole experience for us when we want to dine in.
Appetize web app

Appetize is for digitizing dining experience.

The app will let customers to:

- Look at the virtual menu
- Order
- Pay
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The web app will let restaurant owners to:

- Define their food items and menus
- Use the analytics part
Design Goals

- To give insightful information to restaurant owners to:
  - Better manage their restaurant.
  - Have a better relationship with their customers.
  - Compare their restaurants with similar restaurants.
  - Design a better menu.
Task abstraction

- When to buy ingredients? What to buy?
- Who to send promotions to?
- Identify anomalies in their sales.
- Compare their restaurant to “similar” restaurants.
- Track the popularity of their restaurant among different groups of users.
- Have a better menu.
Data abstraction

- Orders
  - Location
  - Food items
  - Date and time
  - User
  - Percentage of tip
- Food item
- Ingredients.
  - Quantities of ingredients.
  - Capacity
- User:
  - Age
  - Gender
- Derived data:
  - Loyalty measure.
Algorithms

● Defining user loyalty to each restaurant:
  ○ Number of visits + dates of visits.
  ○ More weight on recent visits while considering users’ long-term bond to the restaurant as well.
  ○ Output: a number between 0 and 1

● Finding similar restaurants to one specific restaurant:
  ○ Neighbourhood
  ○ Average of items’ price
  ○ Average of time spent by customers
How did we build it?

- Database manipulation
- Data synthesis
- Mock-up
- Focus group
- Implementation
  - Web based
  - Tools: High chart, Google charts
View #0

- Heatmap to show which parts of the menu has been clicked more.
- In the focus group, we realized restaurant owners did not find this super useful.
- They already knew people tend to choose items which are positioned in the beginning of a menu.
View #1 - Mock-up

Customer Loyalty

Each point on the graph represents a customer. Select a customer to send them a promotion.

Promotion
Send a 10% off all items coupon to this customer.

Send Coupon
Cancel
Views #1 - Implemented
View #2 - Mock-up

3.2k Monthly Customers

Compare to the average of Similar Restaurants
View #2 - Implemented

Number of views through Appetize in the past two weeks

Number of Views

Your restaurant (<25)
Your restaurant (25 < 40)
Your restaurant (>40)
Similar restaurant (<25)
Similar restaurant (25 < 40)
View #3

Mock-up

Inventory
Select an item to gain insight on analytics for that item.

Select or Search for an Item

Number of Nachos Sold
Nov 3 to Yesterday

<table>
<thead>
<tr>
<th>Day</th>
<th>Nachos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturday</td>
<td>20</td>
</tr>
<tr>
<td>Sunday</td>
<td>31</td>
</tr>
<tr>
<td>Monday</td>
<td>22</td>
</tr>
<tr>
<td>Tuesday</td>
<td>38</td>
</tr>
<tr>
<td>Wednesday</td>
<td>45</td>
</tr>
<tr>
<td>Thursday</td>
<td>23</td>
</tr>
<tr>
<td>Friday</td>
<td>35</td>
</tr>
</tbody>
</table>

Nachos Ingredients
Nov 3 to Yesterday

- **Ground Beef**
  - In Inventory: 52%
  - Amount in Inventory: 52%

- **Tortilla Chips**
  - In Inventory: 68%
  - Amount in Inventory: 68%

- **Jalapeños**
  - In Inventory: 90%
  - Amount in Inventory: 90%

- **Cheddar Cheese**
  - In Inventory: 57%
  - Amount in Inventory: 57%

- **Taco Seasoning**
  - In Inventory: 64%
  - Amount in Inventory: 64%

- **Onions**
  - In Inventory: 94%
  - Amount in Inventory: 94%
Challenge for ingredients:

- There are lots of ingredients.
- Different items have different ingredients.
Alternative Designs

- Ingredients on leaf.
- Items on parent leaves.
- Preserving the hierarchical architecture of foods (Food Ontology)
- We can understand how much we lack ingredients for categories of items (like all kinds of burgers).
- Problem: Lots of ingredients are common among different items (like bread or oil)
Demo
Design choices

● What:
  ○ Categorical and numerical data from foods and users’ dining experience.

● Why:
  ○ Help restaurant owners manage their business.

● How:
  ○ Using channels of hue, luminance, spatial position
  ○ Juxtaposition of views, Superimposing.
  ○ Interactions like brushing.
Limitations/critiques

1. All the visualizations are based on dummy data.
2. Constraint on the time interval that we compare a restaurant with similar restaurants (two weeks).
3. Consuming a lot of space for showing ingredients.
4. Lack of showing an overview of all food items and related ingredients.
Thanks!
Alternative Designs (2D matrix heatmap)

- Items on y-axis and ingredients on x-axis.
- Problematic: each item just have a subset of ingredients.
- So a lot of the space in this 2D matrix will be unused.