

POLITECNICO  
MILANO 1863

# Analytics for Business LAB

Project Work - Managerial Process and Implications

Group 3

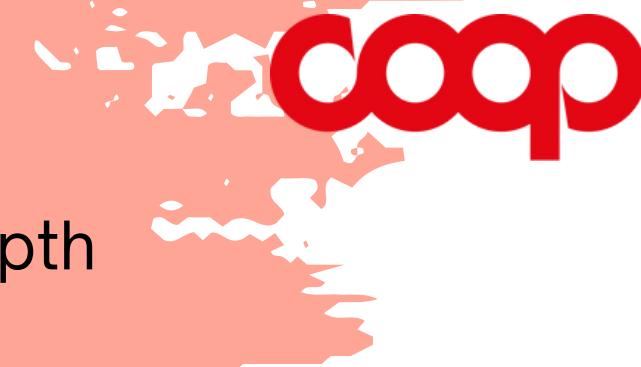
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**Assumption:** Dataset comes from e-commerce.

**Objectives:** Increase sales of products through e-commerce with the means of in-depth market basket analysis.



## Analysis of groups of products

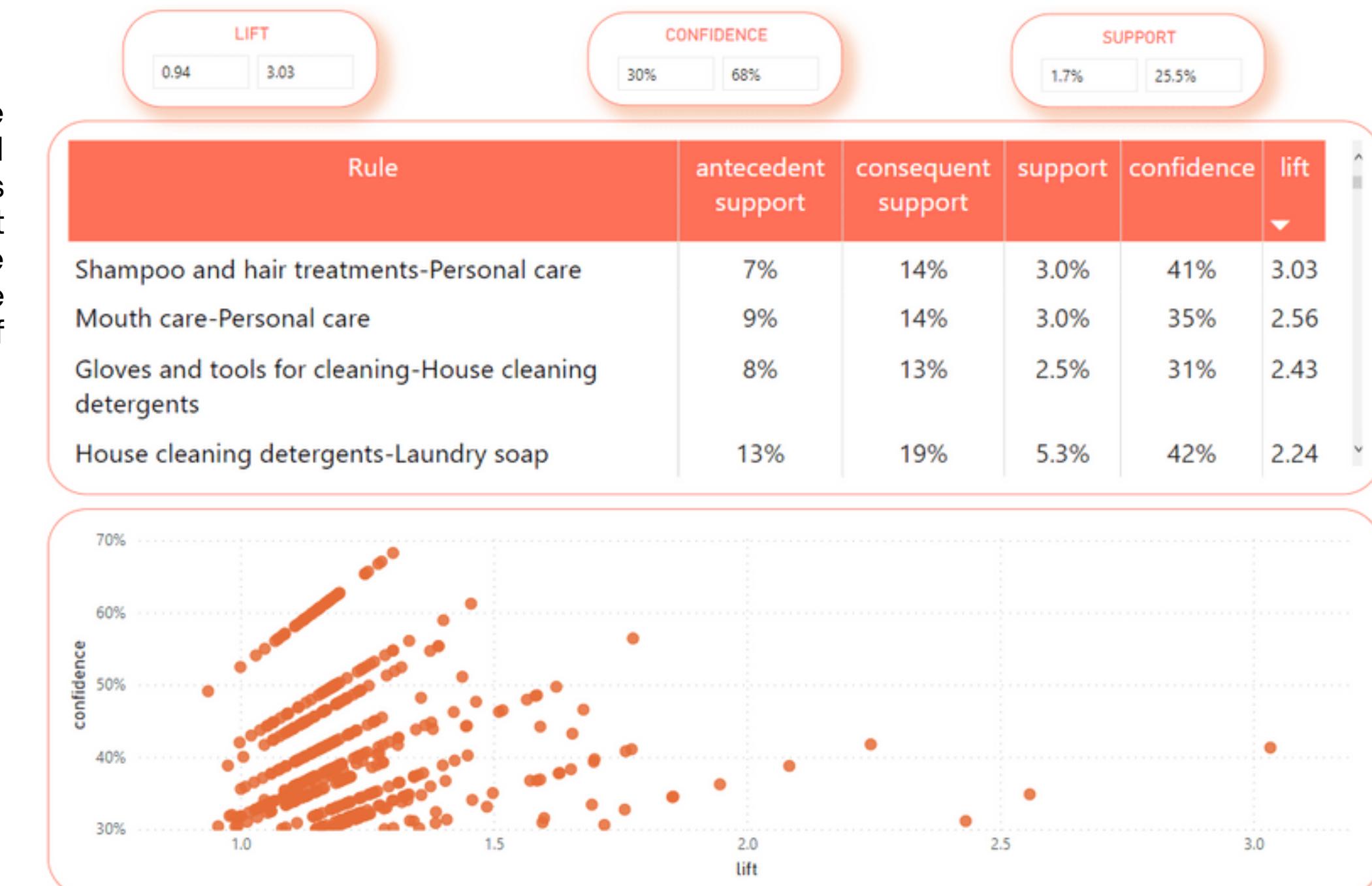
### High lift and high support ↑↑

The two most predominant rules are part of the group “personal care products”. Then it can be seen products for house cleaning and laundry. This rules says that the probability that someone who is buying a shampoo also buys a toothpaste is 41%. We want to exploit this rule. Here it is important to study the veracity of the rule since products with high support can have a high lift just because they are frequently bought together without a correlation, just because of their frequency.



#### Suggestion

Introducing promotions for consequent products from these pairs to create even more incentives for people to buy them. Also, we would suggest placing consequent products in the “suggestion for you” section on the website. In this way it will be possible to even more increase sales of these types of products.



**Assumption:** Dataset comes from e-commerce.

**Objectives:** Increase sales of products through e-commerce with the means of in-depth market basket analysis.



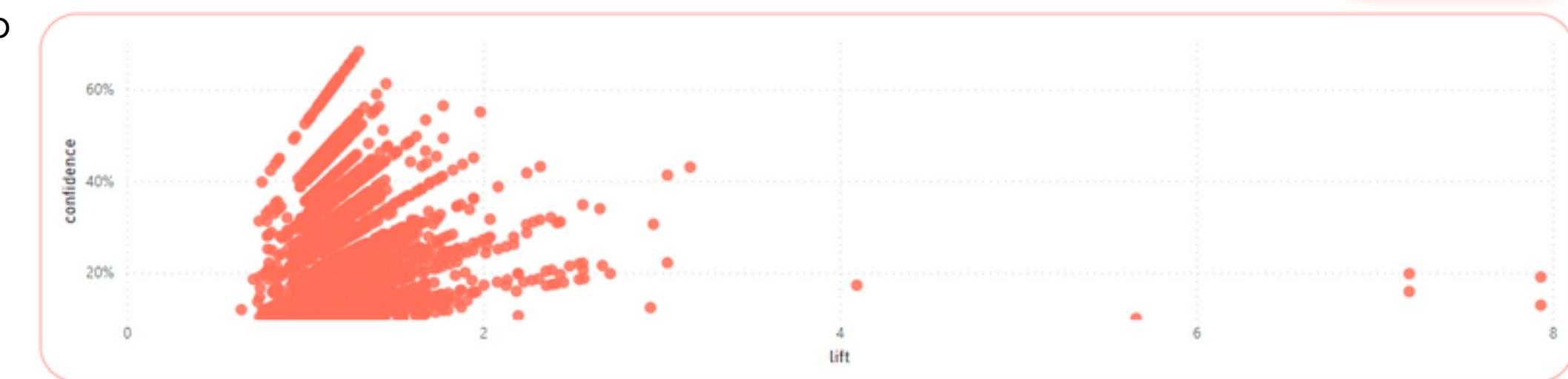
## Analysis of groups of products

High lift and low support of antecedent



Little quantities can also make the difference, that is why we investigated also products that have low support but high lift and confidence with other products. Analyzing these pairs of products that are visible in the table we could suggest some improvements to increase sales of these products.

Rule	antecedent support	consequent support	support	confidence	lift
Aperitivo drinks-Sparkling wine	2%	2%	0.3%	19%	7.93
Sparkling wine-Aperitivo drinks	2%	2%	0.3%	13%	7.93
Baby products-Baby food	2%	3%	0.4%	20%	7.20
Baby food-Baby products	3%	2%	0.4%	16%	7.20
Creans-Insecticides	1%	2%	0.1%	10%	5.66



### General rule

Placing antecedent products in the "suggestions for you section" on the website. Why antecedent? In most cases consequent product is the one that is more frequently purchased so in this way it will be possible to increase sales of products with lower support.



### Suggestion

**Apertivo drinks:** include recipes on the website for cocktails like aperol spritz, hugo spritz, negroni spritz; posters with ideas for drinks appearing once chosen a product for aperitivo; placing sparkling wine in the "suggestions for you" section on the website when choosing aperitivo drinks.

**Creams:** probably under cream there are gels for mosquitos' bites, so suggestion is to place gels for mosquitos' bites in the "suggestions for you" section on the website when choosing insecticides and also increase advertising for them in the summer and spring period

**Perfume:** placing perfumes in the "suggestions for you" section on the website while looking at other personal care and promotions for perfumes when buying products from personal care

**Sun Creams**

Sun creams have a quite high lift with shampoo and hair treatment or personal care (so again personal care products are bought together).

An interesting combination can be sun creams and beer, water, savory snacks. This can suggest that during summer season some people purchase sun cream and some drinks and savory snacks to enjoy the weather outside.

**Garden products**

During the analysis of garden products there can be seen some very interesting remarks. First of all, a big group of products that have a high confidence with garden products are things that can be used during barbecues. Another remark is that people who own pets, probably own also a garden.

**Suggestion**

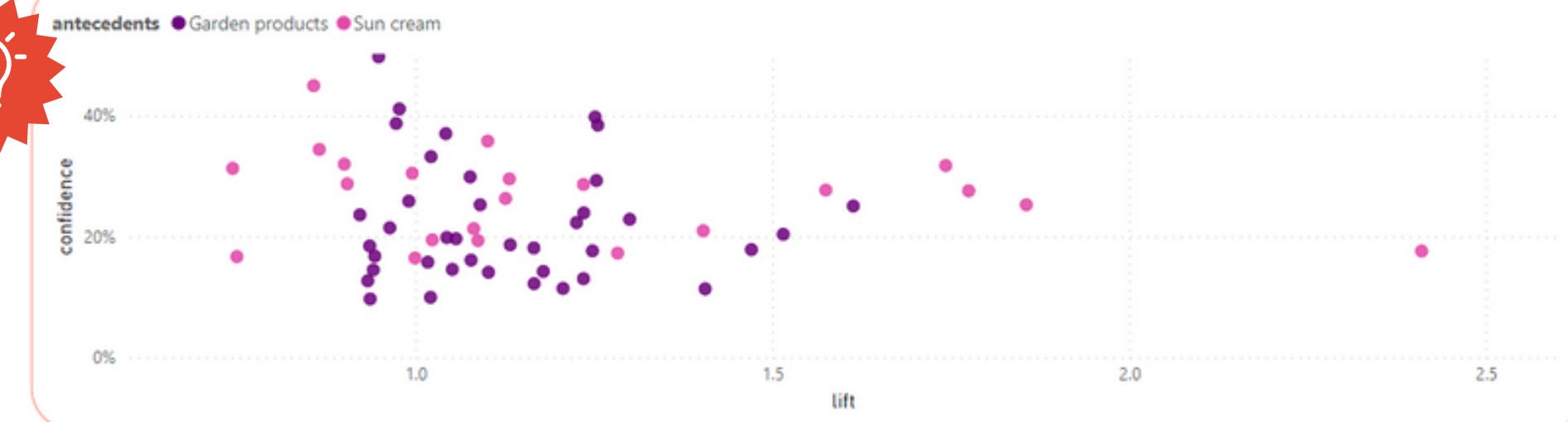
Creating a barbecue section on the website with promotions during spring and summer seasons – “when buying a consequent there is a discount on antecedent”, as garden products are the ones less frequently bought and in this way it will be possible to increase the sales of them. Placing garden products in the “suggestions for you” section on the website when checking pet products.

**Suggestion**

Introduce promotions relating to both products to gain market share during summer. Also, to advertise sun creams in this period to raise awareness of usage of them as maybe some people could come to buy a sun cream and decide to opt for picnic beverages and snacks (popping poster for sun creams while looking at beers/savory snacks); placing sun creams in the “suggestion for you” section.

Rule	support	confidence	lift
Sun cream-Shampoo and hair treatments	0.1%	18%	2.41
Sun cream-Personal care	0.1%	25%	1.86
Sun cream-Beer	0.1%	28%	1.78
Sun cream-Water	0.1%	32%	1.74
Sun cream-Savory Snacks	0.1%	28%	1.57

Rule	support	confidence	lift
Garden products-Beer	0.1%	25%	1.61
Garden products-Wine	0.1%	20%	1.52
Garden products-Pets	0.1%	18%	1.47
Garden products-Gloves and tools for cleaning	0.1%	11%	1.41
Garden products-Savory Snacks	0.1%	23%	1.30



# SUN SAFETY

- ✓ **APPLY SUNSCREEN**  
SPF 30 or higher, 20 minutes before sun exposure.  
Reapply every 2 hours.
- ✓ **ENJOY THE SUN WITH COOP WITH A WIDE RANGE OF SUN CREAMS**

LET'S START  
**BARBECUE SEASON**

**30% DISCOUNT**

BUY FIVE BEERS AND GET GRIGLIATAPRONTA WITH 30% DISCOUNT!!! GET READY FOR YOUR BARBECUE

## Vegetarian/vegan products



Being a vegetarian/vegan is currently a popular trend among the society. That is why we decided to also focus on these products. In the first place we can see 'gastronomy' category, it is probably because there is a special section for these kind of products, others are all more or less standard products for vegetarians or vegans.



## Baby Products

In the first place we can see an obvious pair of products so baby products and baby food, nevertheless on the second place there is a connotation of baby products with fresh sweets. Probably parents with newborn or babies have sweet anxiety and this could be a great opportunity for a cross-selling.



## Suggestion

Baby food: idea of up-selling – "suggestions for you" section on the website in baby products; trying to incentive clients with some promotions for these products

Fresh sweets - not an obvious choice so there is a possibility of cross-selling – placing fresh sweets in the "suggestions for you" section in baby products and posters with promotions for fresh sweets in the baby products

**coop**

**Special promotions for caring parents**

**Buy four packages of diapers and get 20% discount**

**On every second package get 40% off**

**Crescendo**

**On every second package get 40% off**

## Suggestion



Introduce section with recipes for vegetarian and vegan meals and also placing posters with ideas for the usage of chosen product when looking at a vegetarian/vegan product to incentives people to buy more. Also, a good idea will be promotions with presented set of products bought together. Also placing vegetarian/vegan food in the "suggestion for you" section when looking at the consequent products.

Tutorial CoopShop Punti vendita I nostri servizi FAQ Blog Ricette

coopshop la spesa che non pesa

Cerca un prodotto

OFFERTE BIO VEGAN SENZA GLUTINE SENZA LATTOSIO BARBECUE VOLANTINO

LISTE PROFILO Carrello 0,00 €

Home > Tutti i prodotti > Gastronomia, salumi e formaggi > Gastronomia confezionate > Gastronomia vegetariana

Affettato vegetale gusto mortadella  
IO VEG 80 GR 75871900

- 1pz +

Aggiungi a una lista

CONDIVIDI

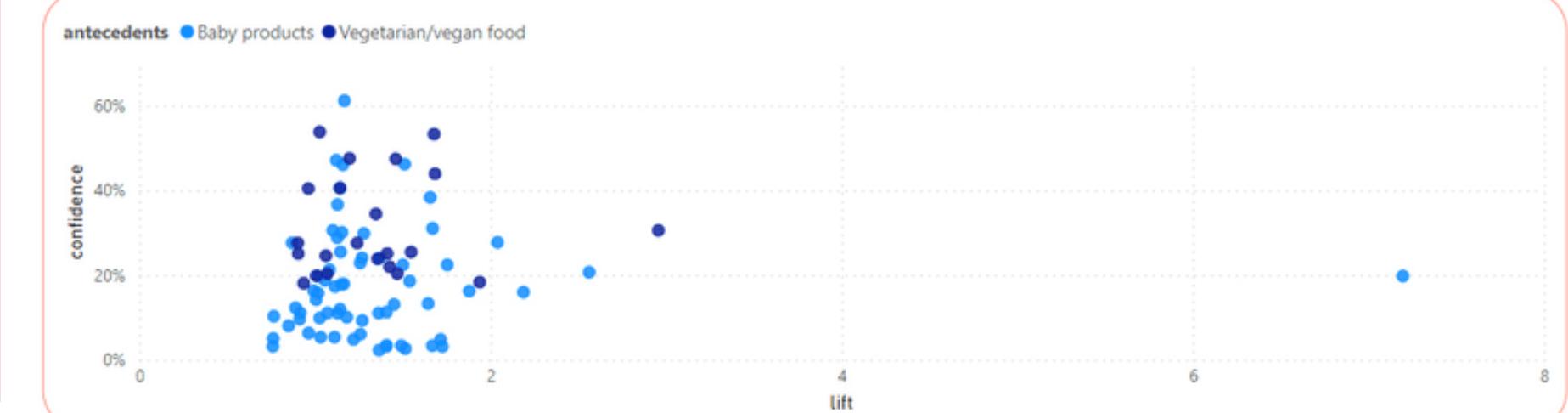
IT'S EASY TO BE VEGAN WITH COOP

Check out our recipes  
Piatto mortadella, piattoni e strascinati with our 100% vegan products

Pasta di vegane regge  
easy to make with our ready vegan regge source

AND MUCH MORE!!!!

Rule	support	confidence	lift
Vegetarian/vegan food-Gastronomy	0.1%	31%	2.96
Vegetarian/vegan food-Dried food	0.1%	18%	1.94
Vegetarian/vegan food-Yogurt	0.1%	44%	1.68
Vegetarian/vegan food-Vegetables	0.2%	53%	1.68
Baby products-Baby food	0.4%	20%	7.20
Baby products-Fresh sweets	0.5%	21%	2.56
Baby products-Shampoo and hair treatments	0.4%	16%	2.19
Baby products-Personal care	0.6%	28%	2.04
Baby products-Mouth care	0.4%	16%	1.88





## Italian recipes

As a next step there was conducted a more thorough analysis of the specific products in order to dig deeper into the combination of products that people buy together. There have been found pairs of products with high confidence and lift that are associated with famous Italian recipes.



### 1. Mascarpone + Cookies = Tiramisu



Support = 0.011684; Confidence = 0.561623 Lift = 2.044186

### 2. White rice + Broth preparation = Risotto



Support = 0.006609; Confidence = 0.118288 Lift = 2.089032

### 3. Peeled tomato + Pasta = Spaghetti al pomodoro



Support = 0.014969; Confidence = 0.520866 Lift = 1.741375

### 4. Canned tuna (oil) + Pasta = Pasta al tonno



Support = 0.056039; Confidence = 0.430563 Lift = 1.439471

## Suggestion

First idea is to create popping posters with recipes when someone chooses an antecedent or consequent product, all based on MBA's analysis results.

Second idea is to create a filter in recipe section where a customer can choose one or two products and there will appear meal ideas. In this way it will be possible to increase sales of multiple products by incentivising customers to buy ready set of products for a desired recipe.

The screenshot shows the CoopShop website interface. At the top, there are navigation links: Tutorial CoopShop, Punti vendita, I nostri servizi, FAQ, Blog, Ricette. On the right side, there are icons for heart (LISTE), user (PROFILO), and shopping cart (Carrello 0,00 €). The main content area displays a product page for 'Bene+si' Mascarpone cheese. The product details include: Alta digeribilità, COOP - BENE SI!, 250 GR, senza lattosio, 0,01% di lattosio, LATTOSIO 100% ORGANICO. Below the product image, there is a quantity selector (1pz) and a 'Carrello' button. To the right, there is a section titled 'Use this product for' which recommends the 'Tiramisu Cake' recipe. The recipe card includes the title 'Tiramisu Cake', a small image of the cake, and a list of ingredients: 300g of ladyfingers, 500g of mascarpone, 4 medium eggs, 100g of sugar, 300ml of coffee, 2 tablespoons of rum, and cocoa powder. It also says 'All the ingredients that you need at one shop. Don't waste time and enjoy your favourite dessert!'. At the bottom, there is a note: 'Gusto non ha limiti e non ha età. Non solo per i bambini. RicetteTiramisu'.



After conducting Market Basket Analysis, there have been proposed some ideas with a main purpose of increasing sales. The assumption was made that all data come from e-commerce, that is why all the solutions were made to improve the efficiency of sales through the website. Parameters that have been measured were: support, confidence and lift. By analysing pairs of products it was possible to get a picture of typical patterns that customers express while purchasing at COOP.

**1 Popping posters with promotions when choosing antecedent product (attachment 1)**

In this way it will be possible to increase sales of the bundle of products and incentives people to stay with COOP.

**2 Promotions for consequent or antecedent (in case of seasonality) products (attachment 2)**

Seasonal products do not have a high support, with the means of promotions it will be possible to increase their sales and also products that are bought with them.

**3 Adding barbecue section during summer and spring season (attachment 3)**

Introducing new section of barbecue can be a good marketing strategy to encourage people to buy more products for this purpose, it is giving them ready ideas to spend free time.

**4 Suggestion posters when choosing a product (attachment 4, 5, 6, 7)**

Appearing posters with suggestion for usage of chosen product or completely different one (but which shown a high confidence and lift) can strongly influence customer's mind.

**5 Adding vegan, vegetarian and drink recipes (attachment 3)**

In this way more customers could find an appropriate recipe for them and increase overall sales.

**6 Placing consequent products in the “suggestion for you” section**

Such section already exists, nevertheless it should be strongly encouraged to put products that have a high confidence and lift as they are more likely to be also chosen by customers.

**7 Introducing online 'magazine' with all available promotions (attachment 3, 8)**

A good way to incentives people to purchase at specific store are promotions, it would be a good idea to put all of them in the online magazine.

## Attachment 1

**coop**

# SPECIAL PROMOTION

Buy any shampoo with conditioner and enjoy the 50% discount on a shower gel

## Attachment 2

**coop**

# LET'S START BARBECUE SEASON

30% DISCOUNT

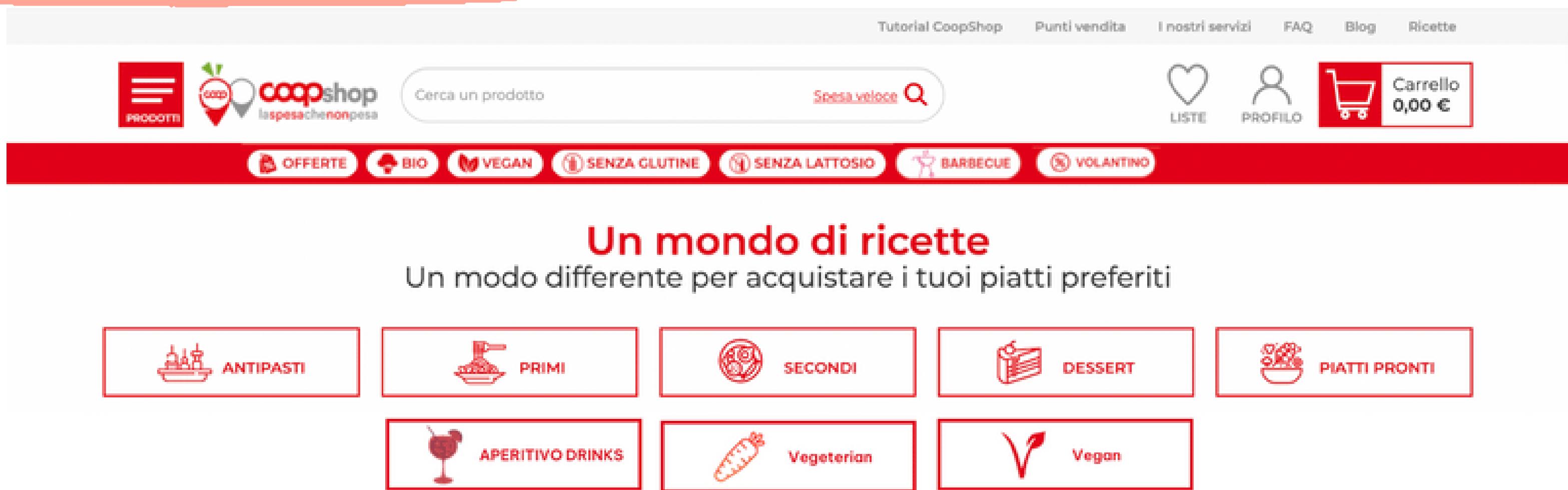
BUY FIVE BEERS AND GET GRIGLIATAPRONTA WITH 30% DISCOUNT!!! GET READY FOR YOUR BARBECUE

**coop**

# Attachment 3

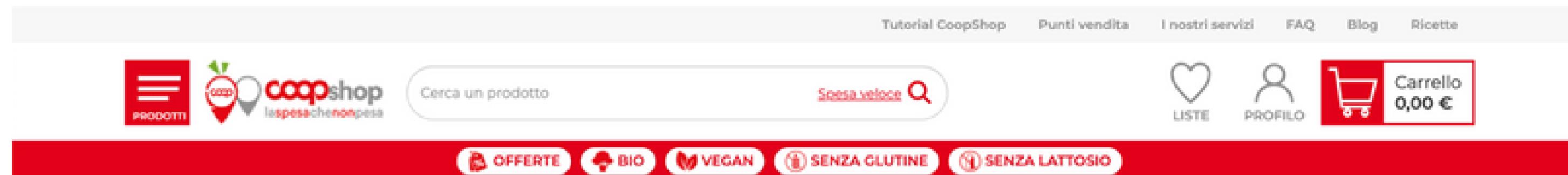
coop

After



The screenshot shows the updated Coopshop website interface. At the top, there is a navigation bar with links to 'Tutorial CoopShop', 'Punti vendita', 'I nostri servizi', 'FAQ', 'Blog', and 'Ricette'. Below the navigation is a header section featuring the 'coopshop' logo, a search bar with placeholder 'Cerca un prodotto' and a 'Sposta veloce' button, and user account icons for 'LISTE', 'PROFILO', and a shopping cart showing 'Carrello 0,00 €'. A red navigation bar below the header contains buttons for 'OFFERTE', 'BIO', 'VEGAN', 'SENZA GLUTINE', 'SENZA LATTOSIO', 'BARBECUE', and 'VOLANTINO'. The main content area features a large red banner with the text 'Un mondo di ricette' and 'Un modo differente per acquistare i tuoi piatti preferiti'. Below the banner are several red-bordered boxes representing different food categories: 'ANTIPASTI' (with a boat icon), 'PRIMI' (with a bowl icon), 'SECONDI' (with a plate icon), 'DESSERT' (with a cake icon), 'PIATTI PRONTI' (with a bowl icon), 'APERITIVO DRINKS' (with a cocktail glass icon), 'Vegetarian' (with a carrot icon), and 'Vegan' (with a leaf icon).

Before



The screenshot shows the original Coopshop website interface. It has a similar layout to the 'After' version, with a navigation bar at the top and a header section with the 'coopshop' logo, a search bar, and user account icons. However, the red navigation bar below the header only contains buttons for 'OFFERTE', 'BIO', 'VEGAN', 'SENZA GLUTINE', and 'SENZA LATTOSIO'. The main content area features a large red banner with the text 'Un mondo di ricette' and 'Un modo differente per acquistare i tuoi piatti preferiti'. Below the banner are several red-bordered boxes representing different food categories: 'ANTIPASTI' (with a boat icon), 'PRIMI' (with a bowl icon), 'SECONDI' (with a plate icon), 'DESSERT' (with a cake icon), 'PIATTI PRONTI' (with a bowl icon), 'APERITIVO DRINKS' (with a cocktail glass icon), 'Vegetarian' (with a carrot icon), and 'Vegan' (with a leaf icon). A breadcrumb navigation 'Home > Ricette' is visible at the bottom left.

Un mondo di ricette  
Un modo differente per acquistare i tuoi piatti preferiti



# Attachment 4

coop

Tutorial CoopShop Punti vendita I nostri servizi FAQ Blog Ricette

**coopshop** la spesa che non pesa

Cerca un prodotto  Scegli veloce

**LISTE** **PROFILO** **Carrello 0,00 €**

**OFFERTE** **BIO** **VEGAN** **SENZA GLUTINE** **SENZA LATTOSIO** **BARBECUE** **VOLANTINO**

Home > Tutti i prodotti > Gastronomia, salumi e formaggi > Formaggi confezionati > Ricotta e mascarpone

**Mascarpone alta digeribilità**  
COOP - BENE SI'  
250 GR  
T47804000

  
1pz  Aggiungi a una lista

**CONDIVIDI**  
0 condiviso

**Use this product for**

**Tiramisu Cake**

All the ingredients that you need at one shop.  
Don't waste time and enjoy your favourite desert!

  
Ingredients:  
• 300g of ladyfingers  
• 500g of mascarpone  
• 4 medium eggs  
• 100g of sugar  
• 300ml of coffee  
• 2 tablespoons of rum  
• cocoa powder

Click here to add all the necessary ingredients **Ricette/Tiramisu**

**Tiramisu Cake**

coop

All the ingredients that you need at one shop.  
Don't waste time and enjoy your favourite desert!

  
**Ingredients:**

- 300g of ladyfingers
- 500g of mascarpone
- 4 medium eggs
- 100g of sugar
- 300ml of coffee
- 2 tablespoons of rum
- cocoa powder

Click here to add all the necessary ingredients **Ricette/Tiramisu**

# Attachment 5

coop

Tutorial CoopShop Punti vendita I nostri servizi FAQ Blog Ricette

PRODOTTI coopshop lapesachenonpessa

Cerca un prodotto Spesa veloce

LISTE PROFILO Carrello 0,00 €

OFFERTE BIO VEGAN SENZA GLUTINE SENZA LATTOSIO BARBECUE VOLANTINO

Home > Tutti i prodotti > Acqua e bevande > Aperitivi > Aperitivi alcolici

## Aperitivo alcolico

### APEROL

700 ML  
347999000

- 1pz +

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CONDIVIDI

Condividi Tweet



## APERITIVO DRINKS IDEAS

### Aperitivo with coop

#### APEROL SPRITZ

- 2 parts of Aperol
- 3 parts of Prosecco
- 1 part of soda
- Slice of orange
- Ice cubes



#### NEGRONI SPRITZ

- 1 part of Campari
- 1 part of Gin
- 1 part of sweet vermouth
- Orange skin
- Ice cubes



#### HUGO SPRITZ

- 3 parts of Prosecco
- 2 parts of soda
- 1 part of elderflower syrup
- Lime
- Mint
- Ice cubes



## Aperitivo with coop

### APEROL SPRITZ

- 2 parts of Aperol
- 3 parts of Prosecco
- 1 part of soda
- Slice of orange
- Ice cubes



### NEGRONI SPRITZ

- 1 part of Campari
- 1 part of Gin
- 1 part of sweet vermouth
- Orange skin
- Ice cubes



### HUGO SPRITZ

- 3 parts of Prosecco
- 2 parts of soda
- 1 part of elderflower syrup
- Lime
- Mint
- Ice cubes



# Attachment 6

coop

Tutorial CoopShop Punti vendita I nostri servizi FAQ Blog Ricette

Cerca un prodotto **so cerca veloce**

**Carrello 0,00 €**

OFFERTE BIO VEGAN SENZA GLUTINE SENZA LATTOSIO BARBECUE VOLANTINO

Home > Tutti i prodotti > Gastronomia, salumi e formaggi > Gastronomia confezionata > Gastronomia vegetariana

**Affettato vegetale gusto mortadella**  
IO VEG  
80 GR  
79577500

1pz

Aggiungi a una lista

CONDIVIDI

**VEGAN RECIPES**

**IT'S EASY TO BE VEGAN WITH COOP**  
Check out our recipes  
 Pizza mortadella, pistacchio e stracchino  
with our 100% vegan products

Pasta al vegan raggu  
easy to make with our ready vegan raggu sauce  
**AND MUCH MORE!!!!**

**IT'S EASY TO BE VEGAN WITH COOP**

**Check out our recipes**

**Pizza mortadella, pistacchio e stracchino**  
with our 100% vegan products

**Pasta al vegan raggu**  
easy to make with our ready vegan raggu sauce  
**AND MUCH MORE!!!!**

# Attachment 7

coop

Tutorial CoopShop Punti vendita I nostri servizi FAQ Blog Ricette

PRODOTTI  Cerca un prodotto Spesa veloce 

 LISTE  PROFILO  Carrello 0,00 €

Home > Tutti i prodotti > Prima infanzia > Alimenti prima infanzia > Piatti pronti e lievitati

**PAPPA PR.TRIS VER.BIO HIPPI90G**

440927700 

- 1pz + 

 Aggiungi a una lista

CONDIVIDI  Condividii  Tweet


## SPECIAL DEALS FOR THIS MONTH AT coop

 Cannolo siciliano 30% off

 Cannoncini di sfoglia con crema 30% off

 Cassata siciliana classica 30% off

CHECK ALSO OUR OTHER FRESH SWEETS

 CHECK ALSO OUR OTHER FRESH SWEETS



**SPECIAL DEALS**  
FOR THIS MONTH AT

 Cannolo siciliano 30% off

 Cannoncini di sfoglia con crema 30% off

 Cassata siciliana classica 30% off

**CHECK ALSO OUR OTHER FRESH SWEETS**

**SPECIAL PROMOTION**

 +  **50% OFF**

Buy any shampoo with conditioner and enjoy the 50% discount on a shower gel

**LET'S START BARBECUE SEASON**



**30% DISCOUNT**

BUY FIVE BEERS AND GET GRIGLIATAPRONTA WITH 30% DISCOUNT!!! GET READY FOR YOUR BARBECUE

**Special promotions for caring parents**

 Buy four packages of diapers and get 20% discount

 On every second package get 40% off



 On every second package get 40% off