

Docent Jeroen de Kort, Semester 4, 2020/2021



Mario Pizzeria Casus Analysis

by Lex van Dalen and Slawomir Twardowski

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Introduction

This document concerns the analysis of the Super Mario Pizzeria business case.

At first, we're going to analyze the general requirements of the whole ordering system, then will go over the Domino's website with its functionality concerning the use of (dynamic) data fetched from databases, on which the Mario Pizza system will be based on. We will use screenshots and diagrams to help visualize the layout and actions taking place on the site.

In the next step we will analyze the data files available as part of the current Super Mario Pizzeria operation. Those files consist of information from different stores, in several different database formats and the data contained will have to be cleaned up and transferred to a new all-encompassing database of our own design. The data base, as per client's requirements, should be ready to migration to a cloud-based environment in the future.

General requirements

- Automated ordering system ala Domino's Pizza
- Incorporated existing data handling
- Growth oriented/ready solution
- Possible cloud migration in the future
- Compatible with existing business

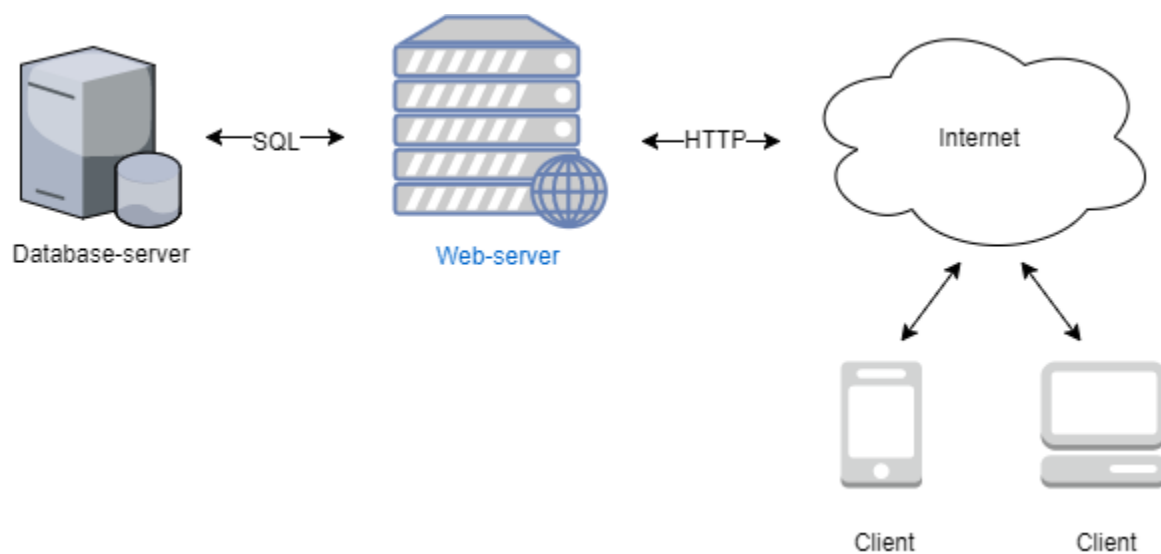


Fig. 1 Mario Pizza web store solution diagram

Domino's website analysis

Website in question can be found under this link: <https://www.dominos.nl/>

This is an overview of the main functionality used by the Domino's Pizza ordering page. This will make the foundation for further decisions undertaken in the data base design.

Possibility to choose right away whether an order should be delivered or taken away; typing in postcode automatically suggest a list of nearby pizza shops:

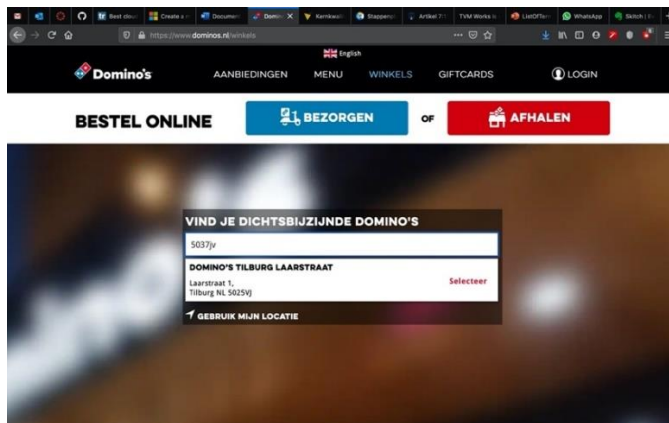


Fig. 2 Domino's website main

Login possibility to trace orders and recall addresses. Orders are being stored and linked to the account for further use, like ordering the same meals etc.:

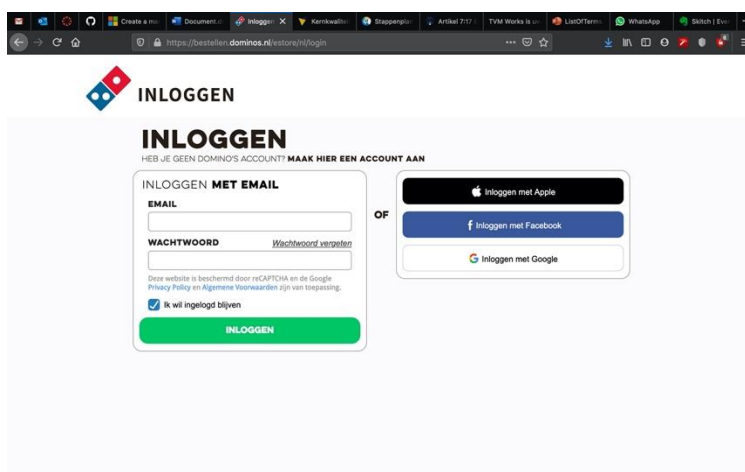


Fig. 3 Domino's website login page

Menu display + option to Add product to the order; order details like total price, quantity, products to buy etc. are dynamically updated in a sidebar; possibility to add extra ingredients directly from the main page:

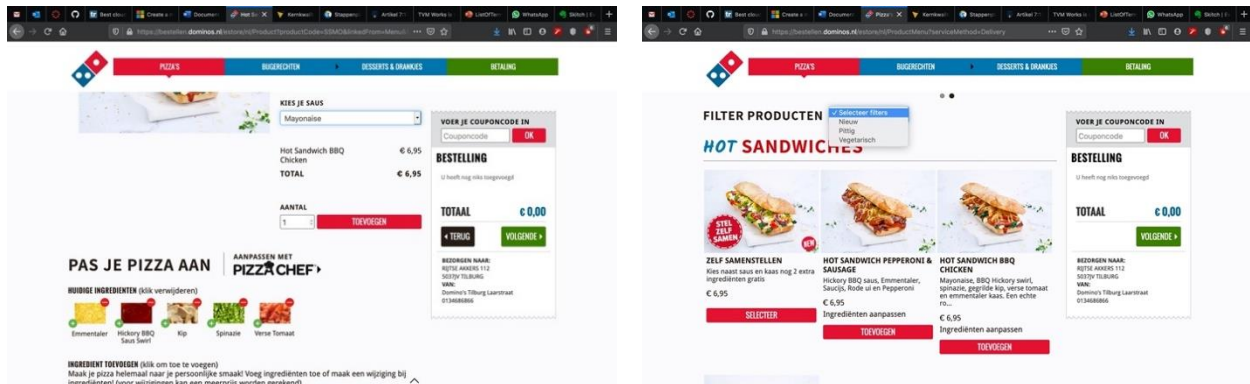


Fig. 4 Domino's website ordering process 1

Products can be filtered by selecting a specific filtering option; a coupon code can be entered for promotion benefits:

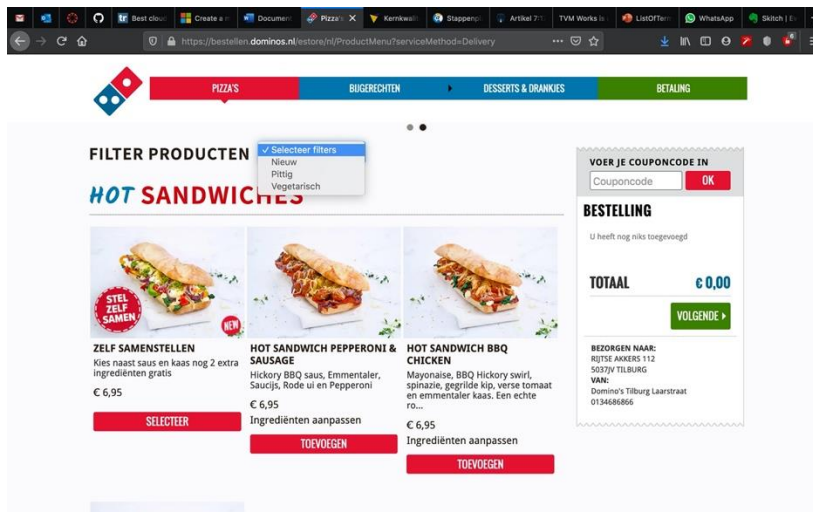


Fig. 5 Domino's website product filtering options

The site keeps recently used addresses in cache for convenience even without the use of an account:

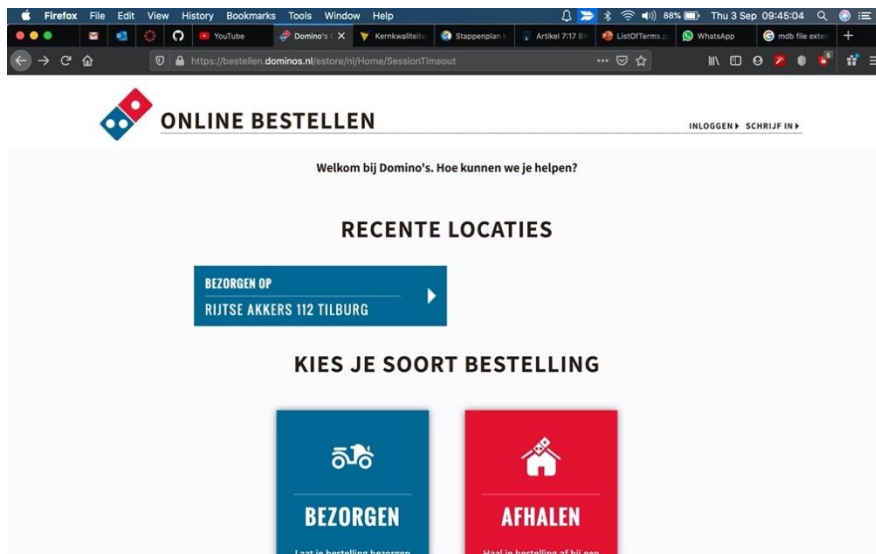


Fig. 6 Domino's website recent location caching

Selecting specific pizzas is realized by using drop down lists and the fee is being calculated dynamically as the user selects given ingredients:

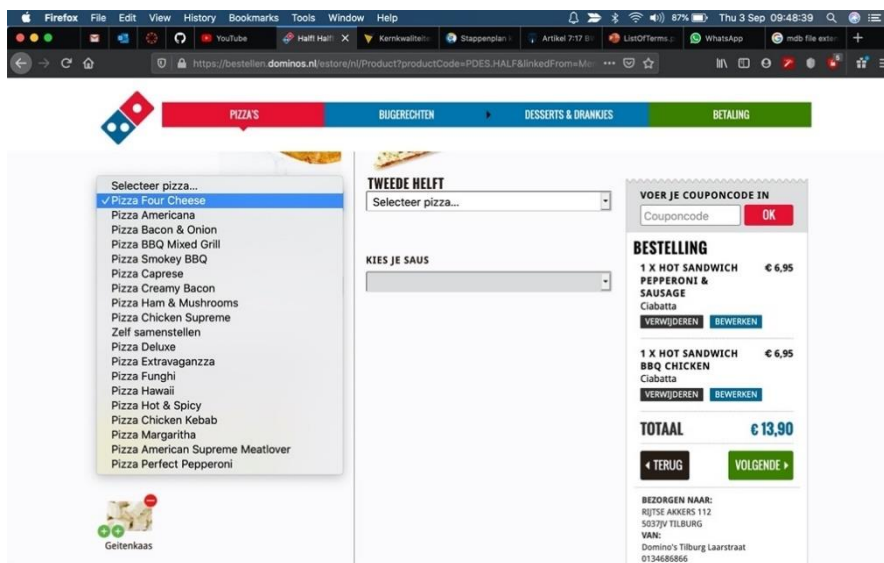


Fig. 7 Domino's website pizza selection dropdown

If given pizza shop is closed at the moment it is still possible to place an order on a specified date and time:

KIES JE TIJDSTIP

BEZORGEN NAAR
RIJSE AKKERS 112 5037JV TILBURG

WANNEER WIL JE DE BESTELLING HEBBEN?
Deze winkel is op dit moment gesloten. Je kunt wel alvast een bestelling plaatsen.

WELKE DAG?
donderdag 03 september 2020

HOE LAAT?
12:30

VORIGE VOLGENDE

Fig. 8 Domino's website ordering on a specific date/time

Checkout requires consent to store the user data and lets the user use the option to leave a notice to the delivery person:

BEZORG INSTRUCTIES EN CONTACTLOZE BEZORGING

ALTIJD KORTING? Ja, ik meld mij aan voor de e-mail nieuwsbrief en krijg 3 keer per week* op de hoogte van acties en kortingscoupons van Domino's. Ik wil mijn naam voor SMS berichten en blijf op de hoogte van acties van Domino's.

DOOR VERDER TE KLIKKEN, GA JE AKKORD MET DE ALGEMENE VOORWAARDEN EN PRIVACY POLICY VAN DOMINO'S.

ONTHOUD MIJN GEGEVENS

BEZORGDDETAILS

Adres: RIJSE AKKERS 112...
Bezorgen op: 12:30, Do 03 Sep
Bestel totaal: € 13,90

NAAM: HIER JE AL EEN ACCOUNT? [MELDEN](#)

MOBILE NUMMER:

EMAIL:

MAAK EEN ACCOUNT AAN EN START MET SPAREN VOOR EEN GRATIS PIZZA

Spaar punten voor een gratis pizza met Domino's Punten. Sparen en geniet van alle andere voordelen met een Domino's account.

ACCOUNT AANMAKEN

BESTELLING

1 X HOT SANDWICH PEPPERONI & SAUSAGE Cubatta € 6,95

1 X HOT SANDWICH BBQ CHICKEN Cubatta € 6,95

TOTAAL € 13,90

BEZORGEN NAAM: RIJSE AKKERS 112 5037JV TILBURG, NL

Fig. 9 Domino's website payment page

At checkout payment method can be selected; it is possible to tip the delivery person at this point (at predefined or chosen by user amount) and the specified tip is added to the total cost dynamically:

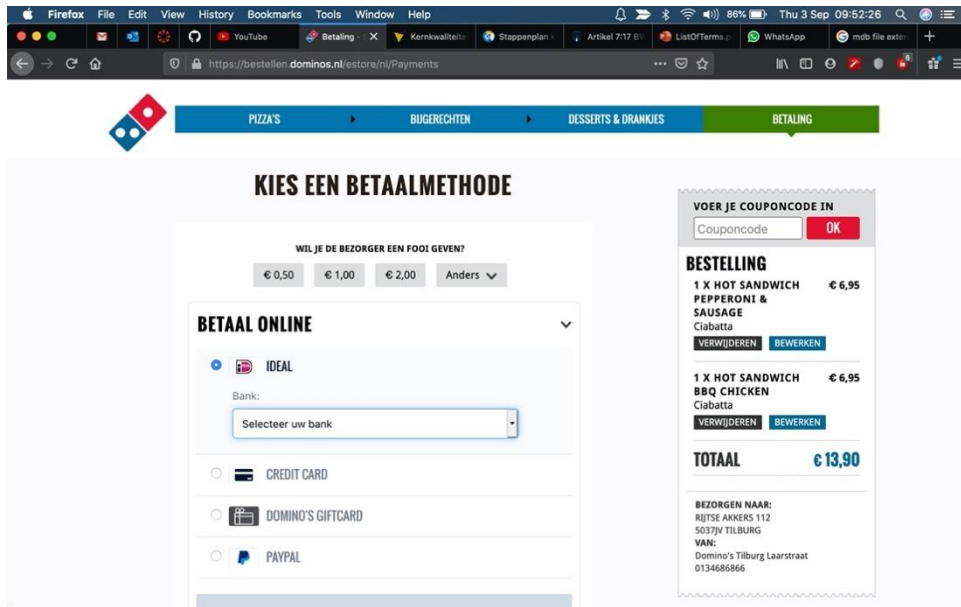


Fig. 10 Domino's website payment page 2

Mario Pizzerias data types

There are a few different data file types used in the Mario Pizzerias current system. The files use different formats, are organized in different ways and contain errors due to manual input. This presents a challenge in aligning the databases with one another and cleaning up the provided data. Moreover, in the transition period data will still be supplied in current un-ordered manner, so the import process will have to be repeatable and automatized.

On the following pages is a list of provided files with a short description of the contents and possible obstacles.

Extra ingredienten.csv

Contains a list of ingredients (like: ananas, bacon, salami etc.) in one row and price in second row. While the cost of ingredients seems to be correct the price fields contain numbers as well as alphabetical symbols. File consists of 29 rows.

22	Rode Ui	,€ 1.00
23	Salami	,€ 1.00d
24	Shoarma	,€ 1.50

Fig. 11 Extra ingredienten.csv - Price field containing numerical value and a alphabetical symbol (letter "d")

MarioOrderData01_10000.csv - MarioOrderData04_10000.csv

Those 4 files contain a list of all orders placed by clients. A complete orders history is stored here (approx.). Columns used:

Winkelnaam, Klantnaam, TelefoonNr, Email, Adres, Woonplaats, Besteldatum, AfleverType, AfleverDatum, AfleverMoment, Product, PizzaBodem, PizzaSaus, Prijs, Bezorgkosten, Aantal, Extra Ingrediënten, Prijs Extra Ingrediënten, Regelprijs, Totaalprijs, Gebruikte Coupon, Coupon Korting, Te Betalen.

Each order consists of as many rows as there are products/ingredients in the order and each order is separated by an empty row. Additionally extra ingredients are listed in just one field.

1	Mario bestellingen												
2													
3	Let op! De vermelde prijzen zijn de prijzen ten tijde van de bestelling												
4													
5	Winkelnaam	Klantnaam	TelefoonNr	Email	Adres	Woonplaats	Besteldatum	AfleverType	AfleverDatum	AfleverMoment	Product	PizzaBodem	PizzaSaus
6	Middelburg	Johnny ten Brin	06-25480284	JohnnytenBrin	Hooge Mees	Middelburg	woensdag 5	Bezorgen	woensdag 5	20:05	Creamy Bacc	Family XXL P	Crema Fraich
7											Shoarma	Italian Pizza	Tomatensau
8													
9	Amersfoort	Delal Eisses	06-51836735	DelalEisses@	Haydnstraat	Amersfoort	maandag 30	Afhalen	maandag 30	20:59	Extravaganzi	Medium Pizz	Tomatensau
10											Shoarma	Italian Pizza	Tomatensau
11											Salame Spec	Italian Pizza	Tomatensau
12											Tonno	Italian Pizza	Tomatensau
13													

Fig. 12 MarioOrderData.csv - first 5 rows contain redundant information; an empty row is used as a delimiter separating orders from each other

Pepperoni, Knoflooksaus Swirl, Ham, Rode Ui

Fig. 13 MarioOrderData.csv - Extra Ingredients are all listed in one field, this will have to be parsed during import to be able to treat it as separate products in the newly designed database.

Overige producten.xlsx

Contains a list of products other than pizzas (ie. Desserts, drinks etc.). Column names:

categorie, subcategorie, productnaam, productomschrijving, prijs, spicy, vegetarisch

Not all products have a description (empty *productomschrijving* field). Last 2 columns are binary values. Row 23 seems to be overlapping two different categories of products (corrupted).

21	Drinks & Desserts	Desserts	Sweet Icing Saus			€0,50	Nee	Ja
22	Drinks & Desserts	Desserts	Dessert Box	10 Poffertjes, 6 Cinnabites & 4 Hot Choco Cakes. Heerlijk met Sweet Icing Dipsaus (bij te bestellen voor €0,50)		€5,95	Nee	Ja
				Cinnabites				
23	Drinks & Desserts	Desserts	Cinnabites	Verse deegbolletjes bestrooid met kaneelsuiker. Heerlijk met Sweet Icing Dipsaus (optioneel +€0,50)		€1,95	Nee	Nee
24	Drinks & Desserts	Drinks	0.5 liter Chaudfontaine	0.5 liter Chaudfontaine		€1,50	Nee	Nee
25	Drinks & Desserts	Drinks	0.25 liter Red Bull Regular	0.25 liter Red Bull Regular		€2,25	Nee	Nee

Fig. 14 OverigeProducten.xlsx - overlapping/corrupted row

pizza ingredienten.xlsx

This file contains all the pizza ingredients found on any particular pizza (similar to a recipe). One type of pizza takes as many rows as there are ingredients on it.

Fields:

categorie, subcategorie, productnaam, productomschrijving, prijs, bezorgtoeslag, spicy, vegetarisch, beschikbaar, aantalkeer_ingredient, ingredientnaam, pizzasaus_stand

1	categorie	subcategorie	productnaam	productomschrijving	prijs	bezorgtoeslag	spicy	vegetarisch	beschikbaar	aantalkeer_ingredient	ingredientnaam	pizzasaus_stand
2	Pizza's	Famous Artisan Pizz	Bacon Gorgonzola	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Zon gedroogde tomaten	Tomatensaus
3	Pizza's	Famous Artisan Pizz	Bacon Gorgonzola	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Spinazie	Tomatensaus
4	Pizza's	Famous Artisan Pizz	Bacon Gorgonzola	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Rode Ui	Tomatensaus
5	Pizza's	Famous Artisan Pizz	Bacon Gorgonzola	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Champignons	Tomatensaus
6	Pizza's	Famous Artisan Pizz	Bacon Gorgonzola	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Gorgonzola	Tomatensaus
7	Pizza's	Famous Artisan Pizz	Bacon Gorgonzola	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Kaas	Tomatensaus
8	Pizza's	Famous Artisan Pizz	Bacon Gorgonzola	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Bacon	Tomatensaus
9	Pizza's	Famous Artisan Pizz	Pollo Pomodoro	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Zon gedroogde tomaten	Tomatensaus
10	Pizza's	Famous Artisan Pizz	Pollo Pomodoro	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Spinazie	Tomatensaus
11	Pizza's	Famous Artisan Pizz	Pollo Pomodoro	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Rode Ui	Tomatensaus
12	Pizza's	Famous Artisan Pizz	Pollo Pomodoro	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Kip	Tomatensaus
13	Pizza's	Famous Artisan Pizz	Pollo Pomodoro	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Kaas	Tomatensaus
14	Pizza's	Famous Artisan Pizz	Pollo Pomodoro	Tomatensaus, mozzarella	€8,95	€2,00	Nee	Nee	Ja	1	Basilicum	Tomatensaus
15	Pizza's	Famous Artisan Pizz	Tricolore	Crema Fraiche, mozzarella	€8,95	€2,00	Nee	Ja	Ja	1	Zon gedroogde tomaten	Crema Fraiche
16	Pizza's	Famous Artisan Pizz	Tricolore	Crema Fraiche, mozzarella	€8,95	€2,00	Nee	Ja	Ja	1	Spinazie	Crema Fraiche
17	Pizza's	Famous Artisan Pizz	Tricolore	Crema Fraiche, mozzarella	€8,95	€2,00	Nee	Ja	Ja	1	Rode Ui	Crema Fraiche
18	Pizza's	Famous Artisan Pizz	Tricolore	Crema Fraiche, mozzarella	€8,95	€2,00	Nee	Ja	Ja	1	Champignons	Crema Fraiche
19	Pizza's	Famous Artisan Pizz	Tricolore	Crema Fraiche, mozzarella	€8,95	€2,00	Nee	Ja	Ja	1	Groene Olijven	Crema Fraiche
20	Pizza's	Famous Artisan Pizz	Tricolore	Crema Fraiche, mozzarella	€8,95	€2,00	Nee	Ja	Ja	1	Geitenkaas	Crema Fraiche
21	Pizza's	Famous Artisan Pizz	Tricolore	Crema Fraiche, mozzarella	€8,95	€2,00	Nee	Ja	Ja	1	Kaas	Crema Fraiche
22	Pizza's	Famous Artisan Pizz	Tricolore	Crema Fraiche, mozzarella	€8,95	€2,00	Nee	Ja	Ja	1	Basilicum	Crema Fraiche
23	Pizza's	Top Taste Pizza's	Four Cheese	Tomatensaus, edammer,	€7,95	€2,00	Nee	Ja	Ja	1	Gorgonzola	Tomatensaus

Fig. 15 pizza_ingredienten.xlsx - first row used for table names; any particular pizza type takes as many rows as there are ingredients on the pizza; the separating factor will be pizza name ("productnaam" table)

pizzabodems.xlsx

A list of available pizza bottoms. Contains product name, description, price, availability. Price field will have to be parsed to get rid of the currency symbol. Availability column will be converted into a *Boolean* type. Columns contained:

naam, diameter, omschrijving, toeslag, beschikbaar

1	naam	diameter	omschrijving	toeslag	beschikbaar
2	Medium Cheesy Crust Pizza	25	Ambachtelijk uitgeslagen bodem van vers deeg (25 cm). De rand van deze pizza is gevuld met smakelijke gesmolten kaas met kruiden.	€2,00	Ja
3	Medium Pizza	25	Deze klassieke bodem van Domino's worden ambachtelijk uitgeslagen van ons verse deeg. Met de hand gevormd tot een perfecte bodem.	€0,25	Ja
4	Large Pizza	35	Deze klassieke bodem van Domino's worden ambachtelijk uitgeslagen van ons verse deeg. Met de hand gevormd tot een perfecte bodem.	€4,00	Ja
5	Family XXL Pizza	40	Deze klassieke bodem van Domino's worden ambachtelijk uitgeslagen van ons verse deeg. Met de hand gevormd tot een perfecte bodem.	€5,00	Nee
6	Italian Pizza	30	Traditioneel dun uitgeslagen 30 centimeter bodem van vers Domino's deeg. Lekker dun en krokant gebakken. Met oregano.	€1,00	Ja
7	Medium Fresh Pan Pizza	25	De panpizza van Domino's is een dikke, luchtige bodem van 25 centimeter met een knapperig korstje van boter en kruiden. In een pannetje	€1,00	Ja

Fig. 16 pizzabodem.xlsx - again first row used for column names

Winkels Mario.txt

This file contains a list of all the shops. Shops are separated by an empty line. The data seems to be organized in the following manner (top to bottom for a shop):

- Place (this can be a city or district, it's inconsistent)
- Street
- House number
- City
- Country code
- Post code
- Phone number

As this document has been typed in by an employee there are some typing errors etc. which would need cleaning up.

```
Amsterdam Aalsmeerweg
Aalsmeerweg
14
Amsterdam
NL
1059NJ
0204122131

Amsterdam Bos en Lommerweg
Bos en Lommerweg
215
AMSTERDAM
NL
1055DT
0206847676
```

Fig. 17 Winkels Mario.txt - containing store addresses typed in by an employee; contains address inconsistencies

Postcode tabel.mdb

This database consists of all the postcodes and corresponding address breakdown in POSTCODES table; and municipality data in GEMEENTEN table. On this basis an address can be deduced from the postcode alone. It has the following columns:

POSTCODES table columns:

*A13_POSTCODE, A13_REEKSIND, A13_BREEKPUNT_VAN, A13_WOONPLAATS,
A13_STRAATNAAM, A13_GEMEENTECODE*

From conducted research it seems the POSTCODE table is incomplete. According to www.postcodeafstanden.nl as of writing (mid-2020) there are 460 478 unique zip codes in the Netherlands. The file contains only 304 573 unique records, however. This will pose a challenge, as it'll be potentially impossible to bind some of the store or clients addresses. This issue would have to be taken up with the Mario Pizza business owner to look for a fitting solution.

GEMEENTEN table columns:

N42_GEM_KODE, N42_GEM_NAAM

Summary

As can be seen from the supplied analysis material the scope of work to be done is significant and requires custom solutions, developed specifically for the needs of the client's business case. Considering the nature of supplied data files and in some cases its incompleteness, in other its inconsistencies, a custom software solution will have to be programmed to fulfill the importing and data cleaning duties. Furthermore, consultation with the client will have to be undertaken to resolve some of the issues - like the missing postcodes or faulty addresses contained within the files. Some of those problems ask for a systemic solution on the client's side and would have to be addressed at the source, otherwise the timeframe of the project could extend dramatically and, what follows, the cost as well. It seems that in many cases the process could be streamlined if the supplied data files would be kept in better order. This is object of further consultation and at this stage the complete solution cannot be developed without proper assessment and engagement from the business owner.



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