CutMyGrass (CMG) System

System Requirements Specification

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Version 1.0

May 22, 2022

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1. Introduction

1.1 Document Purpose

This document outlines the requirements specification and description for CutMyGrass Services (CMG). These requirements are directly related to the functionality, constraints, assumptions and dependencies and interfaces of the system. This specification document is written for Aruna, the owner of CMG.

1.2 Scope

The purpose of (CMG) Service is to decrease the amount of time spent completing administrative tasks. A newly created program will be designed and provided to assist the admin in their tasks.

The CMG Service will reduce administration and payment collection time by 50%. In combination with StripeAPI this program will create new customers and update pre-existing customers payment details, as well as, add their credit card and automatically charge payments for completed jobs. Another external service within the program, “ReminderServer” will perform the task of sending reminder messages to customers through either email or SMS. To improve customer satisfaction with the service, users will be sent a confirmation email after the job has been completed. This email will consist of three satisfaction options.

1.3 Glossary

Term	Definition
CMG	Is an Acronym for CutMyGrass.
Admin	Refers to the user given highest system Privileges.
IEEE (803)	In reference to the current System Specifications standards.

1.4 Overview

This document is organised according to the Institute of Electrical and Electronics Engineers, Inc. (IEEE) 830 software requirements specification standard. Requirements presented in this document are in relation to the needs of CutMyGrass services. The sections remaining contain the requirements for this system.

Section 2 - Overall description of the system. Highlights aspects such as the main product functions, constraints, and characteristics of the user.

Section 3 - Details specific requirements for the system. Section 3 organises the requirements into categories based on different interfaces of the system. These are user interfaces, hardware interfaces, software interfaces. System features are also described in this section which will contain models.

2. Overall Description

2.1 Product Perspective

The CutMyGrass Mowing Service System that will be implemented in order to perform administrative tasks such as taking customer details and creating them as a new customer in the system, taking their payment information and charging customers automatically for the service. The diagram in Figure 1 illustrates the internal and external entities for the CMG system. This will ultimately reduce time that the admin has to spend on these tasks. The system will also be used to send reminders to customers of the scheduled service and the payment options that are available to them.

2.2 Product Functions

The use case diagram consists of the five use cases:

- Manage quote
- Mowing service completed
- Get Quote
- Payment
- Reminder

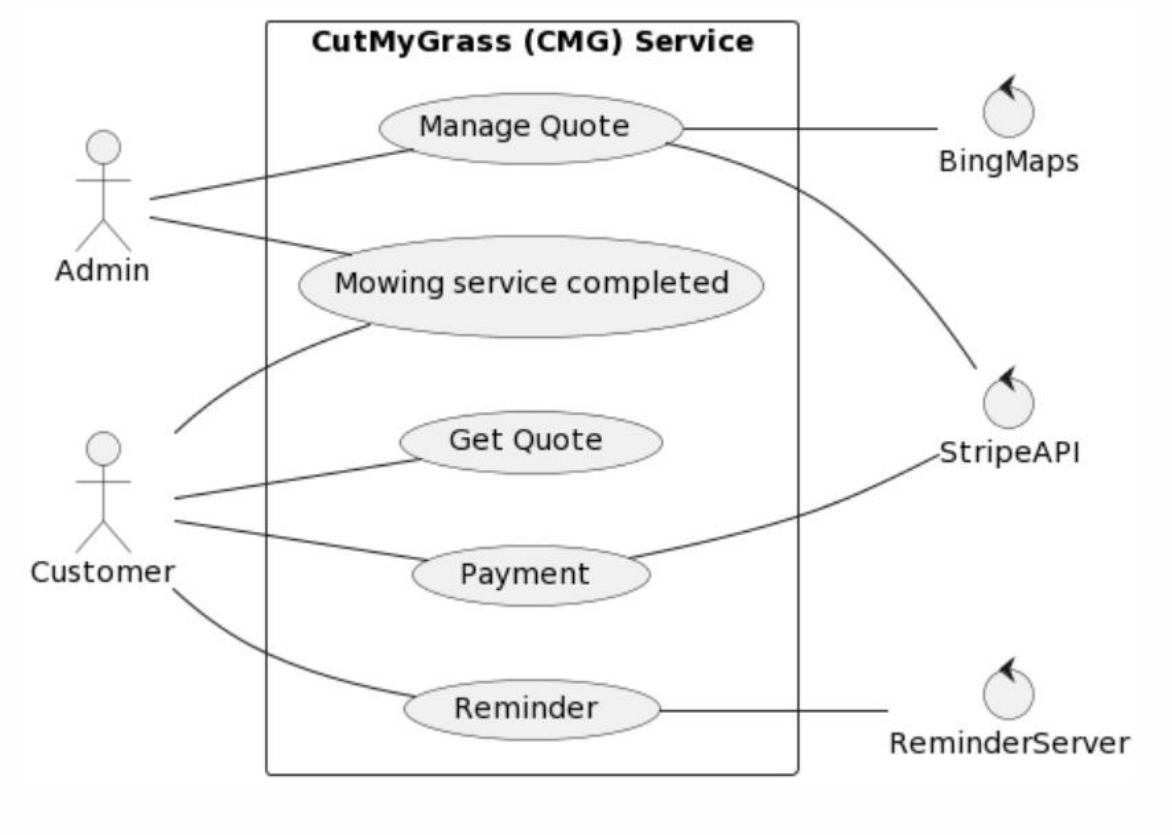
Manage quote is linked to the admin user and the BingMaps API because the admin is the one who will be managing the quotes and the API will get lawn size and location to determine price.

Mowing service completed is linked to Admin and Customer users because the admin will complete the service and the customer will be asked to provide feedback after the service is completed.

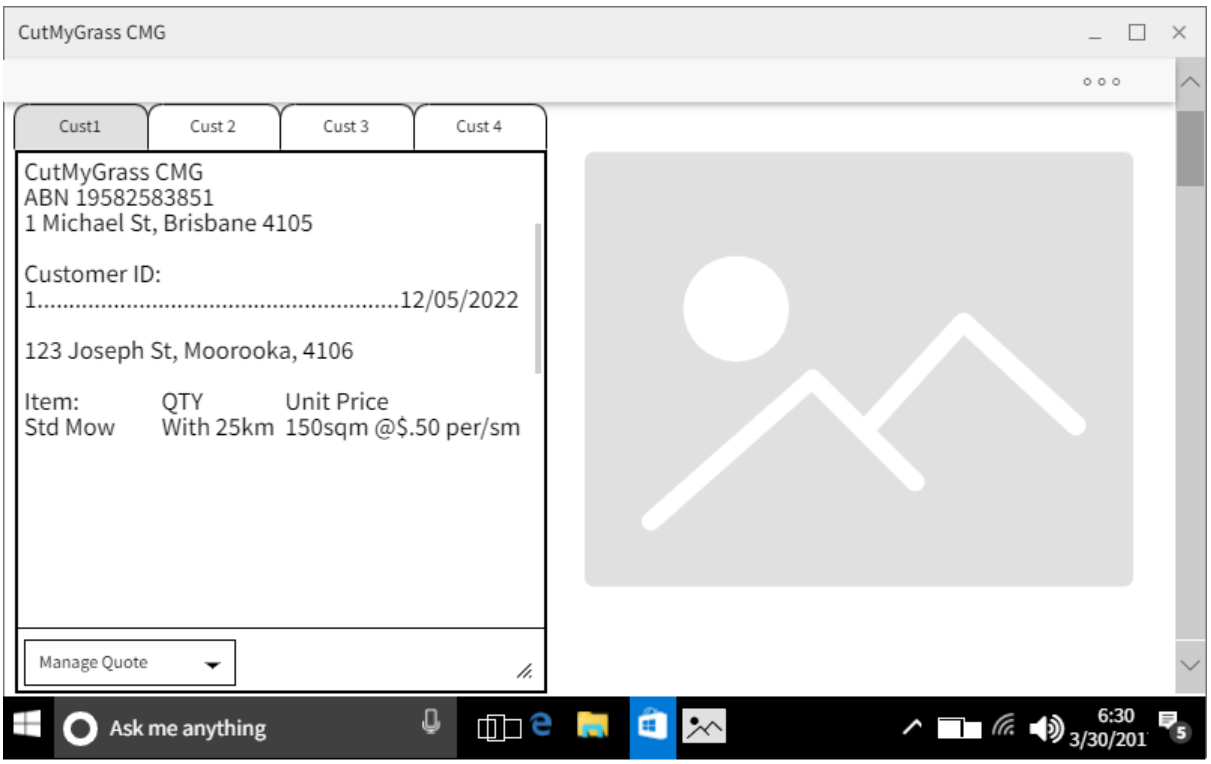
Get Quote is linked to customer because the customer is the one who initially asks for a quote

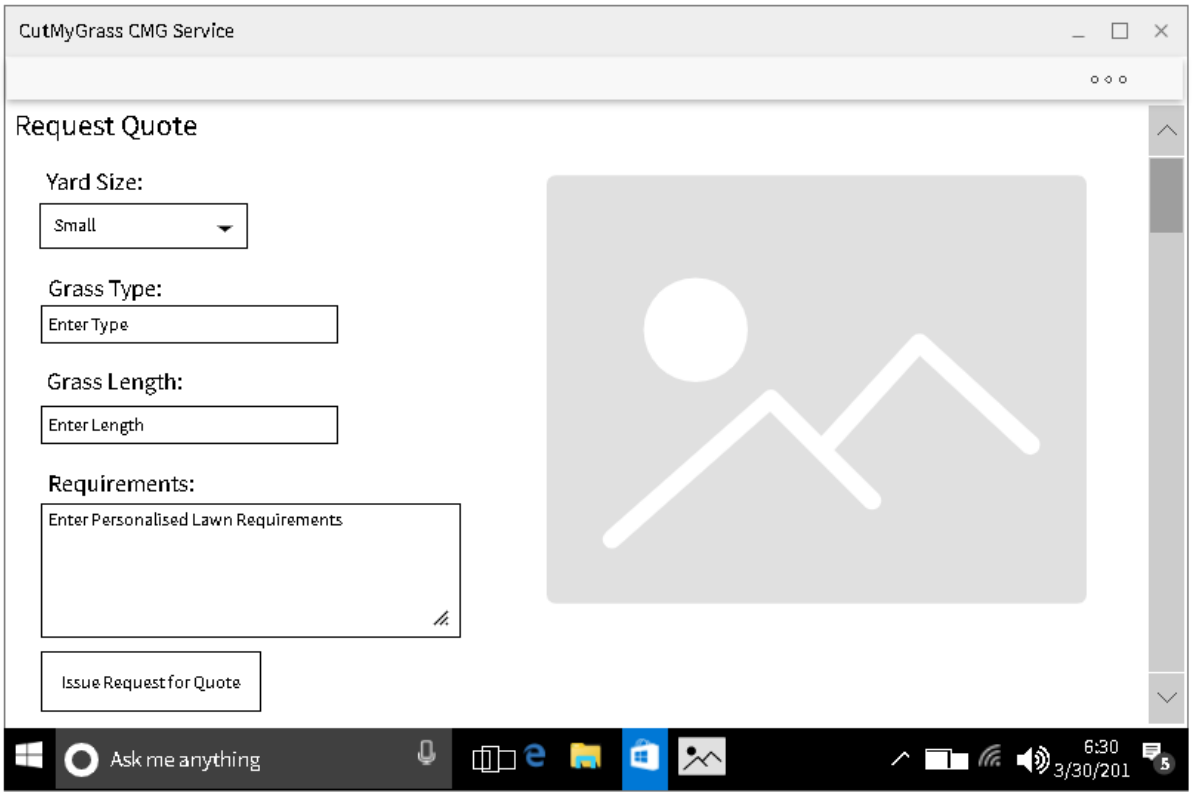
Payment is linked to the customer user and Stripe API because the customer is the one who will pay for the service and the API will process the payment automatically.

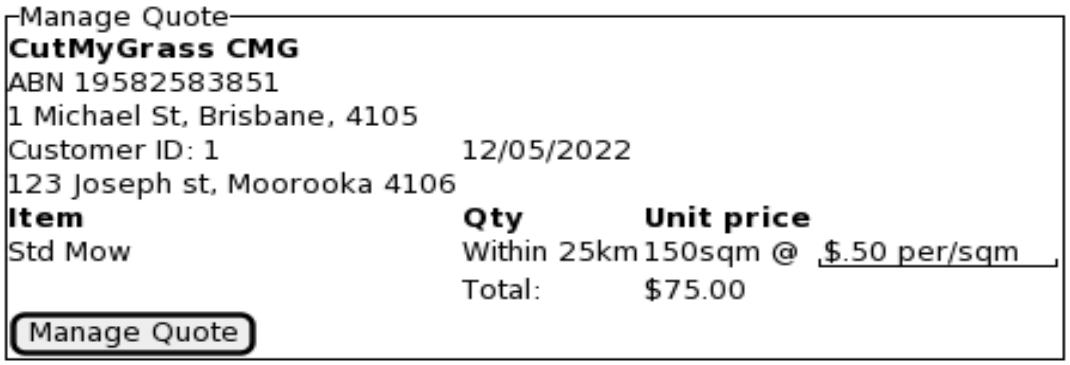
Reminder is linked to the Customer and RemiderServer system because the customer is the one who will be receiving the reminders and the ReminderServer will be automatically sending them a reminder of the scheduled service and payment options available.

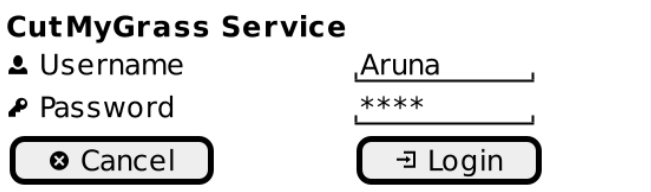


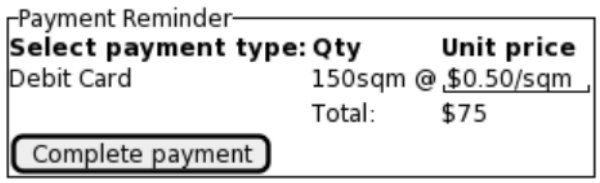
2.2.1 System Prototypes

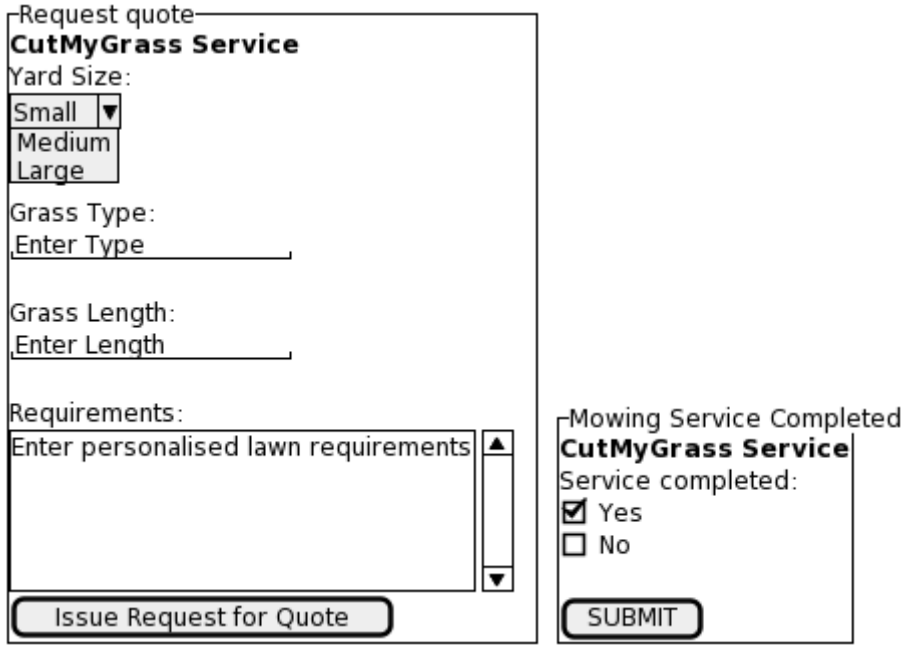


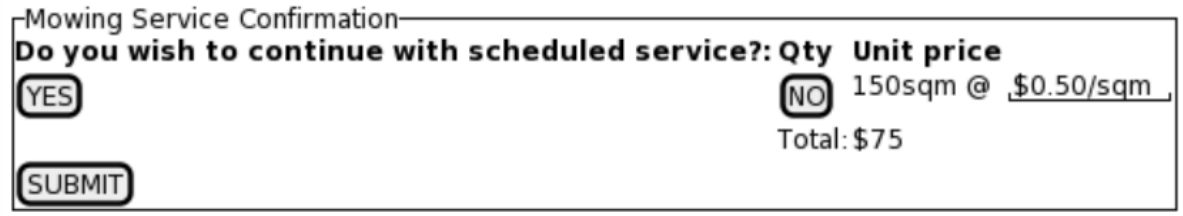



Manage Quote
CutMyGrass CMG
ABN 19582583851
1 Michael St, Brisbane, 4105
Customer ID: 1
12/05/2022
123 Joseph st, Moorooka 4106
Item
Qty
Unit price
Std Mow
Within 25km
150sqm @
$.50 per/sqm
Total:
$75.00
Manage Quote


CutMyGrass Service
Username
Aruna
Password
****
Cancel
Login


Payment Reminder
Select payment type:
Qty
Unit price
Debit Card
150sqm @
$0.50/sqm
Total:
$75
Complete payment


Request quote
CutMyGrass Service
Yard Size:
Small
Medium
Large
Grass Type:
Enter Type
Grass Length:
Enter Length
Requirements:
Enter personalised lawn requirements
Issue Request for Quote
Mowing Service Completed
CutMyGrass Service
Service completed:
Yes
No
SUBMIT


Mowing Service Confirmation
Do you wish to continue with scheduled service?:
Qty
Unit price
YES
NO
150sqm @
$0.50/sqm
Total:
$75
SUBMIT

2.3 User Characteristics

User Class	Description
Customer	**A customer is a person who wishes to use the mowing service. Customers will call the Admin in order to ask for a quote. After the quote has been given the customer will provide their details (name, address etc.) and the payment details such as credit card details or if they are paying cash. The customer has the option to cancel the service up until the day prior to the service.**
Admin	**The Admin of the CutMyGrass mowing service will perform tasks such as estimating the cost that the mowing service will be based on the size of the lawn using Bing Maps API. The Admin will then provide a quote for the customer and mow the lawn if they accept the quote.**

2.4 Constraints

CO-1: The system shall attribute third party usage of Excel and cloud services.

2.5 Assumptions and dependencies

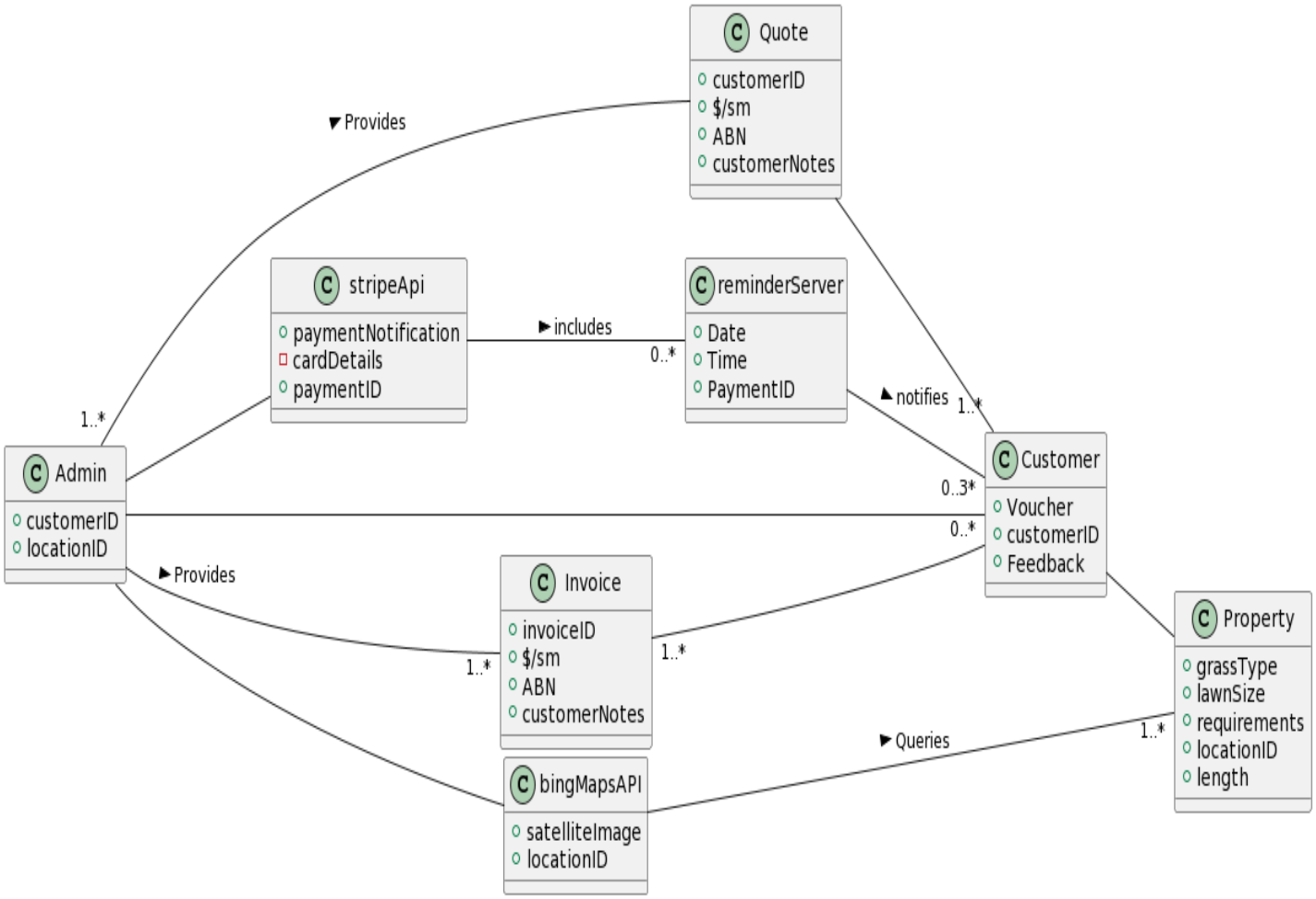
AS-1: The mowing service will operate every day outside of school hours.

AS-2: Customers requesting a quote will not be of any charge.

DE-1: The operation of the CMG Service System is reliant upon reminders for payments being made in the Reminder System to send out payment requests for completed mowing services with the CMG Service.DE-2: The operation of the CMG Service System depends on accuracy for BingMaps API to provide the accurate location for the mowing services for the admin when managing a quote.

3. Specific Requirements

3.1 External Interface Requirements, Overall construct:



Customer Table

CustomerID	Feedback	Voucher
1	Completed	Yes
2	Satisfactory	No
3	Uncompleted	No
4	Uncompleted	No

Invoice Table

InvoiceID	$/sm	Date	ABN	CustomerNotes
1	$45.00	11/05/2022	19582583851	Customer Input
2	$67.00	18/06/2022	19582583851	Customer Input
3	$41.54	3/06/2022	19582583851	Customer Input
4	$92.36	27/06/2022	19582583851	Customer Input

Quote Table

CustomerID	$/sm	ABN	CustomerNotes
1	$45.00	19582583851	Customer Input
2	$67.00	19582583851	Customer Input
3	$41.54	19582583851	Customer Input
4	$92.36	19582583851	Customer Input

BingMapsAPI Table

LocationID	Street Adress
1	54 Cambridge Road
2	68 Roathwerry Way
3	12 Lorain Court
4	64 Lucas Street

stripeAPI Table

PaymentID	PaymentNotification (SMS)
1	Yes
2	Yes
3	No
4	No

Admin Table

CustomerID	LocationID
3	3
2	2
4	4
1	1

Reminder Server

PaymentID	Date	Time
1	11/05/2022	10:00AM
2	18/06/2022	2:00PM
3	3/06/2022	11:00AM
4	27/06/2022	10:00AM

Property

LocationID	LawnSize	GrassType	GrassLength	Requirements
1	Small	Buffalo	Tall	Customer Input
2	Medium	Zoysia	Tall	Customer Input
3	Small	Couch	Medium	Customer Input
4	Large	Kikuyu	Tall	Customer Input

3.1.2 RE-3: The system shall use an external map service API

3.1.3 RE-4: The system shall only provide access to one user.

3.1.1 User interfaces

UI-1: The new CutMyGrass administration interface will exhibit characteristics conforming to the most up to date UI standards. These standards consist of characteristics such as user control and freedom, help and documentation, and error prevention.

UI-2: The interface shall have a virtual accessory (?) to access a help page designed to explain system navigation and answer possible queries users/admin may have.

UI-3: The CutMyGrass Administration system will incorporate a voice-over accessibility aspect as well as allow the users keyboard and mouse or input with optional methods for both.

3.1.2 Hardware interfaces

HI-1: The System will be compatible with most modern Windows 7 and onwards supported devices, However, due to the nature of the API's and multi-tasking involved, it is recommended that the devices have at least 4GB of Ram and at least a 4 Core CPU.

HI-1.2: It is recommended that during system up-time, a strong network connection most optimises the performance, this can be achieved via current Broadband/NBN services paired with modern routers. For this reason, wired ethernet connections are preferred.

3.1.3 Software interfaces

SI-1: CutMyGrass

SI-1.1: CutMyGrass is capable of storing multiple Quotes, Quotes will include the date, time, customer details and specifications and customer notes.

SI-1.2: CutMyGrass will utilise the latest version of StripeApi (2020-08-27) to manage customers and automate payment, store payment details and direct debit depending on payment method accordingly.

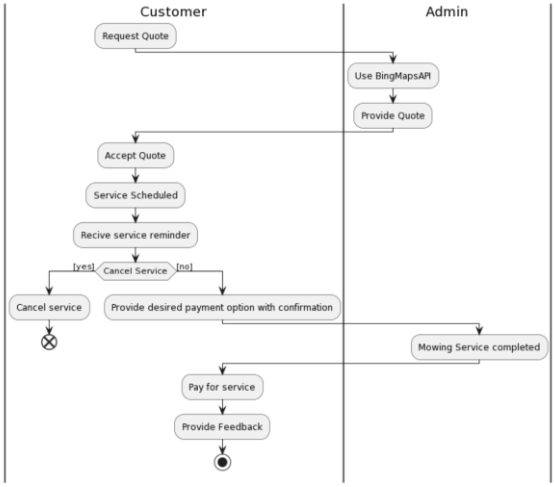
SI-1.3: CutMyGrass will utilise the latest version of BingMapsApi (8) to use satellite imagery and area calculator tools to determine accurate Price/Sqm.

3.1.4 Communications interfaces

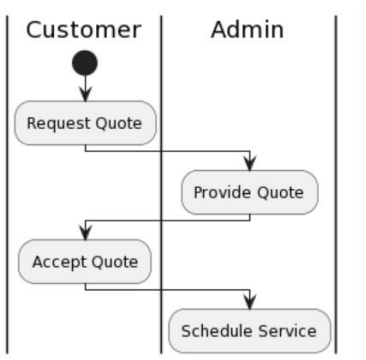
CI-1.1: Within the CutMyGrass system the integrated StripeAPI will manage communication with customers when prompted by administration, specifically; payment notifications and any debt outstanding.

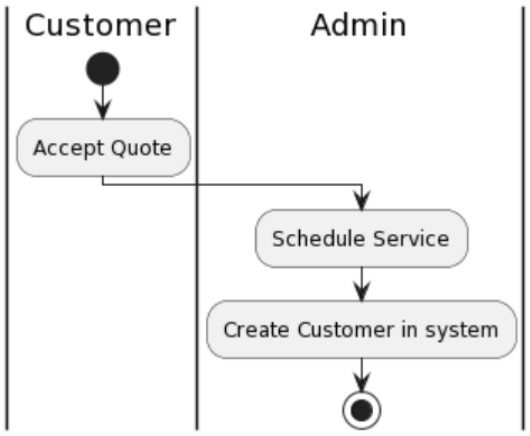
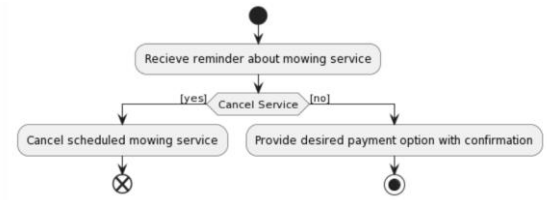
CI-1.2: CutMyGrass will also utilise multiple forms of communication at the customers convenience along with automated SMS messages, emails will also be utilised and automated promotional material will be optionally available.

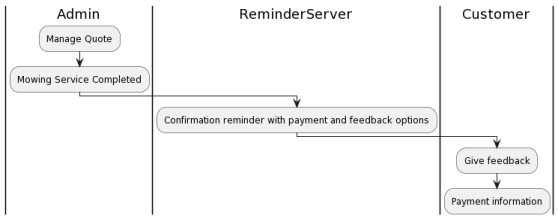
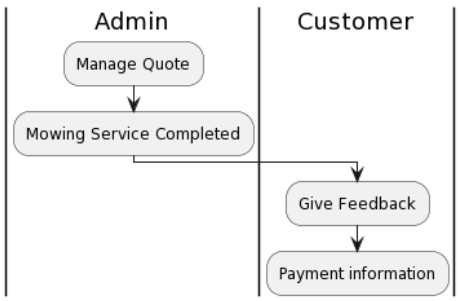
3.2 System features

ID & Name	**CD - 1**
Actors (Primary & Secondary)	**Admin**
User stories	**As Admin there needs to be a reduction of Administration Tasks and Api's in place to manage Payment reminders and Customer Location details.**
Description	**Manage Quotes, Maps Api and Payment**
Priority	**High (Overall)**
Trigger	**Routine Administration Duties**
Preconditions	**PRE-1 Customer enquiry**
Postconditions	**POST-1 Customer paid**
Normal Flow	
Alternative flows	**N/A**
Exceptions	**EX-1 Aruna rejects jobs based on location.**

	EX-2 Customer rejects quote based on price.

ID & Name	**UC-2 Get Quote**
Actors (Primary & Secondary)	**Customer**
User stories	**As a customer I want to be able to get a quote so I can determine if I can afford the mowing service**
Description	**- Customer Requests Quote**
Priority	**High**
Trigger	**Customer contacts the mowing service asking for a quote.**
Preconditions	**PRE-1 Customer asks for a quote**
Postconditions	**POST-1 Quote is added to the system** **POST-2 Mowing service is scheduled**
Normal Flow - customer accepts the quote - **Schedule service**	

ID & Name	**UC-3 Manage Quote**
Actors (Primary & Secondary)	**Admin**
User stories	**As the Admin I want to be able to manage quotes, use APIs to manage customer account details and by extension schedule time and location for mowing services.**
Description	**Manage quote and schedule service**
Priority	**High**
Trigger	**Quote completed**
Preconditions	**PRE -1 Customer asks for a quote**
Postconditions	**POST-1 Quote accepted by the customer**
Normal Flow	
Alternative flows	

ID & Name	**UC-4 Mowing Service Completed**
Actors (Primary and Secondary)	**Admin, Customer, Reminder Server**
User Stories	**As the admin I want to check "Mowing Service Completed" after job is done to alert customer and request feedback and payment using ReminderServer**
Description	**Aruna will complete the scheduled mowing service and the customer will provide feedback and pay for the service.**
Priority	**High**
Trigger	**Aruna completes scheduled mowing service**
Preconditions	**PRE-1 Admin manages quote**
Postconditions	**POST-1 Reminder sent to user (feedback & payment)**
Normal Flow	
Exceptions	

3.3 Non-Functional Requirements

NF 3.3.1 Scalability: If the organisation exhibits a typical forecasted growth rate of 10% annually, the system's scalability will behave likewise.

NF 3.3.2 Reliability: Typical system functions and saved data will be available under network loss or instability, when connected however the system will circulate updates to local or cloud-based storage solutions.

NF 3.3.3 Throughput: The system will be able to maintain 100+ ongoing client services spanning across 365 calendar days.

NF 3.3.4 Maintenance: During afterhours scheduled maintenance intervals the system will have its resources limited to allow for required maintenance.

NF 3.3.5 Serviceability: Upon catastrophic errors or breakages the system shall exhibit typical maintenance/repair characteristics like that of any software update/Bug fixes with automatic bug reporting.

NF 3.3.6 User Efficiency: The system shall be friendly for customers of all ages to be able to use the system. (High Priority)

NF 3.3.7 Security**:** The system shall keep all customer records strictly confidential. (High Priority)

NF 3.3.8 Design Concerns: The system shall conform to user friendly design.