



CUSTOMERS WHO
BOUGHT THIS ITEM:

ALSO BOUGHT:

Market Basket Analysis

Paris Baguette

Objective



Method



Interpret
Results



Next
Steps



Objective



Identify association
between products



Increase quantity
of purchased items



Bundling offers or
Promotions

Method (I/IV): Association Rule Mining

- Technique used to find association between items

if X, then Y

$X \text{ (antecedent)} \rightarrow Y \text{ (consequent)}$

1. **Support**

Popularity of two items combined. % of total transactions

2. **Confidence**

Likelihood that Y is bought when X is bought.

3. **Lift**

Increase in ratio of X sold when Y is sold

Method (II/IV): Apriori Algorithm



Uses frequent item sets to find
association rules



Minimum support threshold to
remove infrequent item sets

Method (III/IV): Apriori Analysis

Item Category

- Bread
- Beverage
- Dessert
- Cake
- Deli
- Hot Meal



Item Group*

- Pastry & Pie
- Sweet Bread
- Savory Bread
- Sandwich
- Non-Coffee
- Donut
- Coffee

*Top 7 groups

Method (IV/IV): Lift

Combination of Support and Confidence

- **Lift < 1:** Weak or negative association
- **Lift > 1 & \leq 2:** Positive association.
- **Lift > 2:** Strong and actionable association.

Interpreting Results: Associated Item Sets with Lift > 1 (in order)

Antecedents

Consequents

1. HOT MEAL-STARTER	BEVERAGE-NON COFFEE
2. HOT MEAL-MAIN COURSE	BEVERAGE-NON COFFEE
3. HOT MEAL-PASTA (DINING)	BEVERAGE-NON COFFEE
4. DELI-SALAD	DELI-SANDWICH
5. HOT MEAL-STARTER	BEVERAGE-COFFEE
6. HOT MEAL-MAIN COURSE	BEVERAGE-COFFEE
7. HOT MEAL-PASTA (DINING)	BEVERAGE-COFFEE
8. DESSERT-CHOUX	DELI-SANDWICH
9. BEVERAGE-NON COFFEE	BEVERAGE-COFFEE
10. DESSERT-TART	DESSERT-CHOUX

Interpreting Results: Lift Values (Dine-In)

Min support = 0.01

	Bread-Donut	Bread-Pastry & Pie	Bread-Savory Bread	Bread-Sweet Bread	Deli-Sandwich
Bread-Donut				3.66	2.12
Bread-Loaf Bread		2.25		5.09	3.24
Bread-Pastry & Pie	1.64		1.45	1.53	1.07
Bread-Sweet Bread			3.05		
Deli-Sandwich			1.89	1.94	

*Combinations with lift > 1

Interpreting Results: Support Values (Takeout)

Min support = 0.0001

	Beverage-Coffee	Cake-Roll Cake	Cake-Sliced Cake	Deli-Sandwich
Beverage-Non Coffee	1.05			
Cake-Mini Cake			1.58	
Deli-Salad				1.09
Dessert-Macaron		1.23		

*Combinations with lift > 1

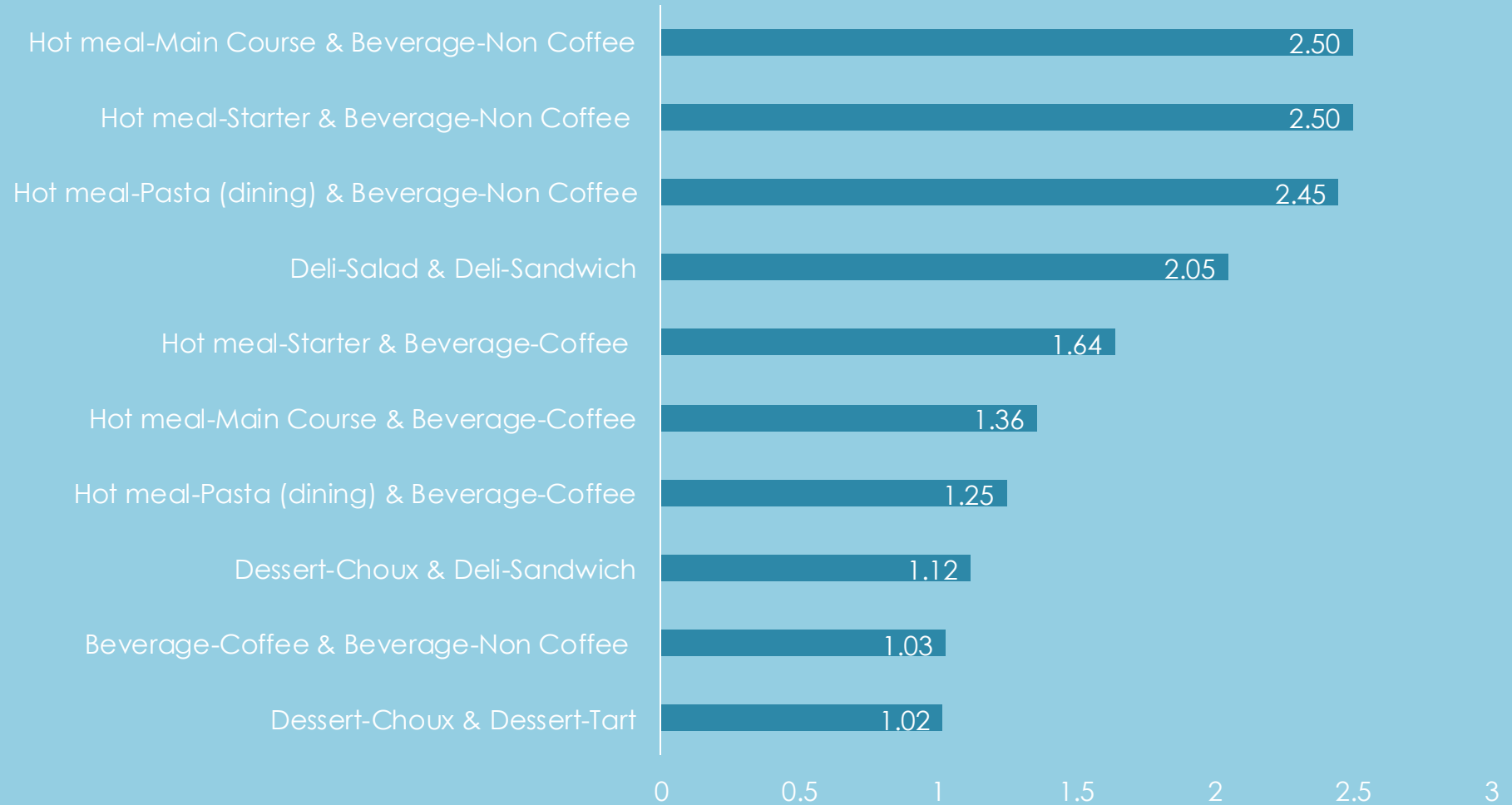
Interpreting Results: Lift Values (Overall)

Min support = 0.001

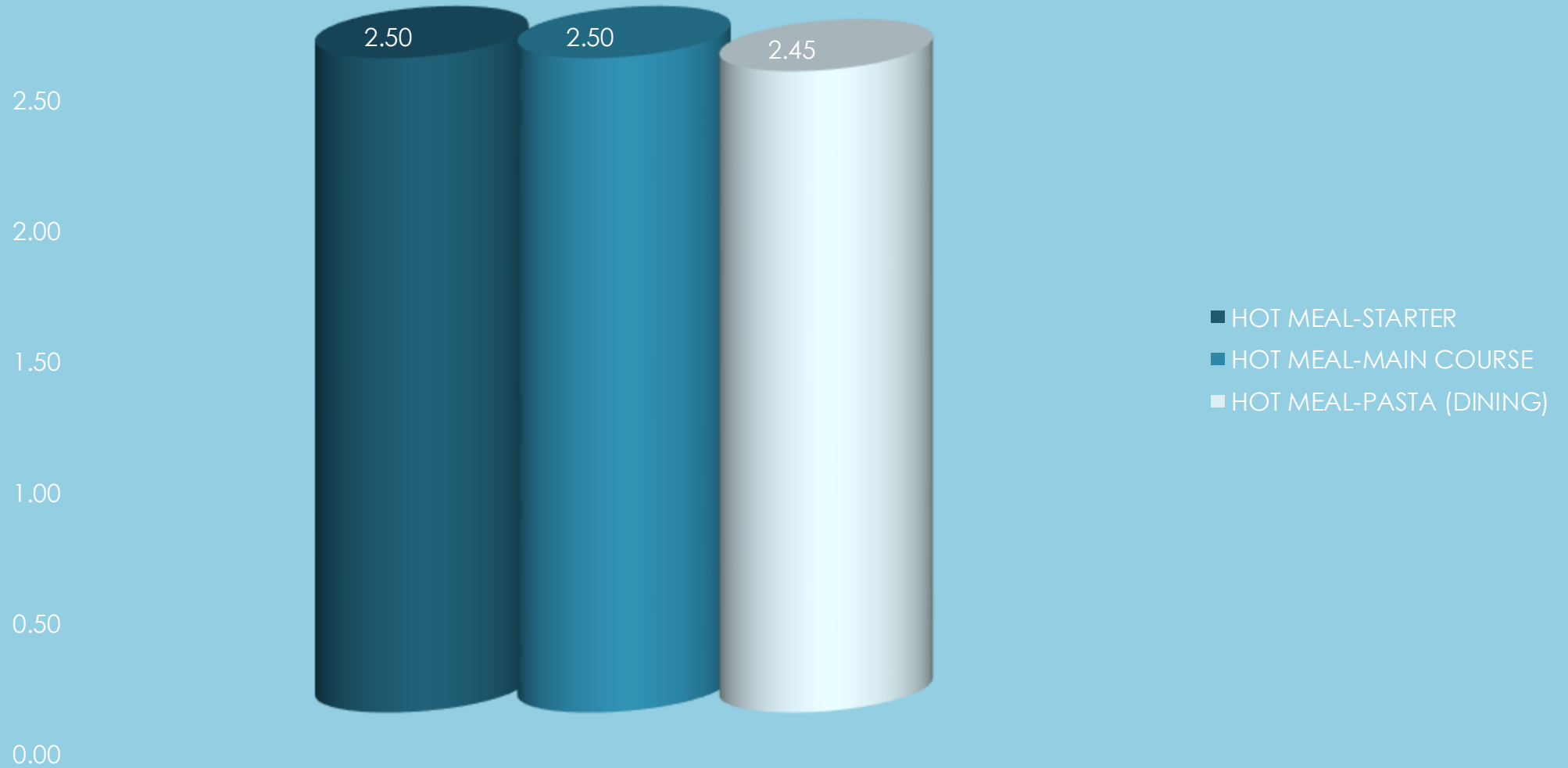
	Beverage-Coffee	Beverage-Non Coffee	Deli-Sandwich	Dessert-Choux
Beverage-Non Coffee	1.03			
Deli-Salad			2.05	
Dessert-Choux			1.12	
Dessert-Tart				1.02
Hot Meal-Main Course	1.36	2.50		
Hot Meal-Pasta (Dining)	1.25	2.45		
Hot Meal-Starter	1.64	2.50		

*Combinations with lift > 1

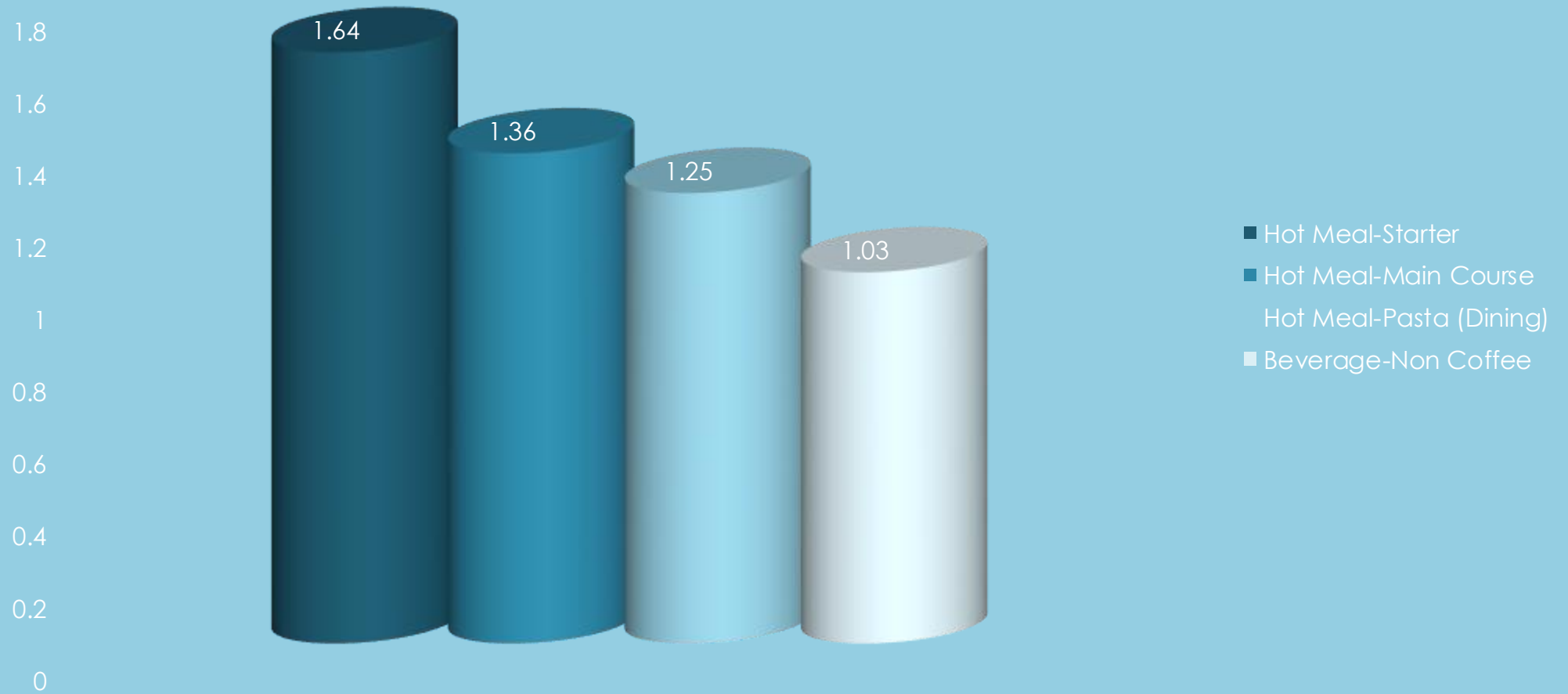
Interpreting Results: Lift Values



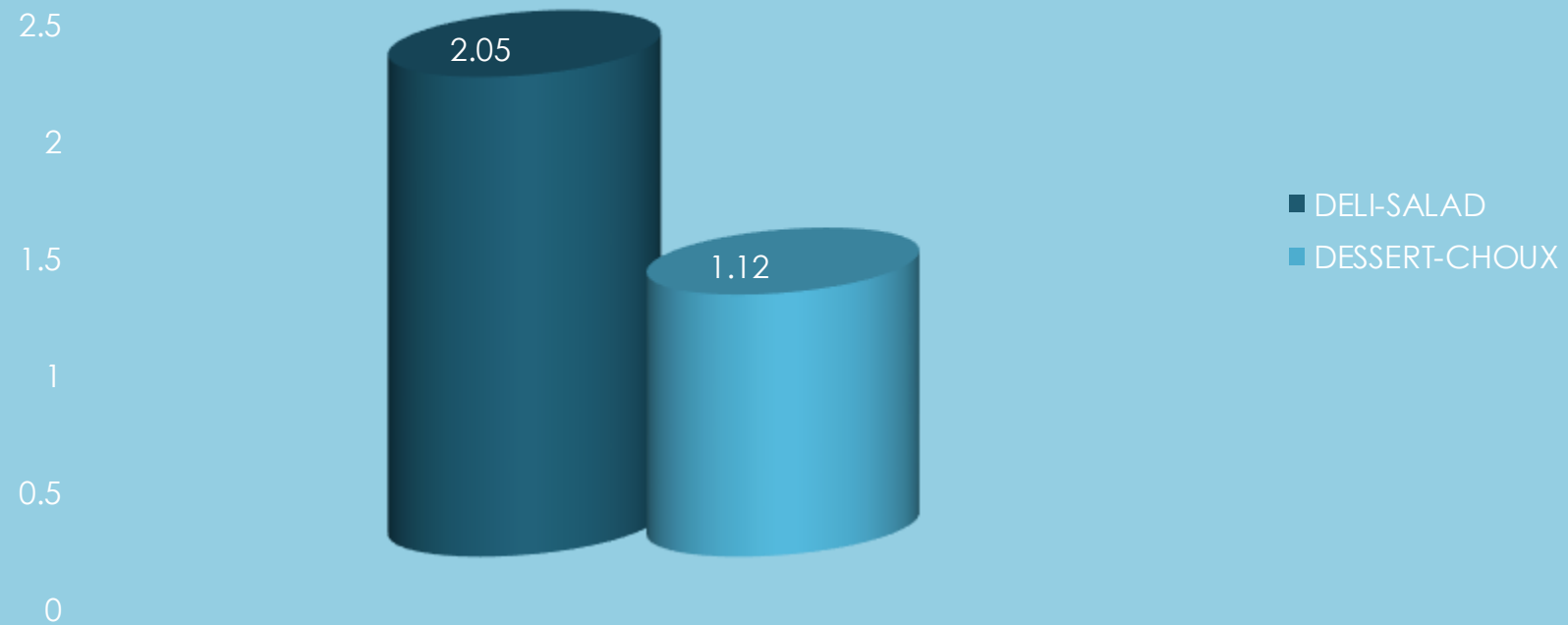
Interpreting Results: Beverage-Non Coffee



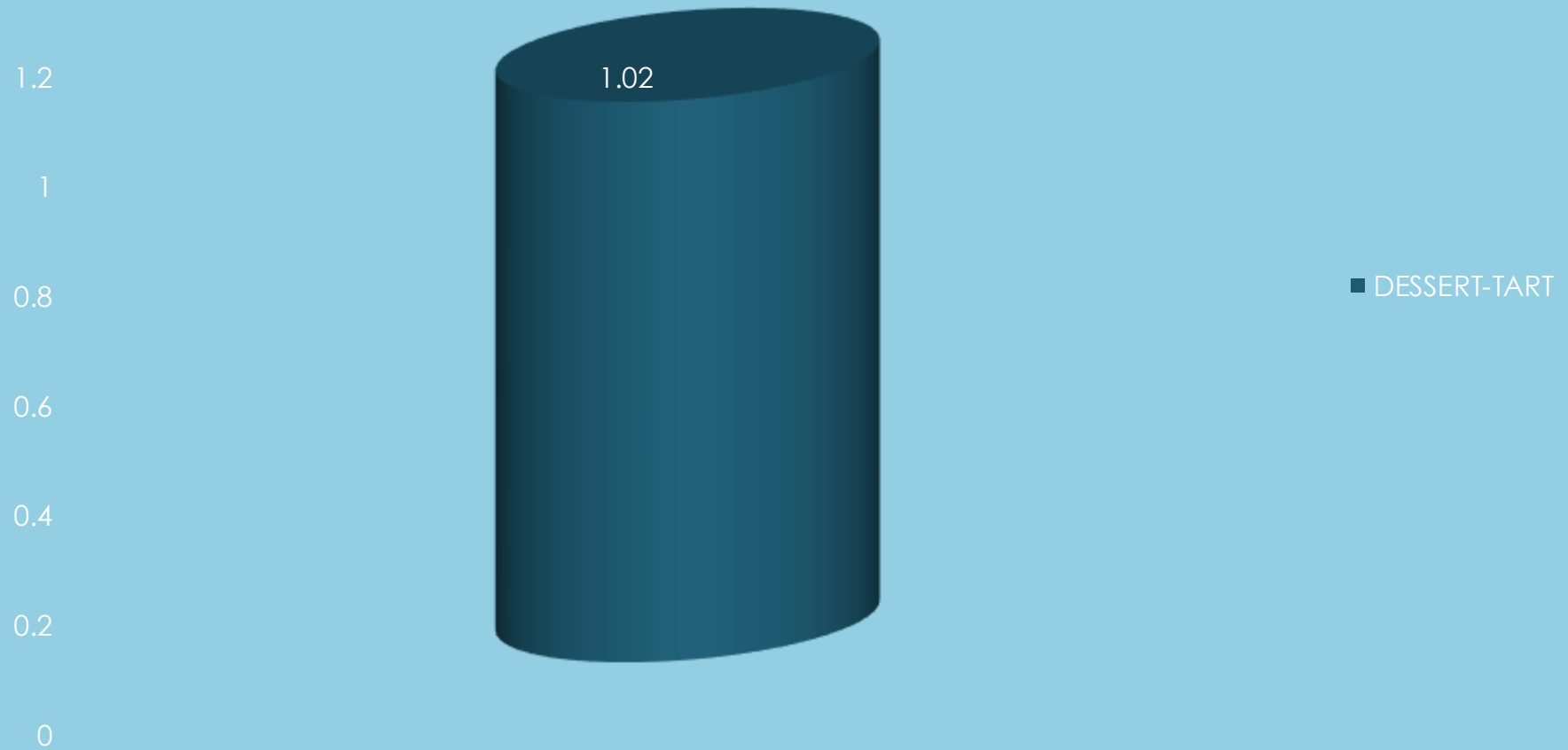
Interpreting Results: Beverage-Coffee



Interpreting Results: Deli-Sandwich



Interpreting Results: Dessert-Choux



CUSTOMERS WHO
BOUGHT THIS ITEM:



ALSO BOUGHT:



Thank You

