

# Project Proposal

## Group Task 07P

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# Project Proposal<sub>[1]</sub> : *GotoGro-MRM*

## Background / Problem Description

Goto Grocery (GotoGro) Inc is a company based in Hawthorn which provides its customers with a variety of grocery needs. They have come to us, Team Grotle, to create a system that would help manage their stocktake needs. Currently, GotoGro has a paper-based system that records the member's details and sales records. They have found it difficult to manage the member's expectations and to satisfy their customers' needs with their current system.

They would like us to create an application that can help manage the members' records and help GotoGro calculate the customers' grocery needs.

GotoGro has given us a list of requirements. They are:

- Graphical interface.
- CSV generated reports for further processing.

## Scope

GotoGro is seeking a new onsite system which would incorporate a graphical interface that will replace the paper-based system that tracks the members' details and their sales records. Within this new system, it would generate a CSV document which is derived from the members' data.

First and foremost, the software needs to be able to track members' details and purchase history which can be edited and viewed by management. The software will show what was purchased by what member, when it was purchased, how much was purchased and all purchase history. This will be displayed in a graphical interface with the option of exporting tables into a CSV text file format as requested. This will solve their problem of under and overstocking certain products, giving management an overview of the quantity of products left and allowing them to easily find the average amount of a particular product being purchased on a weekly or monthly basis. Thus allowing management to have a prediction on the popularity of products, and providing them in a timely manner.

However, features that are not going to be added to the software are any additional add-ons that were not directly specified by the client. Additionally, it is not our responsibility to add new members to the database, nor to manage the software as well as analysing the sales prediction which is ultimately up to GotoGro to view and analyse.

# Stakeholders

Stakeholder	Interest	Extent of Involvement
<b>Customers (members)</b>	Customers are ultimately personally invested into the development of the product. As there shopping experience is affected by the organisation of there records and sales records	Their investment is in the form of their membership. As well as proposing products. Ultimately if there is an issue with the organisation of the sales and members records which affects them they have the ability to retract their investment.
<b>Client</b>	GotoGro are the clients of this project. They have approached us to create a system which replaces their current one which is paper-based.	They are funding this project and expect a final product which fulfils their needs.
<b>Store Managers</b>	The store managers of GotoGro are interested in using the system to aid in the store's daily operations, namely record management operations and sales report generation.	They are involved in usability tests and provide feedback on the system.
<b>Owner of business</b>	The owner of the business is in charge of organisational strategy and uploading the company's mission and vision.	They are directly and financially involved in the operational process.
<b><u>Computer Supplier</u></b> <b>Computer company where computers are going to be ordered to house the computer</b>	They might have some sort of contract saying that GotoGro will only purchase their products.	They would supply the computers needed to use the software to GotoGro and replace the computers either under warranty if they need to buy new ones.
<b>Development team</b>	The development team is responsible for the design and creation of the management application and are interested in satisfying all other parties' needs as best as possible.	They are involved in designing, creating and iterating on the software itself based on feedback, producing a quality working final product that will ultimately replace GotoGro's current paper-based management system.

<b>Project manager</b>	The project manager is responsible for overseeing the development of the GotoGro desktop/on-site application.	They are responsible for allocating resources, setting deadlines, supervising each stage of the project, laying out communication and just generally making decisions that lead to the software's development.
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# Deliverables and schedule

## **Deliverables**

- GotoGro-MRM Application. ( June 6th)
- User Manual.
- Test document

## **Schedule**

- Project Proposal 4/4/2022
- Project Handup 29/5/2022

## **Sprint 1**

- Planning 11/4/2022
- Setup 11/4/2022
- Midpoint Check 26/4/2022
- Final Check 2/5/2022
- Product Review 2/5/2022
- Process Review 2/5/2022
- Design 2/5/2022

## **Sprint 2**

- Planning 9/5/2022
- Setup 9/5/2022
- Midpoint Check 16/5/2022
- Final Check 23/5/2022
- Product Review 23/5/2022
- Process Review 23/5/2022
- Design 23/5/2022

# Product backlog

No.	Item	Dependencies	Business Value (1 least – 10 most)	Release Schedule (Sprint 1   2 )
F1	Add a new member	-	10	Sprint 1
F2	Deactivate member	F1	8	Sprint 1
F3	Search for member	F1	2	Sprint 1
F4	Edit existing member	F1	2	Sprint 1
F5	Add a sales record	F1	10	Sprint 1
F6	Record in the spreadsheet of purchase logs and product levels. Downloadable in CSV format	F1, F5	9	Sprint 1
F7	Search for sales record	F5	2	Sprint 2
F8	Update sales record	F5	7	Sprint 2
F9	Remove Sales record from view	F5	1	Sprint 2
F10	Produce a daily sales report on popular items (what was sold the most) Downloadable in CSV format	F5	8	Sprint 2
F11	Produce a weekly sales report on popular items (what was sold the most) Downloadable in CSV format	F5	8	Sprint 2
F12	Produce a monthly sales report on popular items (what was sold the most) Downloadable in CSV format	F5	8	Sprint 2

## Changes made to backlog

Any changes to backlog items that we made to the backlog items were redacted to original form.

## Solution Directions

### I. Web Based Application

Another possible solution is a web application. This website will be able to be accessed both onsite at the grocery store and remotely. This application would work similarly to the desktop application, in that it would replace the current pencil and paper system in place, feature a database to store member's personal details, as well as a way to convert said tables into a downloadable CSV file.

The main benefit of a system like this would be its accessibility, as you'd be able to access it from almost anywhere. This would mean that set-up would be very minimal, as you'd only need to access the website from a computer, as opposed to downloading an application. Furthermore, company computers wouldn't be necessary, as administrators would be able to access the site from their own computers. It would also be more cost effective, due to its web

based nature. Also, any changes wouldn't require a manual update. This means that changes wouldn't impact upon usage, nor would updates take time downloading once published.

## II. Desktop Application

One proposed solution was a desktop application that will be onsite at the Goto Grocery. That will replace the current member and sales record management system. The application is a sales and member record managing software.

Therefore making it easier for the store staff and management to help members keep on top of popular products and sales invoices. As well as increasing efficiency as all data tables are automatically updated when information is added about a customer purchase. This data would be displayed in an interface that would showcase which products are low in stock. Hence generating reports in a spreadsheet format directly after data has compiled which can be accessed in weekly and monthly reports. These reports can be exported into a CSV file.

Additionally, there is an added security element to the software. As records can only be accessed by staff and edited by the management of the grocery store. Whereas a paper-based system can be physically viewed by anyone who has the physical files. As the physical files have a chance of getting lost where the records on the desktop application are available on the store computer.

# Solution and problem domains

## I. Problem Domain

GotoGro currently has an existing paper-based system which they are currently finding it difficult to manage their members' expectations. With the current system, it is difficult to organise record data causing over or under ordering of products. Additionally, the paper-based method can be slow, difficult to maintain and harder to manage. This directly affects the businesses productivity which can cause a decline in the performance of the organisation. With the current system, it can cause dissatisfaction across members as they feel that their needs are not being met which may lead to them switching to another service. Currently, GotoGro are facing a problem within their business operation, the scale of the project and keeping up with the demands and expectations of their members.

## II. Solution Domain:

### *Desktop Application*

The solution which is being proposed is a record management onsite desktop application. Which ultimately replaces the paper-based system and digitizes it. The new computerized system allows management to edit and view members and sales records. Also, data collected from members and products purchased will be compiled into a spreadsheet report that can be exported into a CSV format. which management can analyse and make educated and informed decisions on product orders, as the reports tell most popular products monthly , weekly. Additionally the inventory of products and popular products to members. Therefore orders can be phrased accordingly. Ultimately leading to improved member experience shopping at GotoGro grocery store.

### *Web-based Application*

Our final decision for the Web-Based application would be a website and database. It'd be accessible both onsite and off via a member of management. The admin would be able to



track members' details and purchases through the database, and convert that data into an online CSV document. Through this solution, admins will be able to access the program from anywhere.

- Web-based system accessible on site and off site (by management)
- Track members' details and purchase history in an online(?) database
- Generate CSV documents online
- Allow management to access the program and thus the databases through the website from anywhere

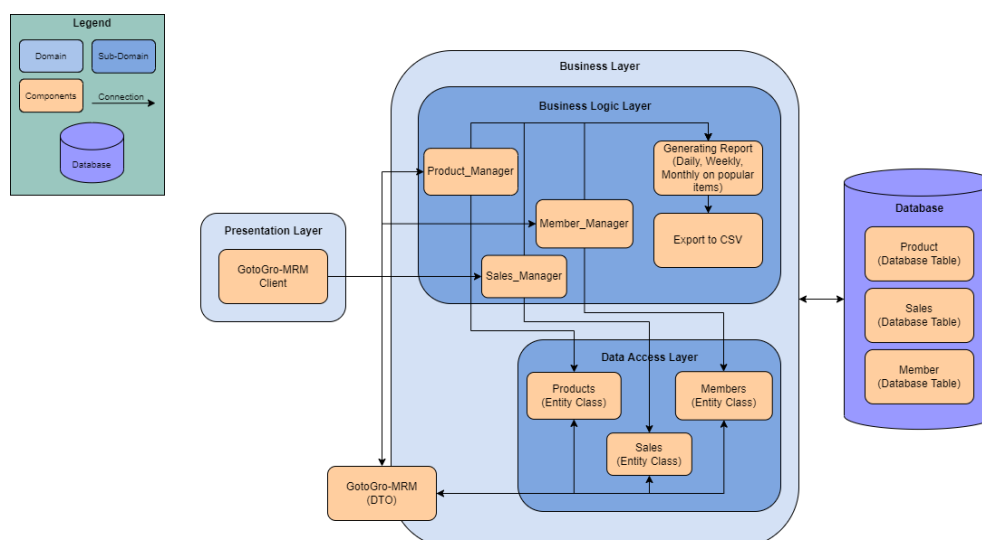
## Final solution choice

The chosen solution is the on-site desktop-only application as it fits the needs of the client the best and has the least amount of overhead. As GotoGro is transitioning from a paper-based system, and all they need is the ability to manage, record and export member sales reports, the on-site desktop application will suit their needs the best. Not only will the desktop application be easier to understand and operate for the GotoGro management, but having the system offline will keep GotoGro from needing to manage setting up and maintaining an internet connection in order to run the software. It is for these reasons an on-site desktop-only application is the solution chosen.

## Amended Final solution Choice (15/04)

As a team we have decided to change the chosen final solution to a web-based application. This will still fit the needs of the client while also being more feasible for our group to produce as we have time restraints and implementing the user interface with HTML, CSS and Javascript is more simple. Members of our group have developed a similar application to the one the client requires using HTML, CSS and Javascript thus allowing us to reuse code saving effort, because the code has been implemented and tested we know it can be reliable.

## High level design



## Components

Component	Description	Role and Responsibilities
<b>GotoGro-MRM Client</b>	A new Desktop Application designed for GotoGro	GotoGro Employee will use this application in order to Manage member records through the database system.
<b>GotoGro-MRM (DTO)</b>	A Data Transfer Object	This is used to carry data between the Business logic layer and Data Access layer.
<b>Sales_Manager</b>	A Sales object in business logic	This object is where employees can add new sales records and manage existing sales records.
<b>Member_Manager</b>	A Members object in business logic	This object is where employees can add new members and manage existing member records.
<b>Product_Manager</b>	A Product object in business logic	This object is where employees keep Product stock records.
<b>Generating Report</b>	A Generating Report object in business logic	This object is used for generating the daily, weekly, and monthly report on popular items. This is where the employee will get the report and analyse which product to be ordered.
<b>Export to CSV</b>	An Exportation object in business logic	This object is used for converting the report into the CSV format.
<b>Products (Entity Class)</b>	A Products Entity Class in Data access layer	This is where it receives parameters from Products_Manager in the Business logic layer, and passes it to Products in the database, and vice versa.
<b>Members (Entity Class)</b>	A Members Entity Class in Data access layer	This is where it receives parameters from Members_Manager in the Business logic layer, and passes it to Products in the database, and vice versa.
<b>Sales (Entity Class)</b>	A Sales Entity Class in Data access layer	This is where it receives parameters from Sales_Manager in the Business

		logic layer, and passes it to Products in the database, and vice versa.
<b>Products (Database Table)</b>	The Products entity in database system	This is where the data of the Products being stored in the database.
<b>Members (Database Table)</b>	The Members entity in database system	This is where the data of the Members details being stored in the database.
<b>Sales (Database Table)</b>	The Sales entity in database system	This is where the data of the Sales records being stored in the database.

## Quality Management

### Functional Stability

#### Functional correctness

Backlog item:

F10: Produce Daily sales report

F11: Produce Weekly sales report

F12: Produce Monthly sales report

Characteristics: The core characteristic that must be considered is “functional suitability”, with the sub characteristic being “functional correctness”.

Justification: Functional correctness is the degree to which a product or system provides the correct results with the needed degree of precision. In using this as a quality metric, we can create the assurance that the reports are generated with precision.

Measurement: It is important that the reports that are being generated should be made with 100% accuracy. These reports are made essential in predicting customer sales trends, and any inaccuracies could prove fatal when predicting popular items. To consider this function as “done”, during the testing phases the number of errors found within the report should be less or equal to 5% of the total test cases.

#### Functional Appropriateness

Backlog item:

F10: Produce Daily sales report

F11: Produce Weekly sales report

F12: Produce Monthly sales report

Characteristics: Considered here is the characteristic of Functional Suitability and the sub-characteristic of Functional Appropriateness.

Justification: Functional Appropriateness within functional suitability refers to how well

specific functions are able to accomplish or complete tasks or objectives. Using this as a quality metric, allows us to observe how efficient the functions are and how well the user can accomplish specific tasks.

Measurement:

If the system produces the expected outcome successfully 95% of the time, the system has achieved functional appropriateness.

## Usability

### Operability

Backlog item:

F1: Add a new member

F2: Deactivate member

F3: Search for member

F4: Edit existing member

F5: Add a sales record

F7: Search for sales record

F8: Update sales record

F9: Remove Sales record from view

Characteristics: Usability → Operability

Justification: Operability is considered so that the system will be easy to operate and control, allowing GotoGro employees to perform their tasks comfortably and quickly.

Measurement: To measure this quality, usability tests will be carried out. Since the users of the system are GotoGro employees and managers, we will recruit some of them to carry out these tests. When testing each feature, users will be given a task along with a time limit. The exact time limit for each task is listed in the table below:

Backlog Item No.	Task	Time Limit
F1	Add a new member	60 seconds (1 minute)
F2	Deactivate member	10 seconds
F3	Search for member	60 seconds (1 minute)
F4	Edit existing member	20 seconds
F5	Add a sales record	60 seconds (1 minute)
F7	Search for sales record	10 seconds
F8	Update sales record	60 seconds (1 minute)

F9	Remove Sales record from view	20 seconds
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To consider the system “done”, 90% of users must be able to complete the given tasks within the specified time limit. Our team has decided to allow up to 10% of users to fail since they may not be able to get used to the system in such a short amount of time.

### **User error protection**

Backlog item:

F1: Add a new member

F2: Deactivate member

F3: Search for member

F4: Edit existing member

F5: Add a sales record

F9: Search for sales record

F10: Update sales record

F11: Remove sales record from view

Characteristics:

Usability → User error protection

Measurement:

Protect users from errors occurring by the use of code unit tests which will limit errors from occurring 90% of the time. Hence errors should only arise 10% of the time. This will show useability and user error protection. Additionally, when an error does occur the application should come with an option and a message with the error and its causes. Furthermore, the application will tell the user to reboot and restart the software which will take 30 seconds. This fixes the error 100% of the time.

Justification:

Ultimately this fulfils the criteria of useability that the goals of the software features are effectively, efficiently, and satisfactorily for the user. Hence has usability but more specifically user error protection as the code testing should result in errors occurring only 10%. In addition when the errors do occur the application has to restart which should only take 30 seconds. This error prevention ultimately protects users from errors from occurring and being made accidentally by the users due to bad software. To achieve user error protection, the total number of user errors and user cancelled operations should be less than or equal to 95%.

## **Reliability**

### **Availability**

Backlog item:

F5: Add a sales record

Characteristics: Reliability→Availability

Measurement: The number of Available times (uptime) must be greater than or equal to 90% with a downtime of 10%.

Justification: Availability ensures that whenever the service is needed, it must be accessible

and operational. This characteristic is very important to the system because downtime could affect the company's sales record management, which leads to inaccuracy in analyzing sales reports.

To consider this done, during the specific development period, there has to be 90% uptime and 10% downtime.

### Recoverability

Backlog item:

F6: Record in the spreadsheet of purchase logs and product levels.

Characteristics: Refers to how well a product or system can recover data in the event of an interruption or failure.

Justification: A way to ensure recoverability will be to have copies of the database table saved both in the cloud and locally.

Measurement: Saves of the databases must be automatically saved regularly while being used. The save process mustn't impact usability, to the extent that the active user isn't able to continue working. Testing will be done on the saves under different circumstances to see how the system will react. To measure this, the system must save data every 5 minutes periodically. This should have a 90% success rate with a 10% failure rate of saving every 5 minutes.

## Resources

Name	Role	Description
<b>Dilni</b>	Scrum master	Scrum master organises the completion of the scrum and makes sure the scrum is established as defined in the scrum guid.
<b>Hamish</b>	Project owner	Is the client who is incharge of the management of the backlog iteams
<b>Cormac</b>	Developers	Completeis coding and development of the application.
<b>Tevy</b>	Developers	Completeis coding and development of the application.
<b>Justin</b>	Developers	Completeis coding and development of the application.
<b>Kamar</b>	Developers	Completeis coding and development of the application.








<b>Melanie</b>	Developers	Completeis coding and development of the application.
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## Specific hardware/Software

- PC Desktop
- Visual studio code
- Internet
- NetBeans
- SQL Database

## Approval Signatures

### Project Team

No	Name of student	Student Id	Signature
1	<b>Hamish</b>	103607352	
2	<b>Dilni</b>	103616345	
3	<b>Kamar</b>	103607585	
4	<b>Melanie</b>	103489466	
5	<b>Justin Lopez</b>	102589705	
6	<b>Tevy Tunsay</b>	103139978	
7	<b>Cormac</b>	102581060	

**Project Sponsor [Your Tutor]**

Tutor's name (on behalf of the client)	Signature:
Naveed Ali	