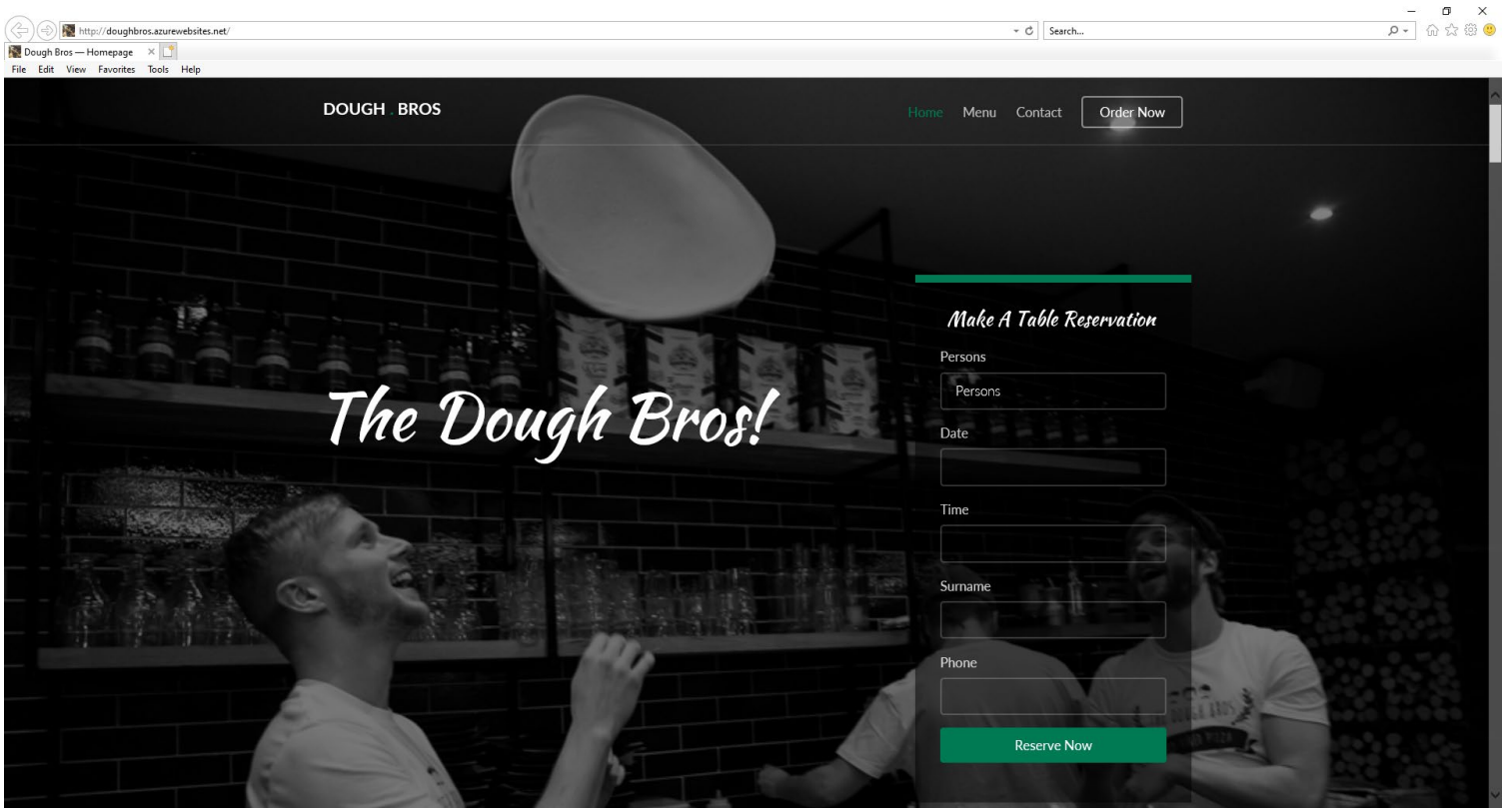
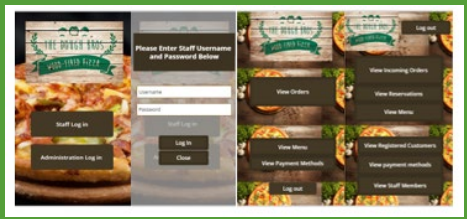


DOUGH BRO'S PIZZA

ORDER, DELIVERY & MANAGEMENT SYSTEM

Azure



Microsoft | PowerApps

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ISD Final Document
Presented to: Fearghal McHugh
Business Information Systems Development– Final Year Project
Date: 02/04/2020
http://doughbros.azurewebsites.net/

Contents

Introduction:

The Dough Bros is an authentic Italian pizzeria restaurant located on Middle Street in Galway City. In recent years they have been a successful business gathering a market of young and old. The current system in place is an “eat in” service, where customers order food within the restaurant and is delivered down to your table.

For the purposes of this project we have received communication from The Dough Bros that they wish to change their business model. They wish to add an order online service and facility for customers to place orders on their website. They will also require IT (management) systems to effectively manage the order process from start to finish involving the main stakeholders such as the delivery driver, the kitchen staff to facilitate the smooth operation from order start to finish.

The Dough Bros currently do not have a system for ordering food online and getting it delivered to your door. Other competitors such as Dominoes, or Four-star have this system in place leaving The Dough Bros at a competitive disadvantage. Our main task is to provision and design a bespoke system which allows customers to place orders and have their order delivered to their homes.

This system will also maintain a record of all transactions which will become useful for a multitude of perspectives such as financial reporting, management of staff, rosters and payroll which solutions we shall develop on further in the next software release. First stages involve business analysis techniques which assist us when looking at the current system of operations and the connections between The Dough Bros and their suppliers, introduce logistics teams and delivery services in order to determine how to go about implementing this online ordering system and mapping out the processes and understanding their connections as such.

Our system is based on an Azure Website connected to an SQL Database hosted on a Virtual Machine on the cloud provider Microsoft Azure. From there, we access this data from an APP developed on Microsoft PowerApp’s and this PowerApp will be available to the front of house staff and management as a desktop App on a desktop P.C and to other members of staff such as delivery drivers as a mobile phone accessible APP where needs necessitate after go live reviews.

The coding languages used to create the project are;

Front End: *Client Side:* HTML, CSS, JavaScript order form and various on page JavaScript functions.

Back End: *Server Side:* C# ASP.NET Web Form with SQL Insert Procedure Code.

Connection from: *PowerApps to SQL Server.*

A feasibility study was the first stage in the process in order to introduce our new system to ensure it was a cost effective, effective and efficient solution for our small business which required little to no training to staff to operate. This document will include all software, hardware, transportation, legal and other financially beneficial areas to investigate. We will investigate GDPR concerns in order to comply with the law.

Project Mission

There are several problems with the current system in place and these problems serve as a major drawback to the realisation of efficiency and customer satisfaction. The current system of ordering food in the restaurant is not an efficient or optimal experience for the customer due to long queues before placing their orders especially during peak hours and in addition to this staff record customer orders manually at the cash register. After the customer orders they must then wait around near the counter until their order is ready for collection. We have established a new reservation system for this purpose. Once the customer visits the website and creates a reservation, this will ensure the wait time is no longer an issue as a table is reserved for the customer and his/her guests.

Another other problem with the current system is that the restaurant is not aware of the benefits that would result from better application of technology in their daily operations, such as introducing an online platform for customer service.

The fast food industry is a very competitive market, one way to stand out from competitors is through improving the business process by automation, we will achieve this by implementing a web-based ordering system.

The other problem with the current system is that the customers are not able to see a full break down of the ingredients of the meals before they place their order. Customers may depend on such resources due to allergies or intolerances to certain ingredients. On the web-based ordering system, customers can see ingredients involved for each food item available.

Our unique solution will incorporate a host of solutions to solve all of these issues and provide the groundwork for further development after the initial release to improve the system further if necessary.

Project Objectives

Overall objectives:

- To improve the efficiency and services provided to the customers through better application of technology in daily operations.
- To enable the company to compete with existing rivals in the food service industry in the digital marketplace.
- To allow for data analytics to enable faster, more informed business decisions, backed up by facts to improve efficiencies within financial functions.
- Business Intelligence and statistical analysis to anticipate market demands and trends based on collected data.

Primary Objectives:

- Create a website incorporating an online order and reservation system.
- Promote the delivery and take out service.
- To enable customers to choose items direct from our menu on the website.
- To enable customers to receive confirmation that the order was placed.
- Display the food ingredients on website.
- Improve efficiency of restaurant's staff by allowing access to the technology.

- Eliminate manual data entry and increase level of accuracy by using the new technology to manage orders and reservations.
- Increase speed of service, sales volume and customer satisfaction by monitoring the new trends.

Secondary Objectives:

- To develop a system which requires little training for staff and is easy to implement into their existing work processes.
- To make other tasks such as accounting and payroll tasks easier for management by eliminating paper-based receipts and allowing faster management of records and transactions for inspection.
- To improve customer satisfaction by introducing a new food delivery service
- To reduce time wasting by eliminating long queues by implementing a reservation service.

Feasibility study:

This is an evaluation and analysis of the potential of the proposed system which is based on extensive investigation and research to support the introduction of an online ordering system. The feasibility study will assess the operational, technical, financial and usability features of the proposed project.

The purpose of this feasibility study is to conduct a preliminary review of each proposed section in order to evaluate if they are worthwhile before proceeding to the analysis phase of the project. From a systems analyst perspective, the feasibility study is an evaluation method for recommending whether to proceed to the next phase or to discontinue the project.

Technical feasibility

This assessment is focused on gaining an understanding of the present technical resources of the organisation and their applicability to the expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the needs of the proposed system. The systems project is considered technically feasible if the internal technical capability is enough to support the project requirements. Based on the research we conducted, the following factors assisted us on deciding if the project is worth pursuing and how we should go about it:

- The project is feasible within the limits of current technology and our organisation’s budget. We can develop the technology for the company by developing a website for customers to order their products online at a cost-effective price.
- The project is possible with current internal resource constraints. A part of the company's marketing budget will naturally be allocated to creating a website as it will boost potential customers greatly.
- The project is a practical proposition. It is a practical solution to the company’s problem of not allowing customers to order their food online.
- The company has the available manpower. The marketing team can allocate manpower to maintaining the website and promotional materials.

- The software and hardware required to implement this system is not cost prohibitive we can develop the system and provision the hardware and software required for the system to operate at low cost, yielding a high return on investment for the value of the system.
- The company will need to spend money on initial investment of hardware and software as well as our consulting and development resources to allow them to create this system as there currently is no ordering system or reservation mechanism in place.
- As the company does not currently employ any tech staff they will need to hire our developer to facilitate the creation of the website and programming of the ordering system and development of APP's for the business.
- The current problem in the business is that there is no way for customers to order directly from the business online. The online ordering system has the capacity to provide an effective solution to this problem.

Operational feasibility

The operational feasibility will measure how well the project will support the customer and the service provider during the operational phase. It is dependent on human resources available for the project and involves projecting whether the system will be used if it is developed and implemented. The essential questions that help in testing the technical feasibility of a system include the following:

The following are key criteria to consider when implementing and testing the technicality of a system in terms of operational feasibility.

- This system is feasible during high customer demand.
- The system will be user friendly, allow for ease of access for both customers and internal entities within the organisation.
- An online ordering system offers increased benefits including reduction in costs.
- The system will offer effective controls to protect against fraud and to guarantee accuracy and security of data and information.
- The new system will allow for maximum use of available resources, including people, time and flow of forms improving efficiency.
- The current work practices of instore sales will operate alongside the new online system.
- Due to the high demand of our products and services, if the new system is introduced it will be used by our customer base regularly.
- The new proposed system resonates with government regulations and GDPR laws due to consultations with legal advisors.
- The proposed system will benefit the organisation due an increase in sales and wider audience reach.
- The system will affect the customers in considerable ways
- The customers are given the option to enjoy meals from the comfort of their home via delivery.

Financial feasibility

This assessment aims to determine the positive economic benefits to the organisation that the proposed system will provide. The following factors will influence the financial component of the project:
The system is intended to be cost effective. It greatly simplifies the ordering process for both the restaurant and the customer. The benefits of implementing this system outweigh the costs of implementing the system. Potential to reach larger customer base will offset the cost of creating the system. The project is possible when considering the resource constraints of the company
The system could result in saving money in employing staff as if more customers are ordering online then less staff will be needed in store.

Hardware Requirements			
Product	Product Name	Description	Pricing
	Inspiron Desktop Tower	• 9th Gen Intel® Core™ i3-9100 • Windows 10 Home • Intel UHD Graphics 630 • 8GB, 8Gx1 DDR4, 2400MHz UDIMM	€601.58
	Dell 22 Monitor: E2218HN	• LED-backlit LCD monitor - 22" • Full HD (1080p) 1920 x 1080 at 60 Hz • HDMI, VGA	€121.77
	Wireless Keyboard and Mouse Combo - KM714	• Keyboard and mouse set – wireless • USB wireless receiver • Scissor Key Technology, battery LED indicator	€72.90
	CANON PIXMA TS3150 All-in-One Wireless Inkjet Printer	• Includes 2 Canon FINE Cartridges • WiFi / Apple AirPrint / Google Cloud Print • Up to 7.7 prints per minute	€34.99
	TP-LINK Router C7	• Wireless AC1750 Dual Band Gigabit Router • voltage adapter • Ethernet cable	€86.49

Hardware Components		
Component	Description	Pricing
Processor	Up to 9th Gen Intel® Core™ i7 9700	€400.00
Video Card	Intel UHD Graphics 630 with shared graphics memory	Included in Price
RAM	8 GB	€60.00
Hard Drive	Up to 256GB M.2 PCIe NVMe Solid State Drive + 1TB 7200 rpm 3.5" SATA Hard Drive	Included in Price
Memory	Up to 8GB DDR4 at 2666MHz	Included in Price
Software Requirements		
Component	Product Description	Pricing
Operating System	Windows 10 Home 64bit Multi-Language	€20.00
Anti-Virus Software	McAfee® LiveSafe™ 36 Month Subscription	€30.00
Cloud Website and Database System	Microsoft Azure Annual Subscription with custom built WebApp + SQL Database	€1200.50
Backup & Recovery	Microsoft Azure Geo Replication	€300.00
Internal Order Management and Reservation System	Microsoft PowerApps Subscription (for whole Organisation)	€530.00
Business Subscription Office Suite	Microsoft Office Professional 2019 (for whole Organisation)	€603.50
	Total Costing for Proposed System:	**€4061.73**

Usability feasibility

The usability aspect of any application is designed to engage the customer and provide a pleasant user experience. The usability of the online ordering system will be designed to allow customers to browse our restaurant menu, choose items, and add items to a basket. This will then proceed to a transaction of either card payment or cash in hand when the driver arrives at the door.

Key factors to consider when designing the usability of the proposed system include:

- Learnability -The ability of a new user to quickly learn the user interface and accomplish basic tasks. The design of the site must be intuitive.
- Efficiency - The ability for users to quickly perform tasks, find products, browse, pay online in a time efficient manner.
- Memorability - we aim to have returned visitors remember how to effectively use our site or application and avoid relearning everything from the beginning

- Errors & Error Frequency - Users often make mistakes causing errors in a system. We aim to reduce all serious errors to a minimum amount for better experience. We also aim to create easy to follow instructions once an error occurs in order to recover from these errors.

Functional Requirements:

Functional requirements define the capabilities and functions that a system must be able to perform successfully. The functional requirements of this online ordering system include:

1. The system shall enable the customer to view all of the items on the menu of which they can order and place an place an order on the website.
2. The customer shall specify whether the order is to be picked up or delivered on the form.
3. The customer is aware that payment is on delivery of the order with the driver, or payment is conducted in store at time of dining if eating in store.
4. The system shall display the food items ordered, the individual food item prices and the payment amount is calculated on the client site.
5. Once the customer is happy with the order, the customer submits the order on the website and the system shall prompt the customer we have received the order. (The system shall provide visual confirmation of the order placement)
6. The system shall enable the manager to view, create, edit and delete food category and descriptions.
7. The system shall display any reservations placed on the website on the APP allowing staff adequate time to prepare the tables for the customers.
8. The system shall enable the generation of analytics and reports for the orders made where required by the manager.
9. The system shall allow the manager to update or make changes to an order or by adding additional information (description, photo, ingredients etc.) for a given order.
10. The system will allow the manager to make use of the data stored on the APP for improvement of business processes.

Non-Functional Requirements:

A non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviours. Some of the non-functional requirements include

1. There should be sufficient network bandwidth and internet connectivity to access the system.
2. Backup- provision for data backup for data collected.
3. Maintainability- easy to maintain the system.
4. Performance/ response time- fast responsive system (APPS and Website).
5. Usability by target user community- easy to use.
6. Expandability- needs to be future proof or upgradable.
7. Safety- should be safe to use in that security should be up to standards.

Requirements Catalogue (40)

ReqID	Req Use Case Name	Brief Description	Req Criticality	Functional Requirement
Order Retrieval System				
PRL01	Mgmt login	Management must be able to login to system	Must	Provide Username and password
PRL02	Availability	The app must be available at all times	Must	Secure WIFI connection
PRL03	Login type	The login page must prompt user type such as mgmt or driver	Must	Username requirements
PRL04	Dashboard	The login page directs the user to a dashboard of functional buttons	Must	Login button navigates to new page
PRL05	Log Out	Mgmt has the option to log out	Must	Button navigates to login page
PRL06	View orders	mgmt can view orders coming in from website via azure database	Must	Information flow to/from cloud
PRL07	Order details	Mgmt can view relating details of customer and the orders	Must	Information is pushed through azure from webform
PRL08	Order Edits	Mgmt can edit/delete existing orders received	Want	Edit form in PowerApps
PRL09	Menu view	Mgmt can view the menu and pricing of each item	Must	Menu created in azure-information pushed to PowerApps
PRL10	Menu Edit	Mgmt can edit/delete the items on menu and pricing of each item	Must	Edit form in PowerApps
PRL11	Customer Log	Mgmt can view existing database of previous customers in system	Must	Customer information stored in db on azure pushed to PowerApps
PRL12	Customer edits	Mgmt can edit/delete customers in the database	Must	Edit form in PowerApps

PRL13	Payment methods	Mgmt can view/edit the available payment methods	Must	Edit form in PowerApps
PRL14	Staff available	Mgmt can view the existing staff details and make changes	Must	Edit form in PowerApps
Staff Order Retrieval System				
PRL15	Driver login	All staff must be able to login to system	Must	Provide Username and password
PRL16	Availability	Staff must be able to view app orders at all times	Must	Secure WIFI connection/Mobile data
PRL17	Logout	Staff must be able to log out of system	Must	Log out button navigates back to login page
PRL18	Orders	Staff must be able to view updating/current orders being sent from website	Must	Information flow through database in azure from webforms to PowerApps
PRL19	View Menu	The Staff can view the menu available to customers	Must	PowerApps view form created in azure database
PRL20	Restrictions	The staff are limited in functionality of editing menu	Must	New edit form available in staff platform
PRL21	Update status(kitchen)	Kitchen can update orders - pending/ready for collection	Want	PowerApps functions
PRL22	Update status(driver)	Delivery staff can update order status as delivered	Want	PowerApps functionality
PRL23	Restrictions	Staff are limited from mgmt resources available	Must	No option available to view information on staff platform

ReqID	Req Use Case Name	Brief Description	Req Criticality	Functionality Requirements
The Web Ordering System				
PRL24	Delivery Information	The user enters phone number, email, and address for delivery	Must	Order form sent to PowerApps through azure database
PRL25	User Browser Screen	The user must be able to browse a menu of items to select from	Must	The website will display menu and food information.
PRL26	Ingredients	The user must be able to see ingredients upon selection of items on menu	Must	The website will display menu and food information including ingredients.
PRL27	Menu Selection	The user must be able select one or more items from the menu	Must	Toggle buttons on the form to select items from menu to order.
PRL28	Reset Order	The user must be able to change their mind if desired and start from scratch	Must	Button on order form to reset the form.
PRL29	Order total	The user must be able to see the price of total items selected in check out section	Must	Calculator build into code can generate total price of items selected.
PRL30	Delivery options	The user needs to select methods of delivery: i.e. Pickup or Delivery	Must	The user specifies whether the order is for pickup or delivery on the order form.
PRL31	Payment select	The user has option to select payment method	Must	Toggle button allows selection of payment .
PRL32	User Message	The user can leave a message to the driver for information on delivery	Want	Comment box inserted in form.
PRL33	Order Confirmation	The user must be notified when their order has been successfully submitted	Must	Pop up message appears when form is successfully sent.
PRL33	Pickup Time	The user would like if they can pick a time for delivery or collection	Want	A time slot is added to the form for the user if so required
PRL34	Order Comments	The user would like to notify the business of allergies or other information to be passed with order	Want	A text box is added so that the user may add additional information if they wish
PRL35	Time Stamp	The business requires each order to be time stamped at submission	Must	JavaScript code will timestamp order on order submission.
PRL36	Reservation	The user would like to make a reservation for a table instead of waiting	Want	A reservation form is added to the website to submit a request to book a table
PRL37	Contact Us	The business would like a contact form on the website	Want	A contact us form is added to the website
PRL38	Subscribe Form	The business would like a subscribe function on the website	Wants	A subscribe box is added to the website and prompts user to enter email
PRL39	Marketing Material	The business woud like some marketing information on the website	Must	History of the company and service are detailed on the website

PRL40	Counter function	The business would like a cool JavaScript counter on the website	Must	JavaScript counter called Fun Fact's Added to homepage

Requirement Sheets (10)

Use case name: **Availability**	
Area: Internal User system	
Actors: Kitchen staff, admin, delivery driver, management	
Description: Staff orders retrieval system	
Stakeholder: Management, Administration	
Level: Kite	
Triggering Event: On start of shift	
Trigger Type: External X Internal	
Steps Performed	Information for Steps
1. User logs on to system	1. The user checks their work schedule at regular intervals for new orders
Preconditions: User is required to access the internal system	
Postconditions: User has access to the internal system	
Assumptions: User is an employee at Dough Bro's	
Success Guarantee: User logs into system	
Minimum Guarantee: User credentials are recognised	
Objectives Met: User successfully logs into internal system	
Outstanding Issues: Security of user information	
Priority (optional): High	
Risk (optional): Medium	

Use case name: **Menu Selection**	
Area: External User (Customer)	
Actors: Customer	
Description: Customer visits website	
Stakeholder: Customer, Management, Administration	
Level: Kite	
Triggering Event: Customer visits website	
Trigger Type: External X Internal	
Steps Performed	Information for Steps
1. Customer visits website	1. Customer wishes to view the menu 2. Customer subsequently decides to order
Preconditions: The customer is aware of the website	

Postconditions: An order is placed
Assumptions: Customer is aware of the website
Success Guarantee: Order submission
Minimum Guarantee: Website view
Objectives Met: The customer views the menu on the website
Outstanding Issues: Nil
Priority (optional): High
Risk (optional): Nil

Use case name: **Internal Login**	
Area: Internal User system	
Actors: Kitchen staff, admin, delivery driver, management	
Description: Users login to system as per work schedule	
Stakeholder: Management, Administration	
Level: Kite	
Triggering Event: Users clock in and out of work	
Trigger Type: External X Internal	
Steps Performed	Information for Steps
1. Users prompted user type	1. Administration or Staff privileges
2. Users prompted credentials	2. Username and password
3. System acceptance/rejection	3. Username/password recognition
4. User prompted actions	4. access granted to internal use
Preconditions: User is required to access the internal system	
Postconditions: User has access to the internal system	
Assumptions: User is an employee at Dough Bro's	
Success Guarantee: User logs into system	
Minimum Guarantee: User credentials are recognised	
Objectives Met: User successfully logs into internal system	
Outstanding Issues: Security of user information	
Priority (optional): High	
Risk (optional): Medium	

Use case name: **Administration account management**
Area: Customer registration and login section
Actors: Administration, Management

Description: Administration updates/maintains external accounts	
Stakeholder: Customers	
Level: Kite	
Triggering Event: Admin maintains control of customer accounts	
Trigger Type: X External Internal	
Steps Performed	Information for Steps
1. View Registered accounts	1. Internal system view
2. Manage accounts	2. Browse created accounts
3. Update/delete/add/create	3. internal access to system
4. Security measures/Verifications	4. Internal security view/access
Preconditions: Admin must log into internal system	
Postconditions: Admin updates/maintains the customer database	
Assumptions: Admin is qualified for the role of administrator	
Success Guarantee: Admin can successfully manage the customer accounts	
Minimum Guarantee: Admin can view the customer database	
Objectives Met: Customer accounts are being managed	
Outstanding Issues: Trustworthiness of admin employee to manage customer information	
Priority (optional): Medium	
Risk (optional): Medium	

Use case name: **Customer Browse/Order from menu**	
Area: Ordering System	
Actors: Customer	
Description: Customer selects items from menu	
Stakeholder: Kitchen/Chefs, Management, Delivery Driver	
Level: Kite	
Triggering Event: Customer wishes to make order	
Trigger Type: X External Internal	
Steps Performed	Information for Steps
1. Customer logs onto system	1. Enters username/password
2. Customer browses items	2. items/prices/descriptions
3. Customer selects items	3. items added to basket
4. Customer confirms order	4. Payment/address confirmed
Preconditions: Customer logs into ordering system	
Postconditions: Customer orders food for delivery/collection	
Assumptions: Customer wishes to order food from Dough Bro's	
Success Guarantee: Customer orders food with ease	

Minimum Guarantee: Customer can browse and select items from menu
Objectives Met: Customers can order food for delivery/collection
Outstanding Issues: Payment security via credit cards
Priority (optional): High
Risk (optional): Medium

Use case name: **Management Menu Arrangement**	
Area: Ordering System	
Actors: Management, Kitchen staff	
Description: Arrange food items onto the menu for customers to choose from	
Stakeholder: Customers, Delivery driver	
Level: Kite	
Triggering Event: Food ordering system needs items arranged	
Trigger Type: External X Internal	
Steps Performed	Information for Steps
1. assess raw materials	1. available suppliers
2. Arrange food items/order placement	2. Chef ability to prepare
3. Arrange pricing for items	3. Research/budget
4. Arrange meal deals	4. items available/budget
Preconditions: Must be an ordering system in place	
Postconditions: Menu in place for customer to browse	
Assumptions: Chef is able to prepare/cook items	
Success Guarantee: Menu contains all items with pricing	
Minimum Guarantee: Menu contains basic items	
Objectives Met: Menu put in place for the ordering system	
Outstanding Issues: no issues	
Priority (optional): Medium	
Risk (optional): Low	

Use case name: **Supplier Delivery of Goods**
Area: Kitchen
Actors: Head Chef, Management
Description: Goods are ordered by restaurant from supplier
Stakeholder: Customers, Supplier
Level: Kite

Triggering Event: Need for raw materials to make pizzas	
Trigger Type: External X Internal	
Steps Performed	Information for Steps
1. Chef requests goods	1. Manager approves/disapproves
2. Supplier retrieves requested amounts	2. retrieve goods from warehouse
3. Goods are sent to Restaurant	3. Requested amounts transported
4. Goods are paid for by management	4. Management signs off on payment
Preconditions: Supplies are needed to cook the food for orders	
Postconditions: Adequate suppliers are obtained to run the business	
Assumptions: Supplier has a constant stock of required food items	
Success Guarantee: All requested goods and amounts are meet from supplier	
Minimum Guarantee: Key food items are in stock and ready for delivery	
Objectives Met: Re-supply of food items to cook for ordering system	
Outstanding Issues: limited to few suppliers and limitations of stock	
Priority (optional): High	
Risk (optional): Low	

Use case name: **Kitchen Cooking Process**	
Area: Kitchen preparation	
Actors: Kitchen, Delivery driver	
Description: Orders come in, food is prepared, food is updated for delivery	
Stakeholder: Customers	
Level: Kite	
Triggering Event: Orders come in from website	
Trigger Type: X External Internal	
Steps Performed	Information for Steps
1. Receive order	1. Description of food items
2. cook food	2. prepare necessary food items
3. Inform driver for pick up	3. update order database to pickup
4. leave prepared food for pickup	4. Food items are left numbered for delivery
Preconditions: Orders come into kitchen through ordering system	
Postconditions: Orders are processed in the kitchen	
Assumptions: Chefs are able to prepare food items as requested	
Success Guarantee: Orders are prepared and given to delivery driver	

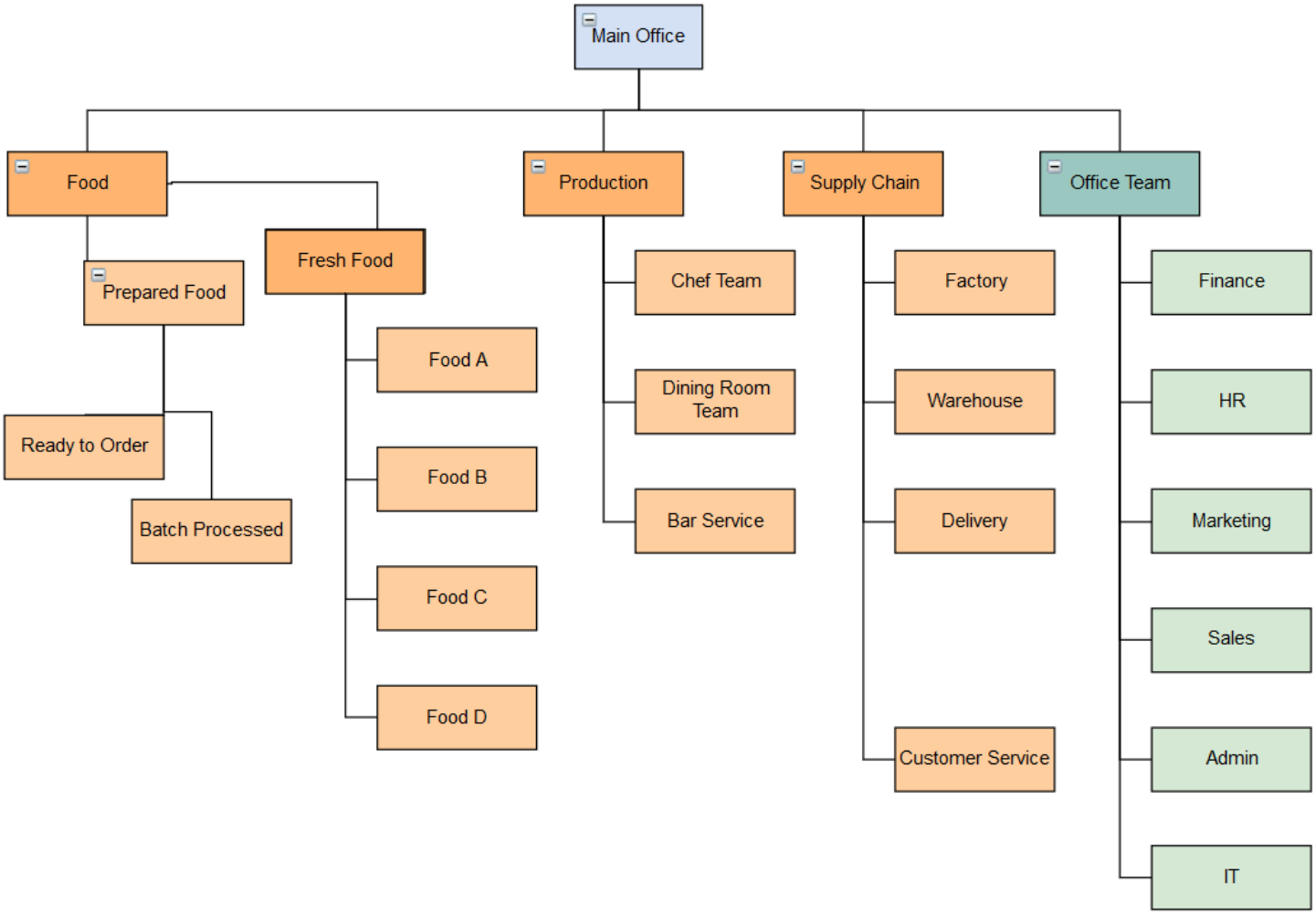
Minimum Guarantee: Orders are received through the system
Objectives Met: Food is processed and prepared for delivery
Outstanding Issues: Orders may not be prepared by estimated time
Priority (optional): High
Risk (optional): Medium

Use case name: **Delivery Driver**	
Area: Ordering System	
Actors: Driver, Kitchen staff	
Description: Driver is given prepared orders and delivers it to requested customer address	
Stakeholder: Customers, Kitchen staff	
Level: Kite	
Triggering Event: Orders are ready for delivery from kitchen	
Trigger Type: External X Internal	
Steps Performed	Information for Steps
1. Food is updated for delivery by chef	1. Internal system communication
2. Driver collects the food	2. receive from kitchen
3. Deliver to designated address	3. access customer information
4. Feedback when goods are delivered	4. Update order in ordering system
Preconditions: Food is Prepared and ready to be delivered by kitchen	
Postconditions: food is delivered to customer	
Assumptions: Customer placed the order and requested it delivered	
Success Guarantee: Order received from kitchen and delivered to address requested	
Minimum Guarantee: delivery of requested items	
Objectives Met: Order delivered to customer	
Outstanding Issues: Speed of delivery	
Priority (optional): High	
Risk (optional): Low	

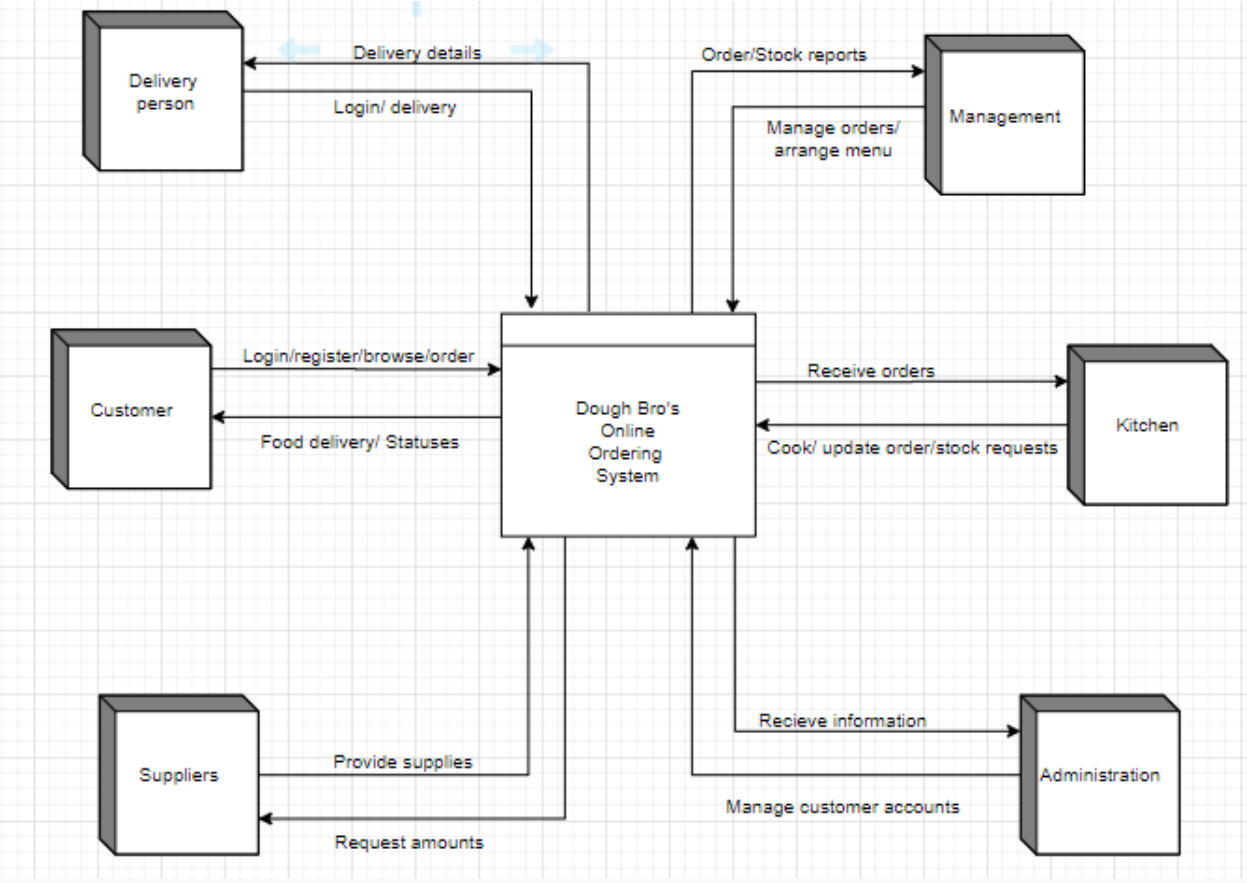
Use case name: **Management supervision**
Area: Ordering System, Kitchen
Actors: Management
Description: Supervision of all activities taking place within system
Stakeholder: Kitchen staff, customers, supplier
Level: Kite
Triggering Event: Orders being received into system
Trigger Type: X External Internal

Steps Performed	Information for Steps
1. monitor orders coming in	1. view the ordering system
2. Monitor kitchen activities	2. supervision of staff
3. approve/reject supply orders	3. orders made by kitchen
4. review updated/prepared orders	4. prepared orders/delivery feedback
Preconditions: Orders come to kitchen through ordering system	
Postconditions: Successful order processing/delivery and supply of goods	
Assumptions: Manager can view and update all activities	
Success Guarantee: Smooth transactions, employee activity and adequate supply of goods	
Minimum Guarantee: manager can view orders processing and delivery	
Objectives Met: Manager supervises all activities within ordering system	
Outstanding Issues:	
Priority (optional): Low	
Risk (optional): Low	

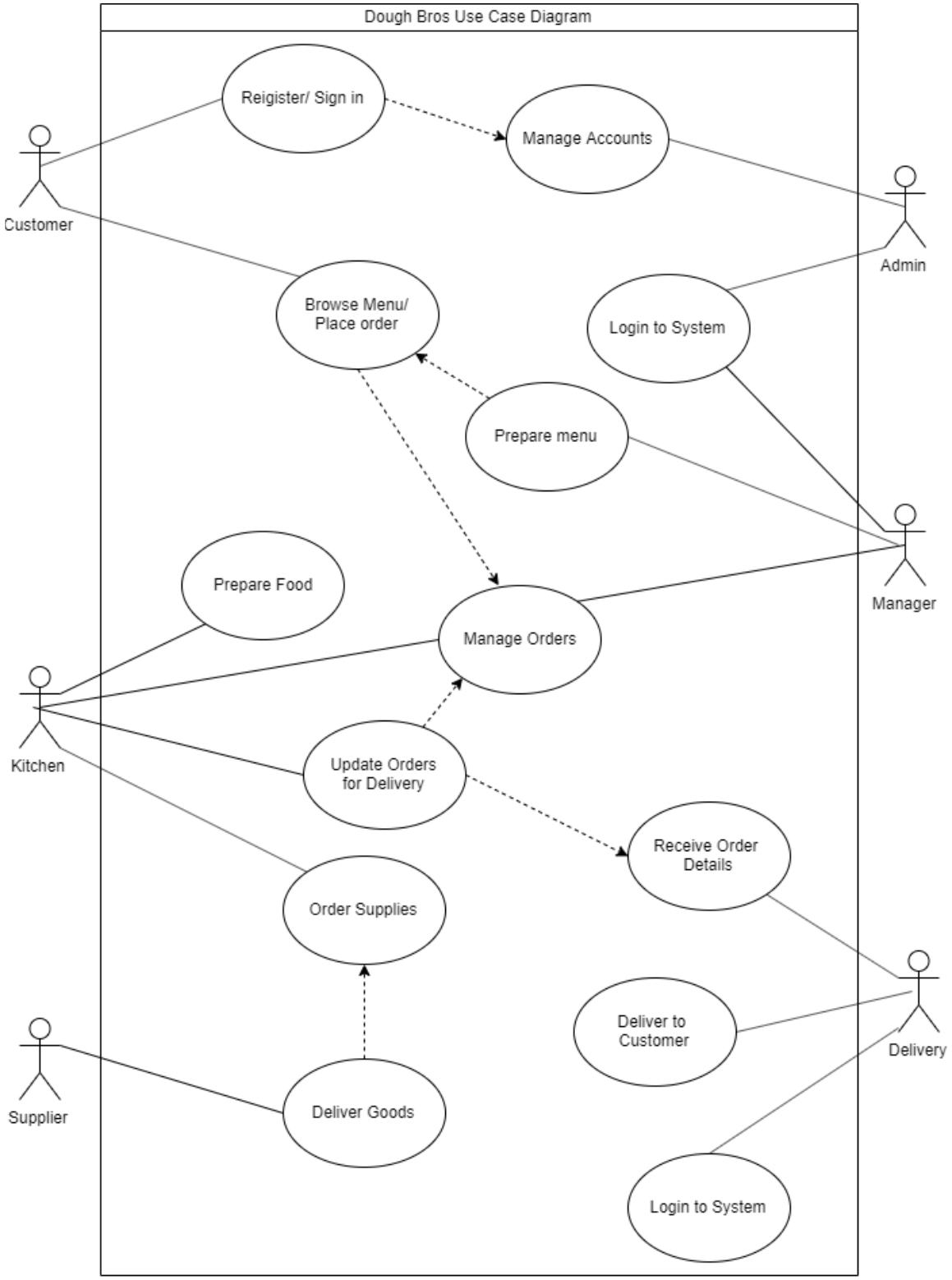
Organisational Chart:



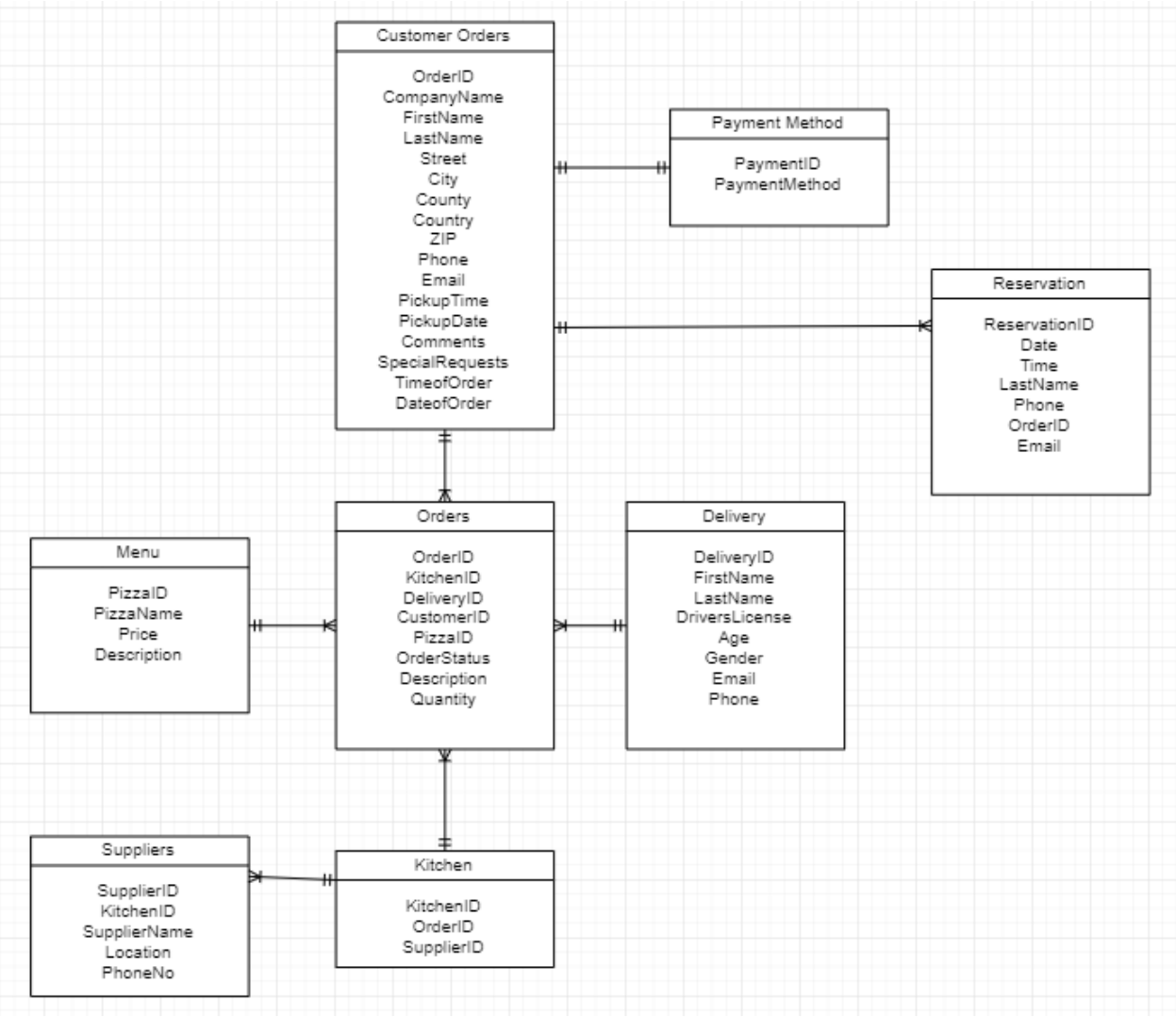
Context Diagram



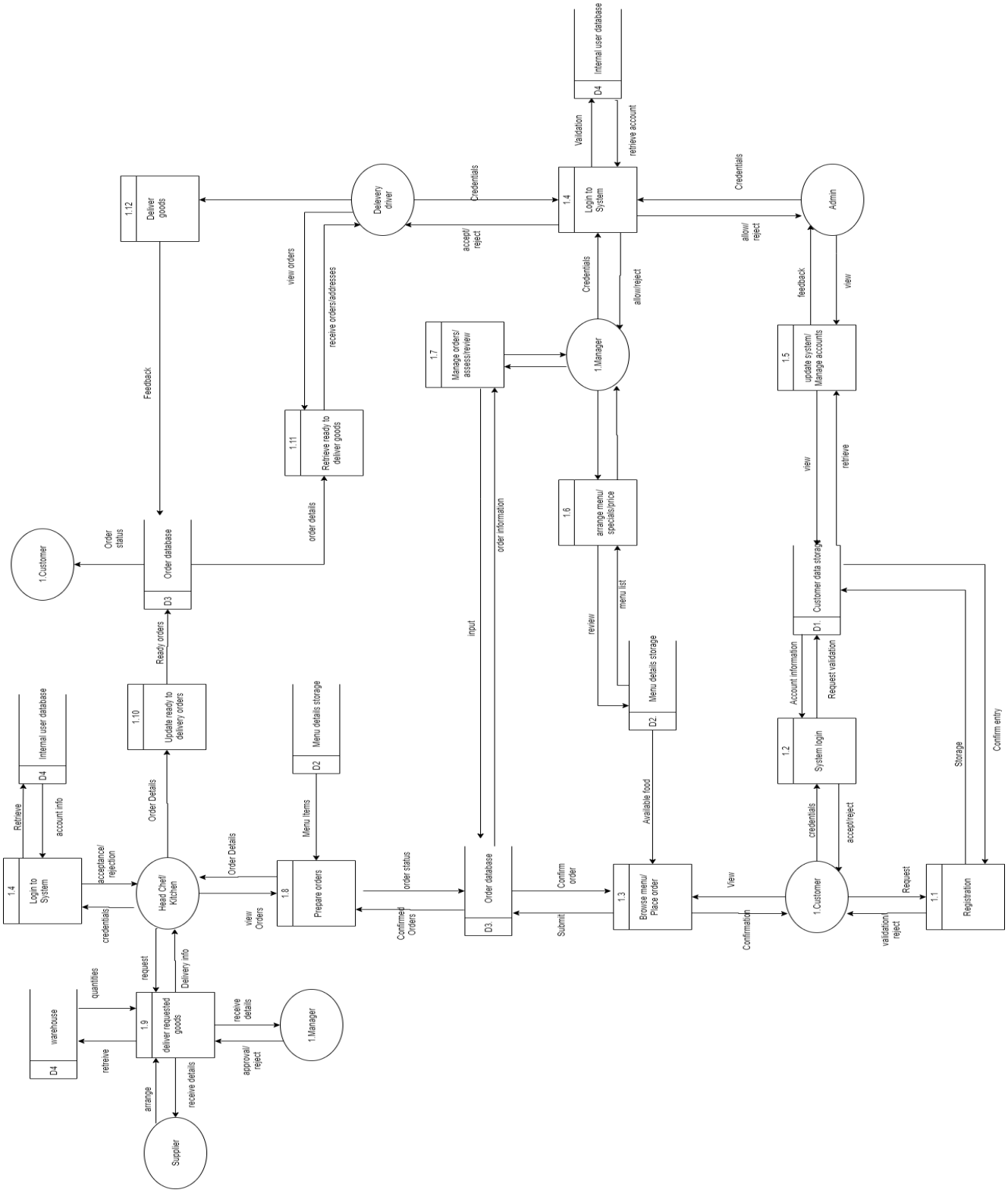
Use Case Diagram



Entity Relationship Diagram

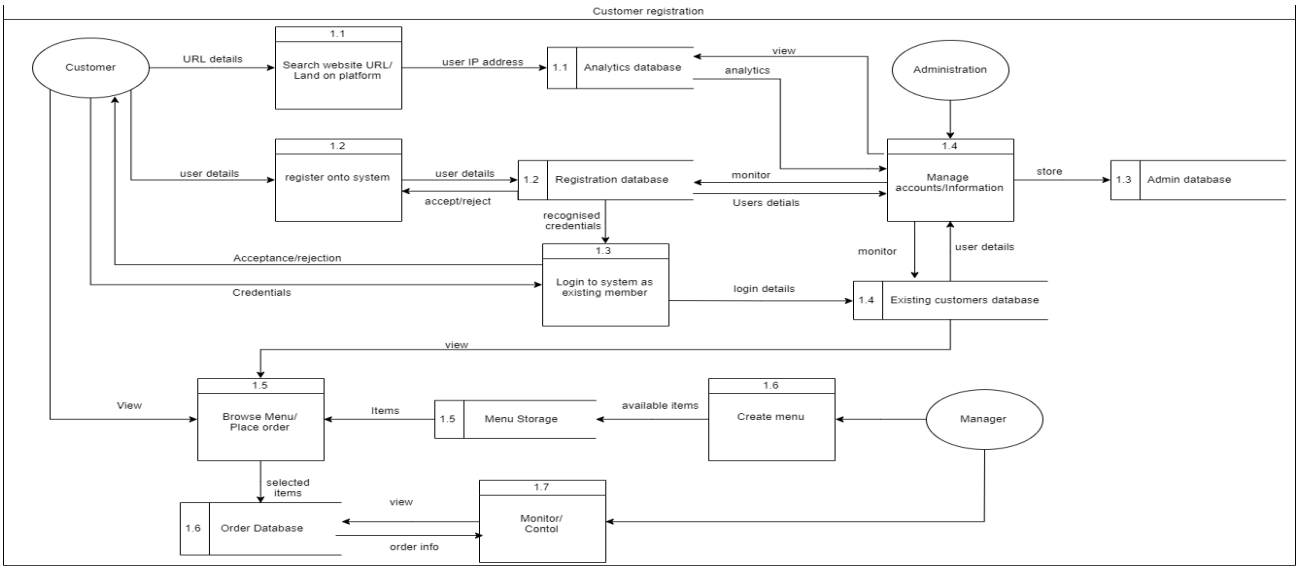


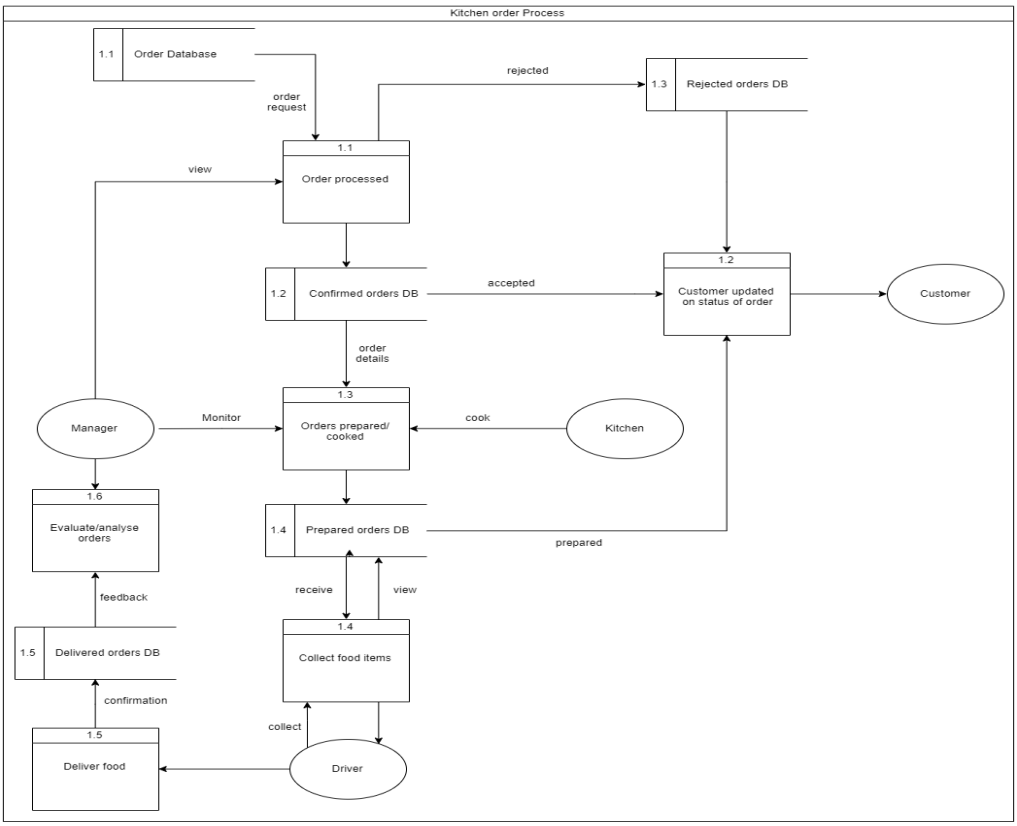
Data Flow Diagram (Level 1)



(separate file attached with submission)

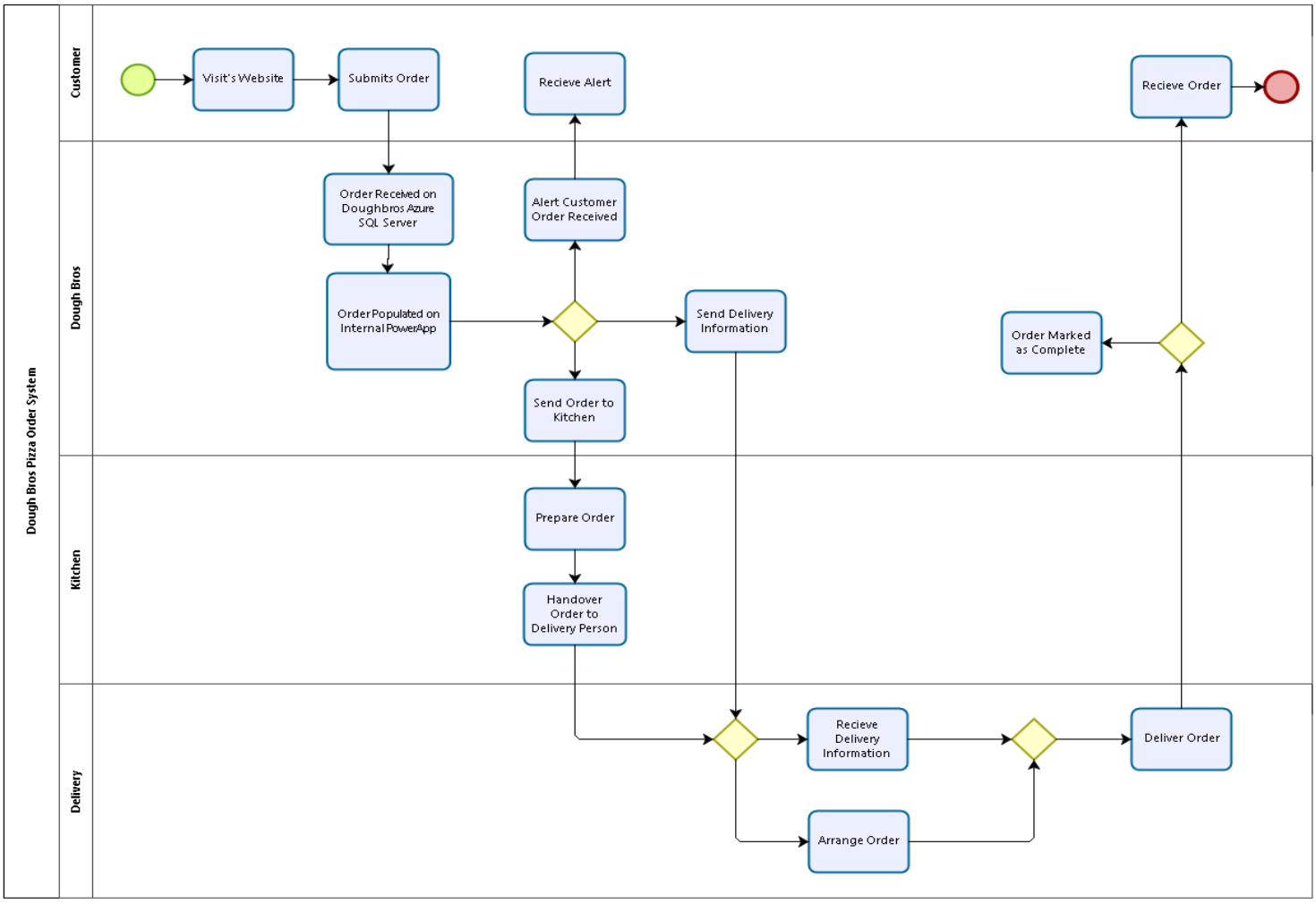
Data Flow Diagram (Level 2)



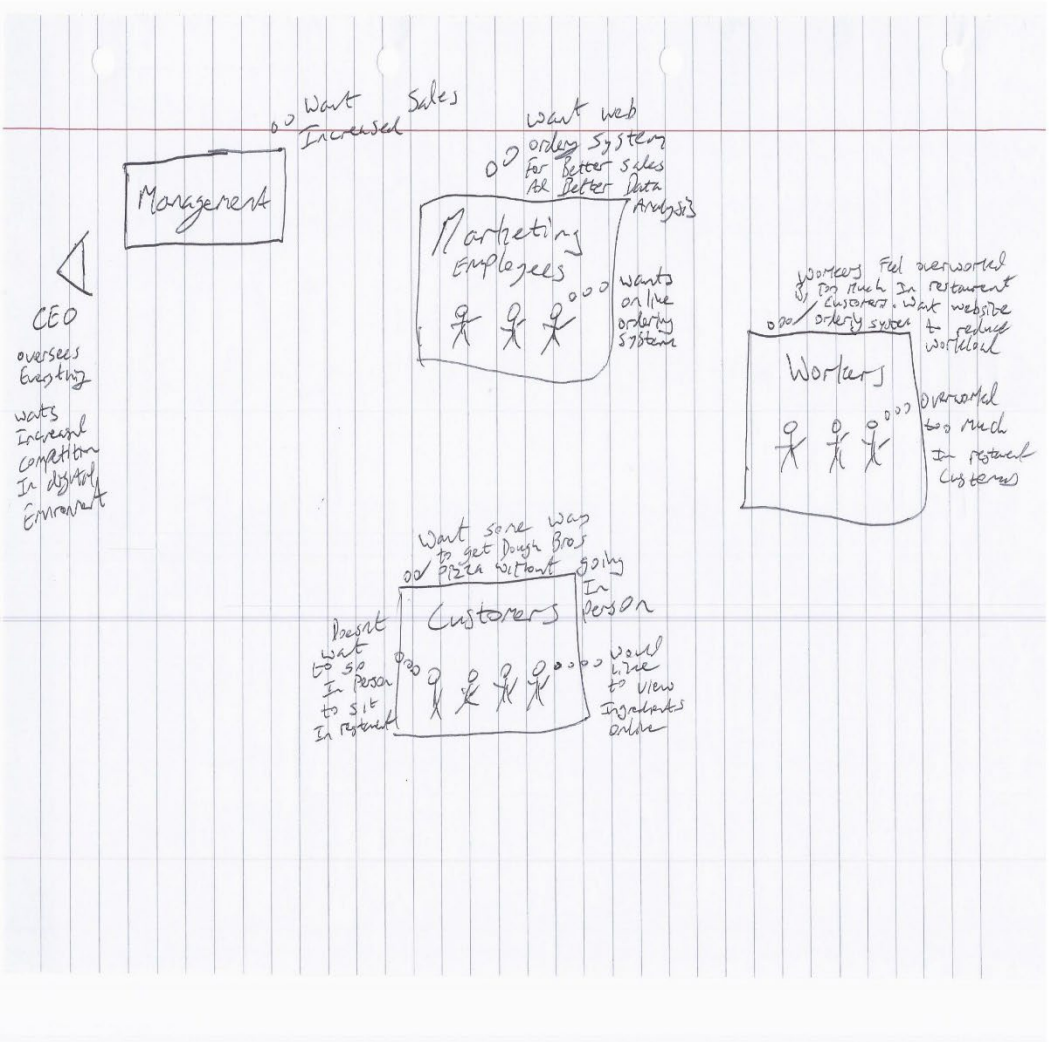


(separate file attached with submission)

BPM Process Model



Rich Picture



Screengrab of the live Website and JavaScript Order Form

Figure 1: Some screengrabs of the order form from the live website: http://doughbros.azurewebsites.net/

Screengrabs of Azure SQL Setup and Data Connection

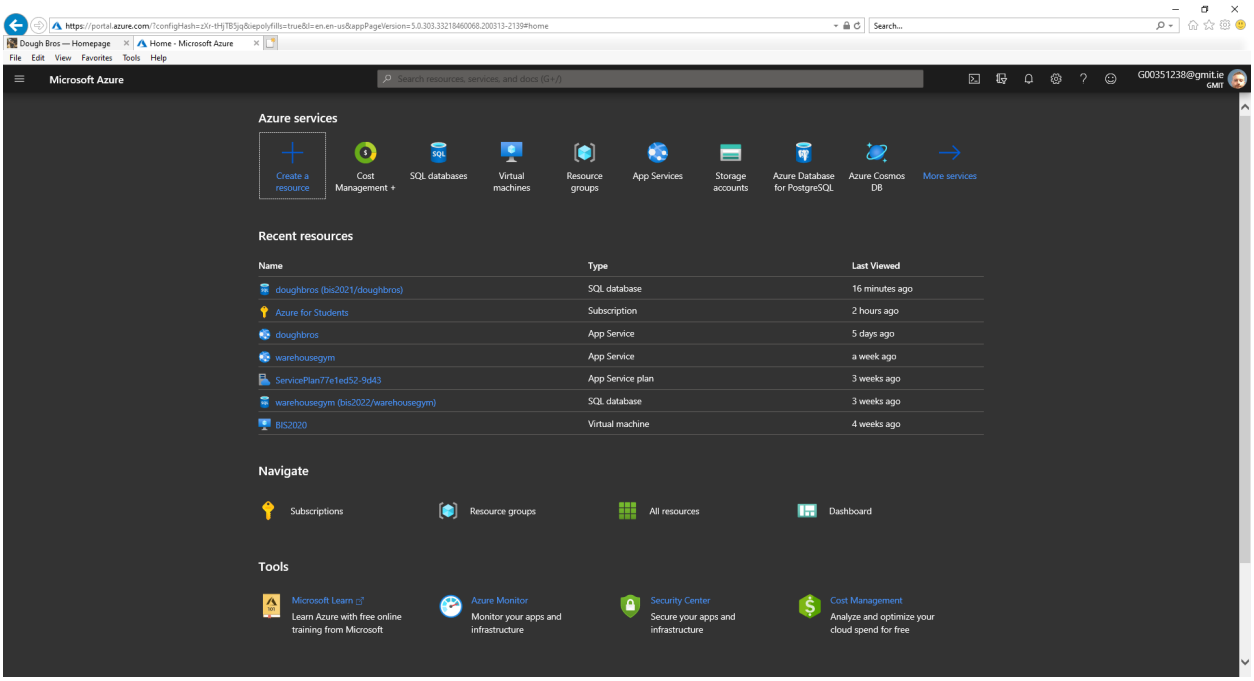


Figure 2: Screengrab of the Azure Management Panel showing the Virtual Machine (BIS2020), the DoughBros App Service (website hosting) and the doughbros SQL Database (doughbros (bis2021/doughbros)

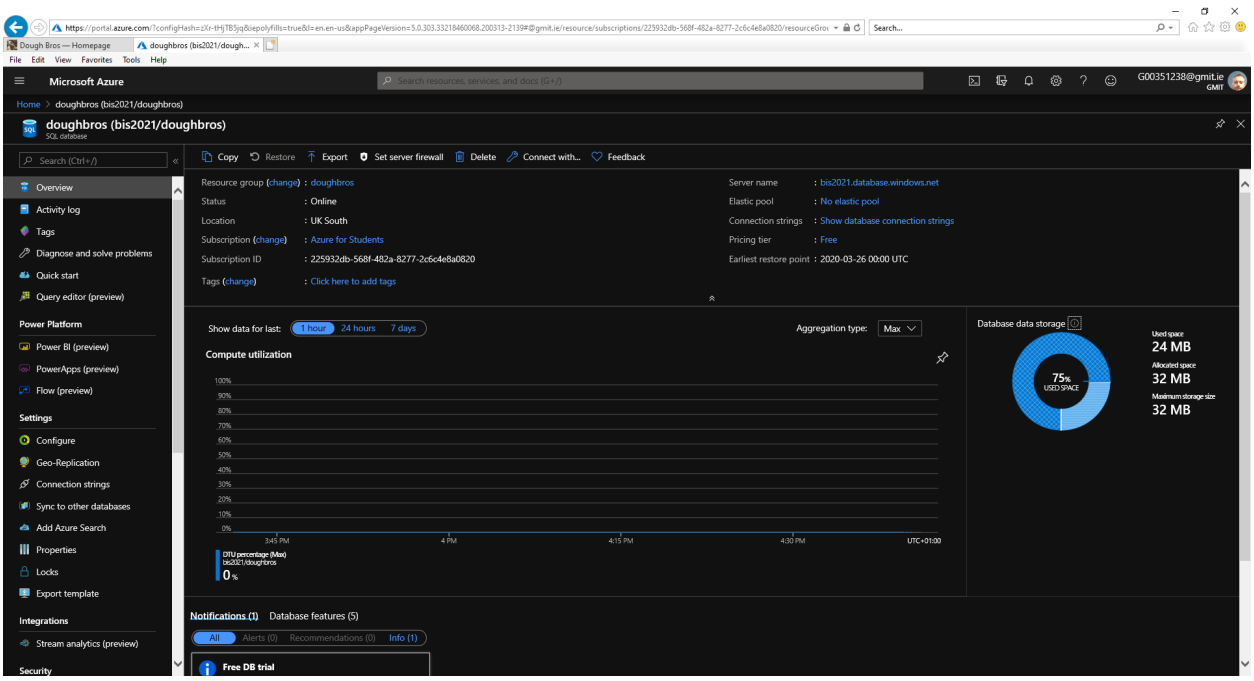


Figure 3: Screengrab of the SQL Database Management Panel

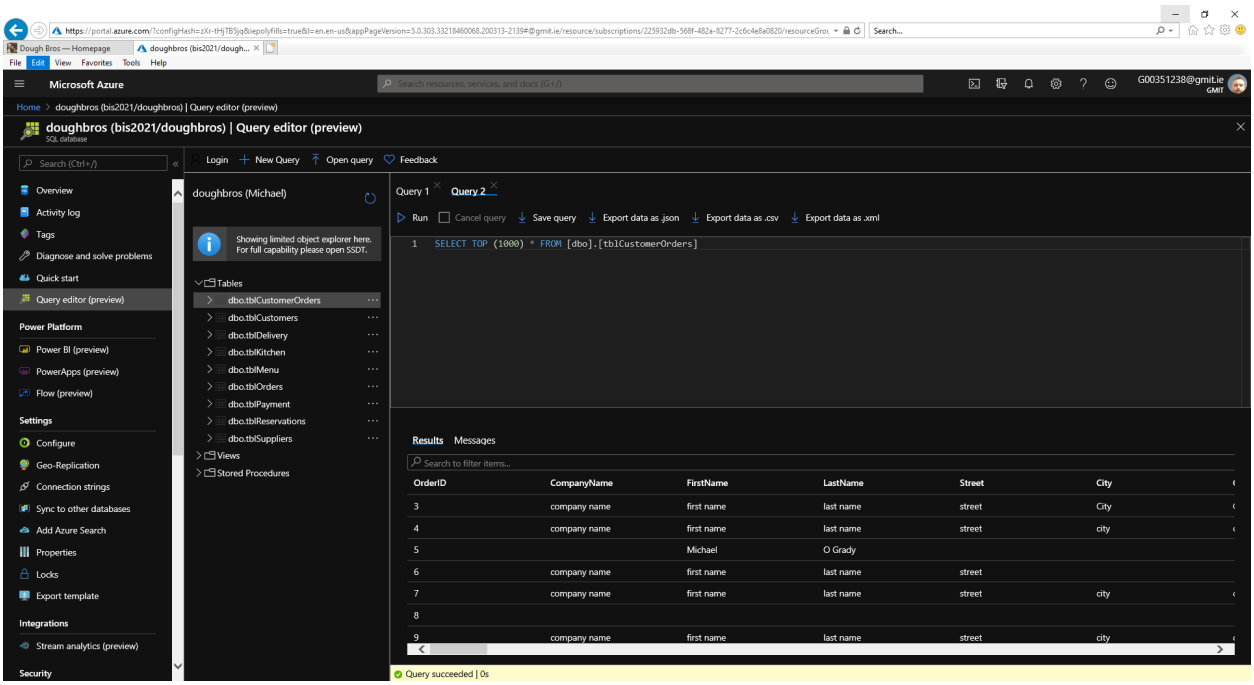


Figure 4: Screengrab of a Select Top 1000 Rows Query ran on the SQL Database (currently showing all successful orders posted during the test phase on the website)

Screengrab of the Solution Package created in Visual Studio

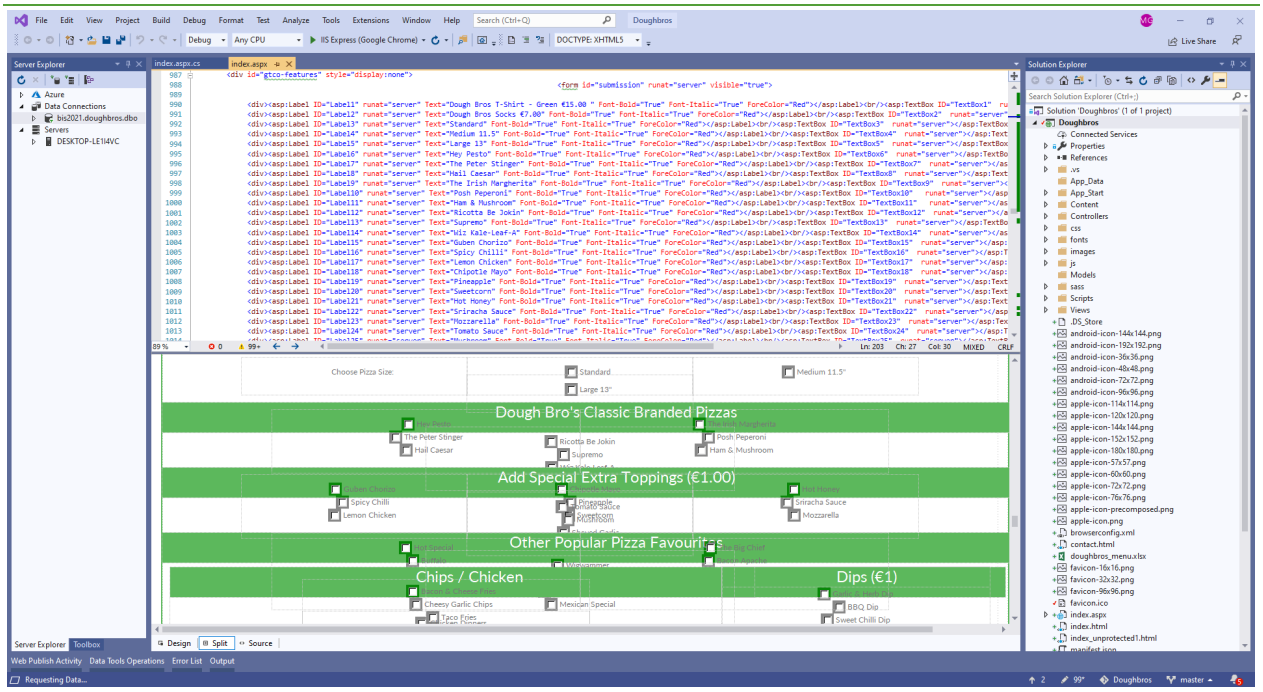


Figure 5: The Solution Directory Tree is displayed on the right panel, the Server Connection is displayed on the left hand panel, a live preview is displayed in the bottom panel and the code for the index page is displayed in the top panel.

Screengrab of SQL Insert Procedure

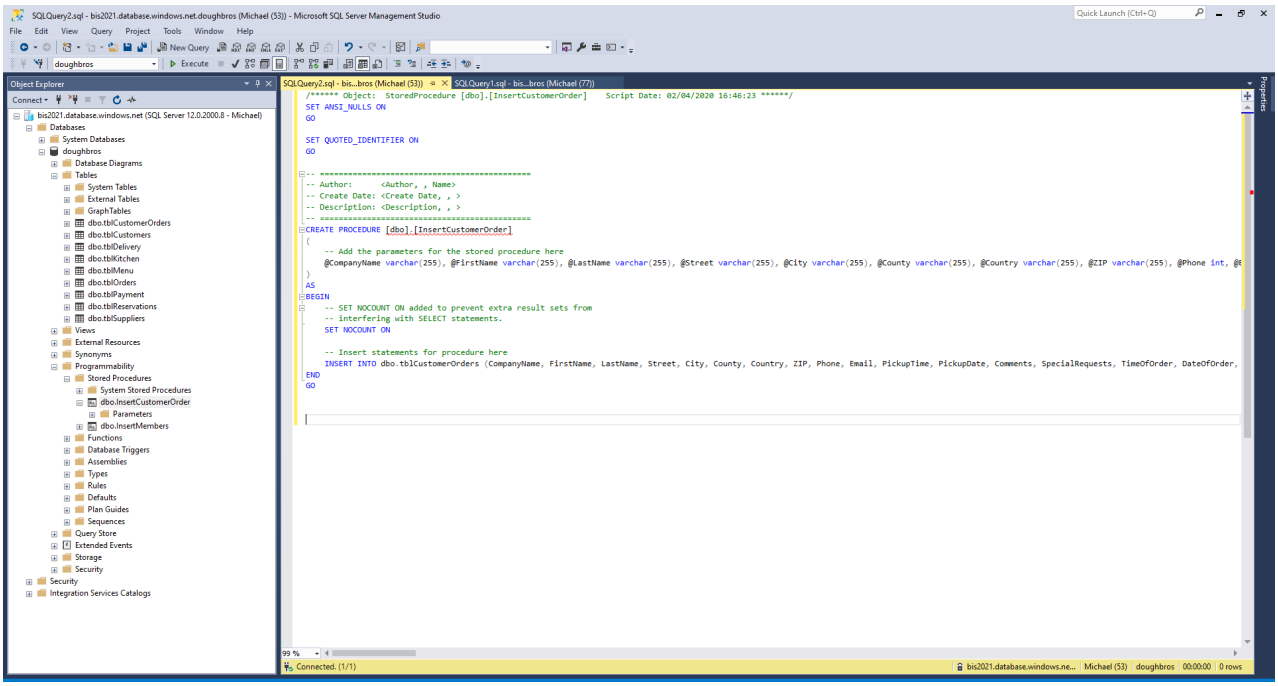


Figure 6: This is the SQL Insert Code which automates the process where data is inserted from the website form to the SQL database.

Screengrab of the C# code running behind the scene

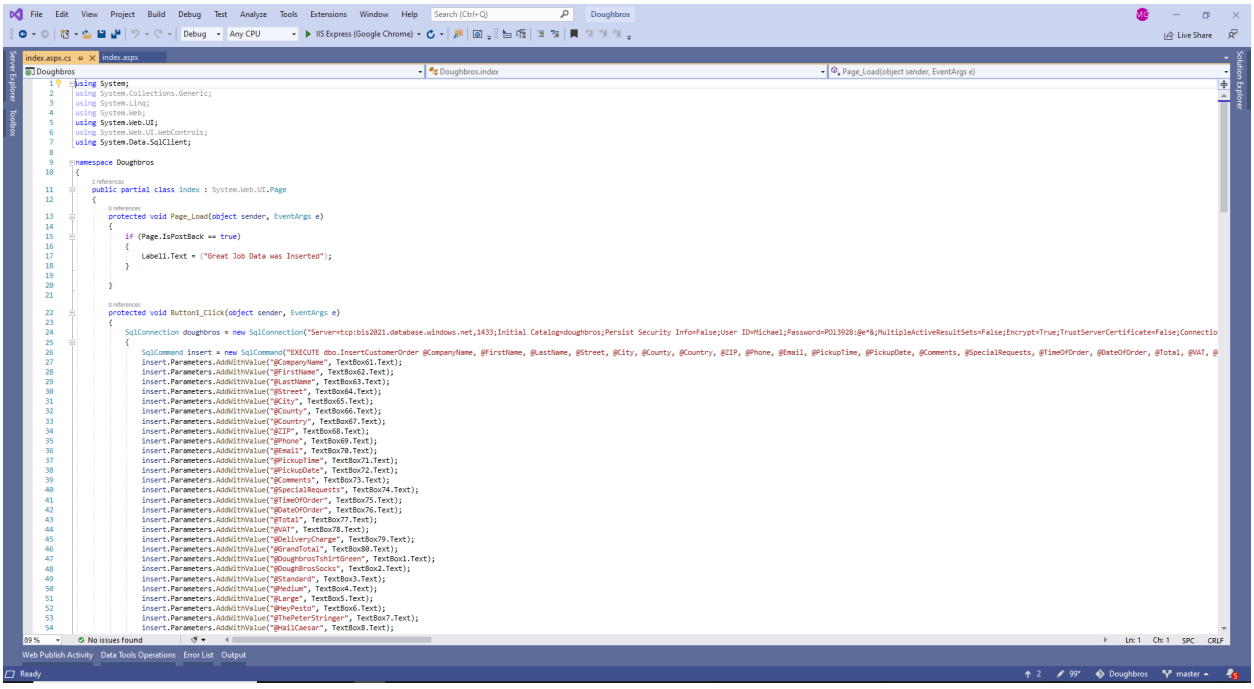


Figure 7: Displays the function where the submit button is clicked, the connection to the SQL server is opened and data is inserted and connection is subsequently closed.

Screengrab of some 600 lines of Client Side JavaScript Code

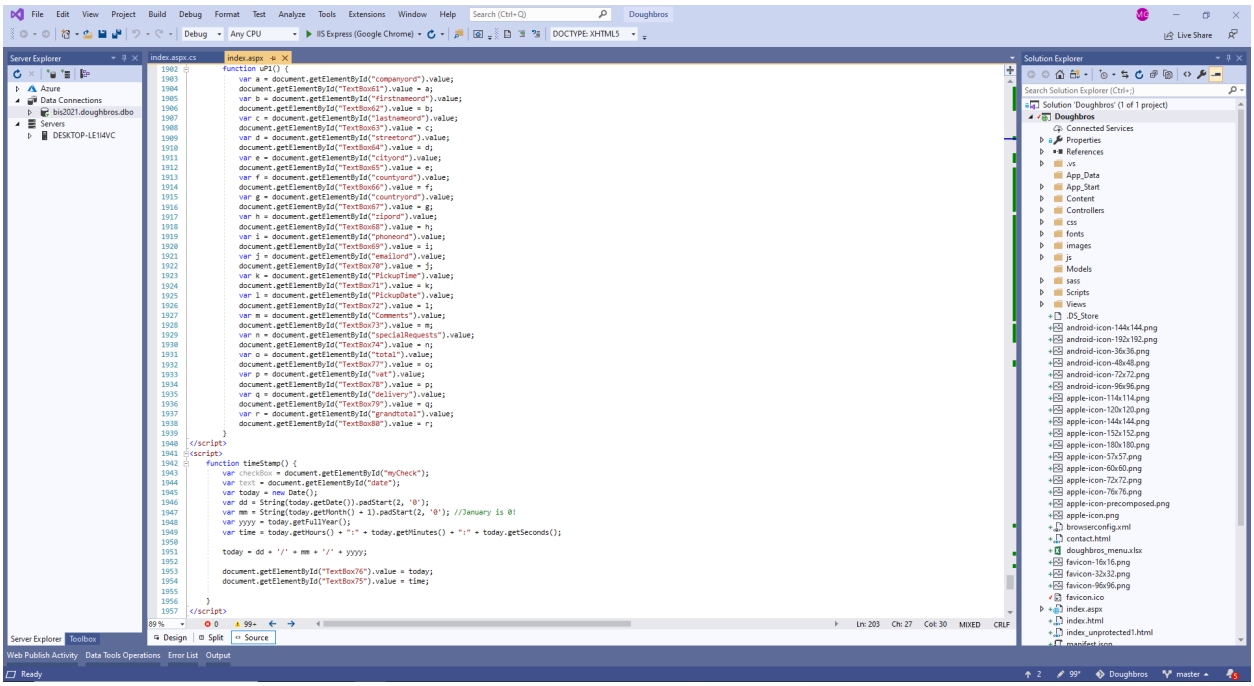


Figure 8: A snippet of some of 600 lines of JavaScript code which preforms various functions. Pictured is: 1) time stamps the order once the order is submitted (without user knowledge) and, 2) JavaScript which converts checkbox values to text for the purposes of data insertion in the SQL Database.

Screengrab JavaScript order form code

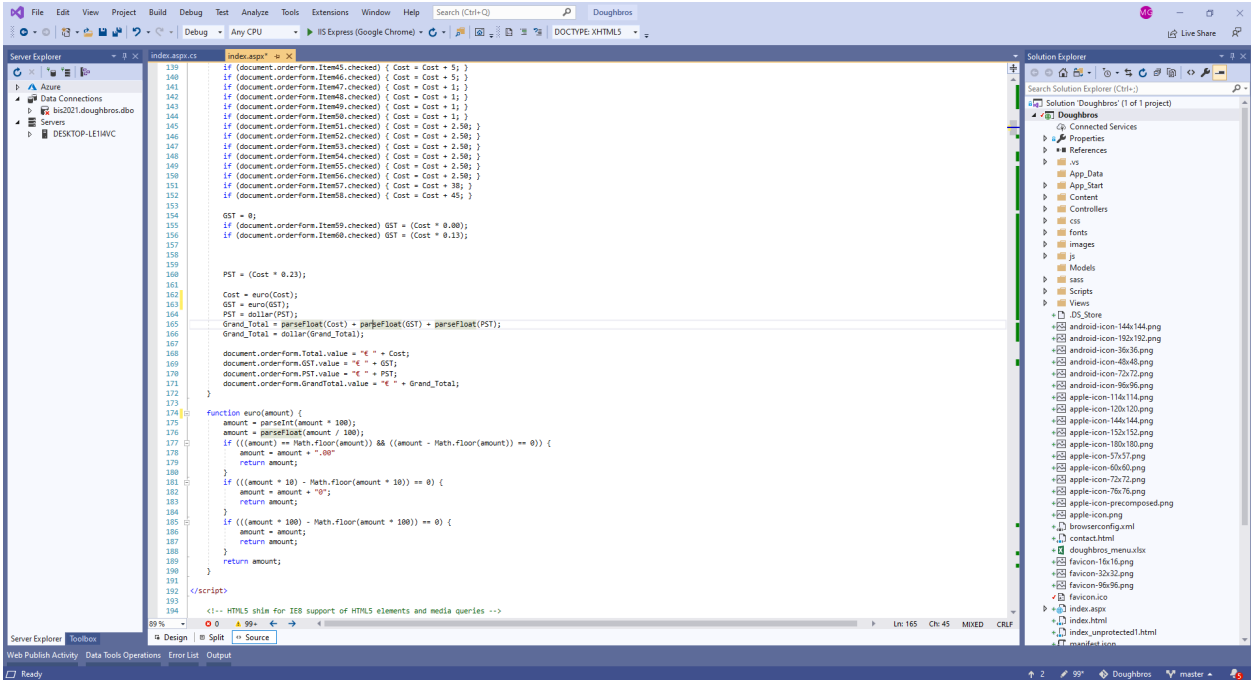


Figure 9: Simple JavaScript Array function used to calculate the order form on the Client Side.

Screengrab of Internal APP's for the business

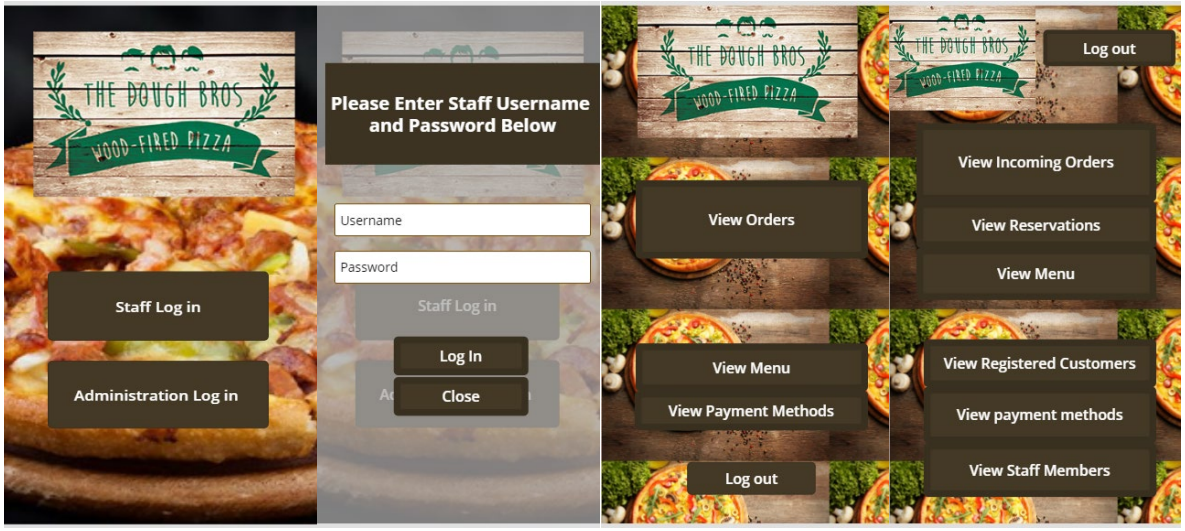


Figure 10: APP's used to view and manage the orders placed (progress to date 02.04.20) Built and designed for use on Microsoft PowerApp's.

Conclusion

In conclusion, we have successfully implemented an ordering system for Dough Bro's. Initially Dough Bros did not have any online ordering system in place in their business. This left them at a competitive disadvantage to their competitors. By implementing this online ordering system Dough Bros can now provide increased efficiency and services to their customers. Dough Bros will now be better equipped to compete in the digital food ordering service marketplace. The marketing team will be able to obtain and analyse data on customers to implement new marketing strategies and products to suit customers tastes and demands. Sales can now be increased as Dough Bros can now reach a wider audience with the online ordering system. Restaurant staff will now be more efficient and under less pressure as the online ordering system will reduce the pressure put on in restaurant orders.