

# menuVis

menu creation tool  
for chefs

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# Domain Background

- Chefs need to keep cost low
- Ingredients cost changes all the time
- But the price on a menu doesn't



# User Research

- Existing tool: Optimum Control
- User Requirements:
  - Create and adjust recipes based on ingredients cost
  - Monitor the fluctuation of ingredients cost



# Menu Engineering Worksheet

From: Tuesday, October 1, 2013

To: Thursday, October 31, 2013

Gross Sales for Period: \$70,110.20

Note: This report calculates a menu product's Popularity (Menu Popularity Factor) and Profitability (Average Item Profit) within the group.

Item Description	Sold	Popularity %	Selling Price	Current Cost	Margin	%	Totals			Analysis		Menu Item Class
							Sales	Cost	Profit	Profitability	Popularity	
<b>Food</b>												
<b>Add-on</b>												
W/Soup Cup	323.00	100.000%	\$1.50	\$0.48	\$1.021	31.95%	\$484.50	\$154.78	\$329.72	LOW	HIGH	Workhorse
	<b>323.00</b>	<b>Averages:</b>	<b>\$1.50</b>	<b>\$0.48</b>	<b>\$1.021</b>	<b>31.95%</b>	<b>\$484.50</b>	<b>\$154.78</b>	<b>\$329.72</b>	<b>**Based on averages**</b>		
							<b>Average Item Profit: \$1.021</b>		<b>Menu Popularity Factor: 80.00%</b>			
<b>Appetizer</b>												
SPINACH SAL	322.00	100.000%	\$9.50	\$3.10	\$6.398	32.66%	\$3,059.00	\$998.97	\$2,060.03	LOW	HIGH	Workhorse
	<b>322.00</b>	<b>Averages:</b>	<b>\$9.50</b>	<b>\$3.10</b>	<b>\$6.398</b>	<b>32.66%</b>	<b>\$3,059.00</b>	<b>\$998.97</b>	<b>\$2,060.03</b>	<b>**Based on averages**</b>		
							<b>Average Item Profit: \$6.398</b>		<b>Menu Popularity Factor: 80.00%</b>			
<b>Beverage</b>												
Coffee-8oz Cup	648.00	8.954%	\$1.00	\$0.16	\$0.845	15.51%	\$648.00	\$100.50	\$547.50	LOW	LOW	Dog
MILLER LITE	449.00	6.204%	\$3.75	\$0.39	\$3.360	10.40%	\$1,683.75	\$175.11	\$1,508.64	HIGH	LOW	Challenge
Pop-10 oz Glass	5204.00	71.908%	\$1.25	\$0.16	\$1.086	13.12%	\$6,505.00	\$853.46	\$5,651.54	LOW	HIGH	Workhorse
Red Wine-6oz Glass	283.00	3.910%	\$4.25	\$2.07	\$2.182	48.65%	\$1,202.75	\$585.13	\$617.62	HIGH	LOW	Challenge
White Russian	342.00	4.726%	\$4.25	\$0.97	\$3.282	22.77%	\$1,453.50	\$330.92	\$1,122.58	HIGH	LOW	Challenge
White Wine-6oz Glass	311.00	4.297%	\$4.25	\$1.37	\$2.884	32.13%	\$1,321.75	\$424.70	\$897.05	HIGH	LOW	Challenge
	<b>7237.00</b>	<b>Averages:</b>	<b>\$1.77</b>	<b>\$0.34</b>	<b>\$1.429</b>	<b>19.27%</b>	<b>\$12,814.75</b>	<b>\$2,469.82</b>	<b>\$10,344.93</b>	<b>**Based on averages**</b>		
							<b>Average Item Profit: \$1.429</b>		<b>Menu Popularity Factor: 13.33%</b>			
<b>Combination Dish</b>												
Catering dinner #1	348.00	22.970%	\$18.00	\$5.61	\$12.388	31.18%	\$6,264.00	\$1,952.94	\$4,311.06	HIGH	LOW	Challenge
Cheeseburger Combo	593.00	39.142%	\$4.99	\$1.82	\$3.169	36.49%	\$2,959.07	\$1,077.94	\$1,881.13	LOW	HIGH	Workhorse
Hamburger Combo	574.00	37.888%	\$3.99	\$1.55	\$2.438	38.90%	\$2,290.26	\$889.12	\$1,401.14	LOW	HIGH	Workhorse
	<b>1515.00</b>	<b>Averages:</b>	<b>\$7.60</b>	<b>\$2.59</b>	<b>\$5.012</b>	<b>34.05%</b>	<b>\$11,513.33</b>	<b>\$3,920.00</b>	<b>\$7,593.33</b>	<b>**Based on averages**</b>		
							<b>Average Item Profit: \$5.012</b>		<b>Menu Popularity Factor: 26.67%</b>			
<b>Dessert</b>												
Peach Melba Dessert	458.00	100.000%	\$4.49	\$1.55	\$2.945	34.41%	\$2,056.42	\$707.66	\$1,348.76	LOW	HIGH	Workhorse
	<b>458.00</b>	<b>Averages:</b>	<b>\$4.49</b>	<b>\$1.55</b>	<b>\$2.945</b>	<b>34.41%</b>	<b>\$2,056.42</b>	<b>\$707.66</b>	<b>\$1,348.76</b>	<b>**Based on averages**</b>		
							<b>Average Item Profit: \$2.945</b>		<b>Menu Popularity Factor: 80.00%</b>			


# User Research

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# What-Why-How

## Recipes: Multi-dimensional table

Attribute Name	Attribute Type	Level/Range
Name	Categorical	10-100
Category	Categorical	3-8
Ingredient	Categorical	<10 in one recipe, 100-400 in total
Amount	Ordered	0.1-1000
Cost	Ordered	<10
Price	Ordered	1-50



# What-Why-How

## Ingredients cost: Time-series table

Attribute Name	Attribute Type	Level/Range
Category	Categorical	5-10
Name	Categorical	100-400
Item Number	Categorical	100-400
Cost	Ordered	2-50
Pricing Date	Ordered	A year

# What-Why-How

## Requirement 1: Create and adjust recipes

What:

Why: Present

How:

Multi-dimensional

Compare

Stacked bar chart

table





# What-Why-How

## Requirement 2: Monitor ingredients cost

What: Time-series	Why: Present	How: Line chart
table	Compare	Bar chart
	Summarize	How: Aggregate
		Select

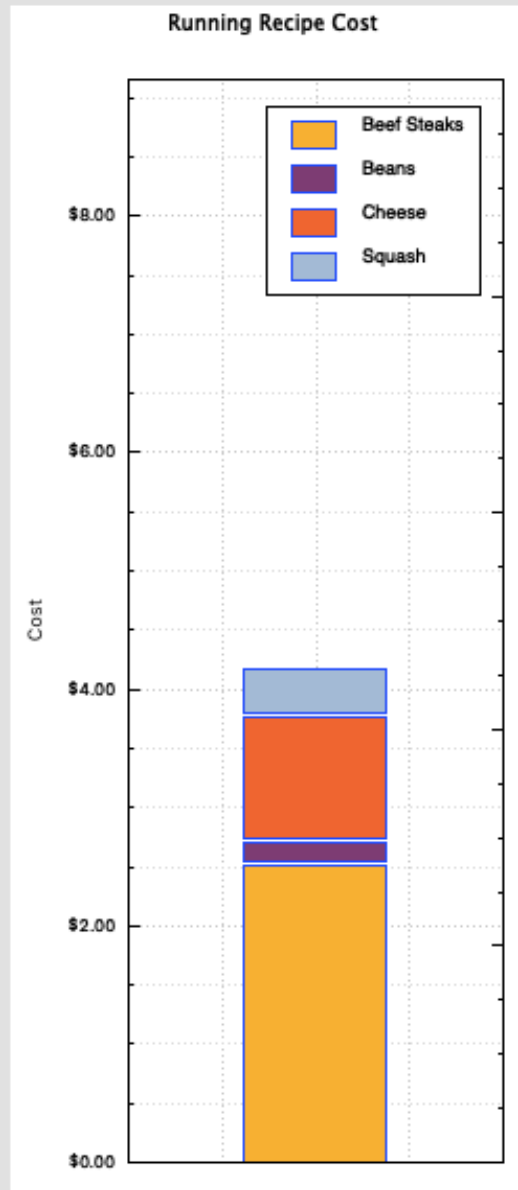
# Visualization Solution

x Beef Steaks:	<input type="text" value="50"/>	<input type="text" value="GR"/>	⌵
x Beans:	<input type="text" value="150"/>	<input type="text" value="ML"/>	⌵
x Cheese:	<input type="text" value="60"/>	<input type="text" value="GR"/>	⌵
x Squash:	<input type="text" value="60"/>	<input type="text" value="GR"/>	⌵

Recipe Volatility: % 1.32

Recipe Cost: \$ 4.15

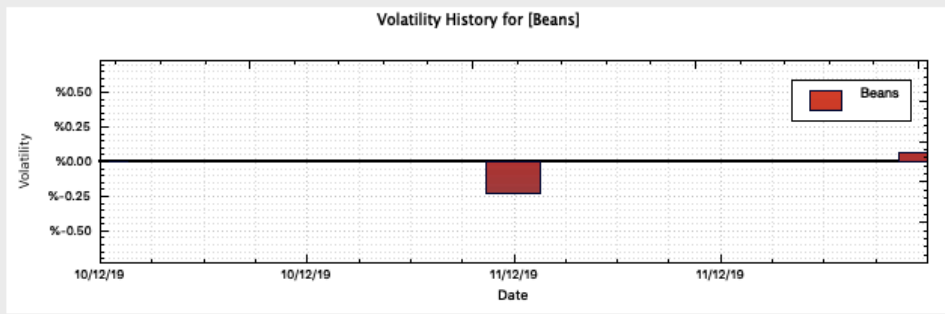
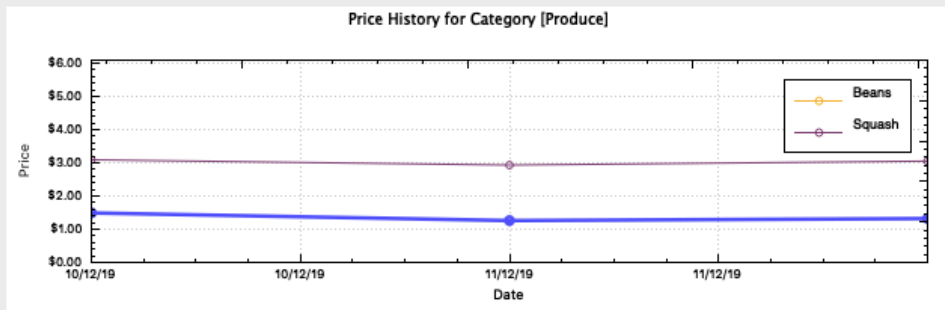
Recipe Price: \$



# Visualization Solution

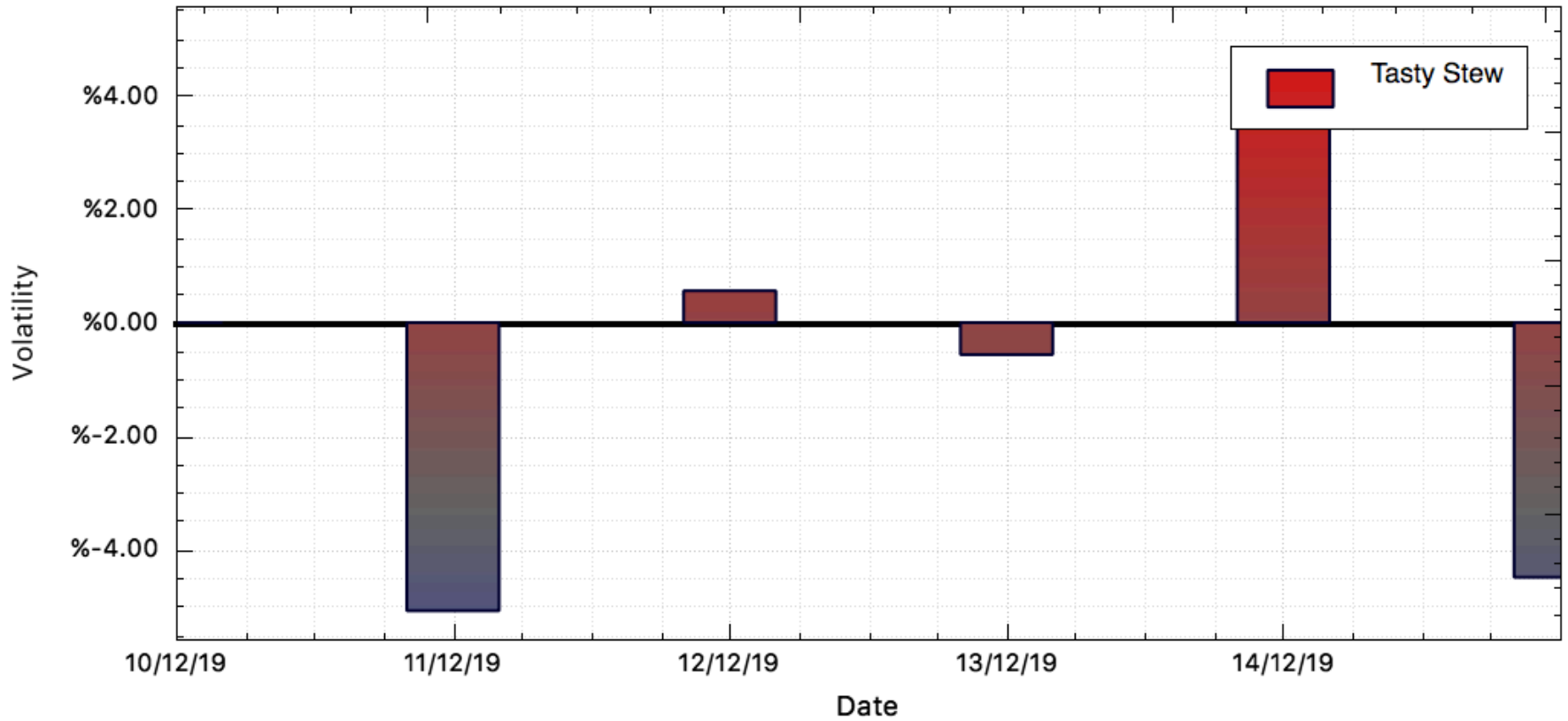
Update Remove

Supplier	Category	Name	Description	Brand	Price/UOM	
GFS	Proteins	Tofu	Extra Firm	SUPERIOR T...	0.01	GR
GFS	Proteins	Beef Steaks	6oz Center-...	CAB	0.05	GR
GFS	Canned/Dry	Tortillas	12In Cheese ...	ELTORITO	0.3	DZ
GFS	Dairy/Eggs	Cheese	Goat, Log Fr...	GORDON C...	17.54	KG
GFS	Produce	Beans	Garbanzo Ch...	ITALPASTA	1.32	L
GFS	Produce	Squash	Diced Butter...	GORDON C...	3.05	LB



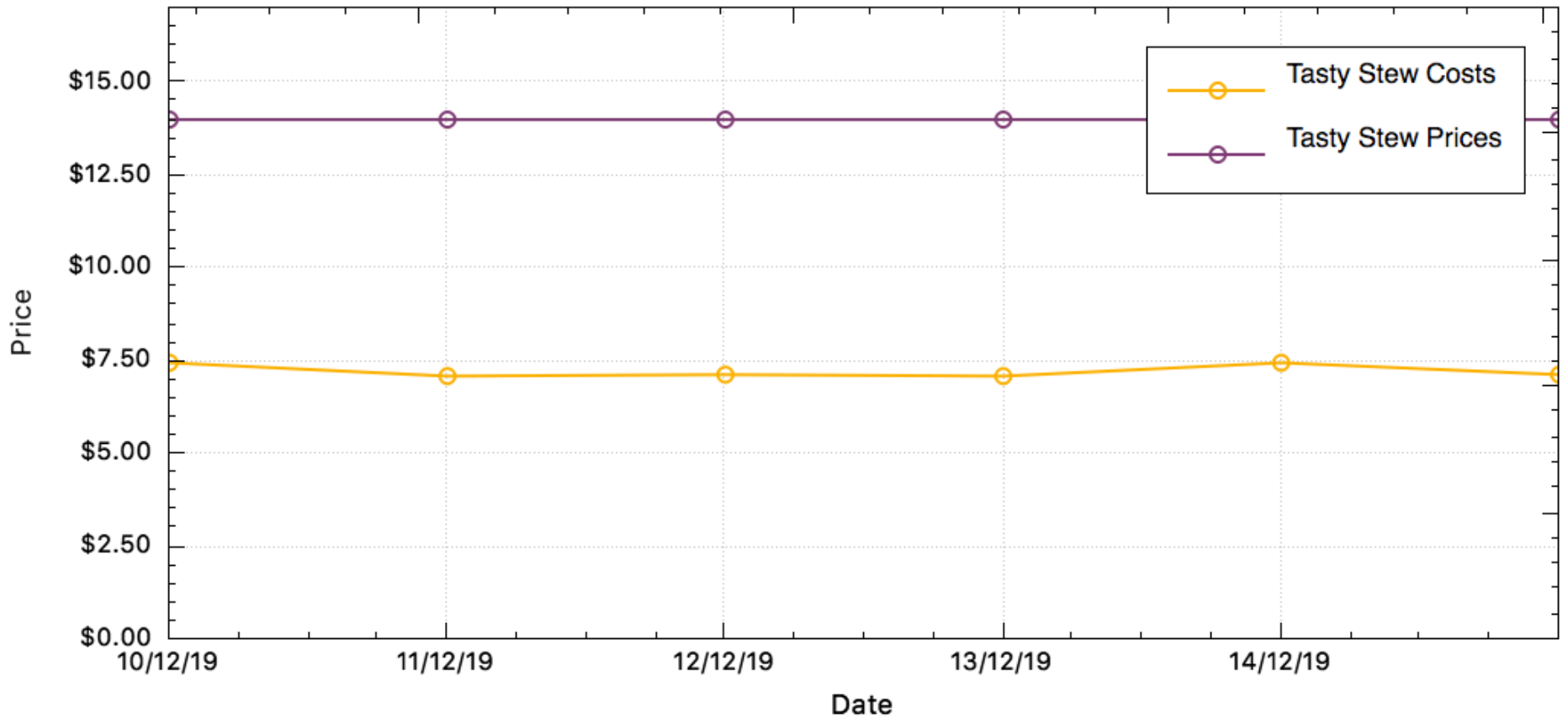
# Visualization Solution

Volatility History for [Tasty Stew]



# Visualization Solution

Cost-Price History for [Tasty Stew]



# Implementation

- QT for desktop application (C++)
- QCustomPlot for visualizations
- About 10K LOC

# Implementation

- **Data integrity & consistency is crucial**
  - Suppliers vary in formatting, are error prone
  - Data is actively changing
  - Data is being produced regularly

# Demo

Switch to Live Demo





# Limitation & Future Work

- Sales reports integration
  - Everyone records this differently
- Further data visualizations
  - Visualize everything!
- Auto alert for expensive recipes
- Automate more pricing guides

thank you

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