

1. INTRODUCTION

OVERVIEW

This report discusses the result of the work done in development of “Bulk Email Aggregator” on JavaScript Platform. The project aims at the development of an application to enable Customer Relationship Managers of a company to send bulk emails for collecting feedback of their own electronic products.

BACKGROUND AND MOTIVATION

Electronic product companies assign the task of collecting feedback to the CRM's.

Companies like Croma send text messages to customers to collect feedback where they have to send individual messages to each person.

Therefore, with this system we are trying to send emails to collect feedback from the customers who had purchased products from their company much more efficiently and getting abstract of performance of the electronics in the market.

OBJECTIVE

The final goal of the project is twofold.

1. A web application that is used to provide a paid service to the end user which will enable them to send bulk emails for collecting feedback of their own electronic products once they do payment through the Stripe payment gateway which we have used in the application.
2. Since our service will be provided on usage of assigned credit points to user. So once the Customer Relationship Manager (CRM) who will be using the application does transaction, a credit of 5 points will be automatically added to the individual's account and then that person can make the best use of the points by using it to send bulk email to as many people as needed. Each time the person sends a bulk email, 1 credit point is deduced.

METHODOLOGY

To implement the above goals, the following methodology needs to be followed:

1. Specifying the application and various components of the architecture.
2. Specifying the bindings between the various modules and JavaScript packages.
3. Specifying the server ports between the modules.
4. Analysis: Extracting the required data for analysis and then doing the analysis.

ANALYSIS

On the basis of analysis and literature survey regarding the present difficulties faced by the CRM's of companies like Croma as they have to send individual emails or text messages to collect feedback from each person.

Therefore, with the system of ours we are trying to send bulk emails to collect feedback from the customers who has purchased products from their company much more efficiently and getting abstract of performance of the electronics in the market.

Secondly, our application works based on assigned credit points to user. Therefore, once the CRM does transaction through our app, 5 credit points will be automatically added to the account and the user can make the best use of the credit points to send bulk email as 1 credit point get deduced each time a mail is sent.

REQUIREMENTS ANALYSIS:

SOFTWARE REQUIREMENTS:

Operating System: Windows 10 / Ubuntu

Front end: React.js v16.x

Back end: Node.js v11.x

Database: MongoDB Atlas

Authentication API: Google OAuth

Payment Gateway API: Stripe

Cloud Deployment: Heroku Deployment

Other Technologies used: Twilio SendGrid, Git and GitHub

HARDWARE REQUIREMENTS:

RAM: 8GB and above

Hard disk: 120GB and above

Processor: Intel i3 and above

FUNCTIONAL REQUIREMENTS:

1. CRM Signs Up via **Google OAuth**.
2. CRM **Pays for email credits** via Stripe.
3. CRM **creates a new feedback**.
4. CRM **enters list of emails to collect feedback**.
5. Application **send emails to list of customers**.
6. **Customers click on the link provided in the email to send feedback**.
7. Application will **tabulate feedback received**.
8. CRM **can see list of all feedback responses**.
9. Logout

NON-FUNCTIONAL REQUIREMENTS:

1. **Availability:** It will be available only to those who purchase our application.
2. **Maintainability:** It is easy to maintain the code base through Git.
3. **Performance:** We have configured our application in such a way that even though the load increases, the performance of our application doesn't get affected.
4. **Supportability:** Our application will be able to run on all the platforms like Laptop, Mobile, Tablet etc.

TOOLS AND TECHNOLOGIES:**APPLICATION DEVELOPMENT TECHNOLOGIES:**

This application is built using MERN stack ie MongoDB (MongoDB Atlas), Express, React.js and Node.js.

MongoDB is an open-source database software which is NoSQL in architecture. It stores data as JSON document. It is fast, reliable and efficient.

Express is a web application framework for Node.js. It is designed for building web applications and APIs. It has been called the de facto standard server framework for Node.js.

React.js is a JavaScript library for building user interfaces. Facebook and a community of individual developers and companies maintain it. React can be used as a base in the development of single-page or mobile applications.

Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine.

Google OAuth use the [OAuth 2.0 protocol](#) for authentication and authorization. Google supports common OAuth 2.0 scenarios such as those for web server, installed, and client-side applications.

Stripe is a service that allows users to accept payments online, specifically developers. With the **Stripe** application, users can keep track of payments, search past payments, create recurring charges, and keep track of customers.

Twilio SendGrid provides a [cloud-based](#) service that assists businesses with email delivery.

INTEGRATION TOOLS:

GIT AND GITHUB:

Git is a distributed version-control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity and support for distributed, non-linear workflows.

GitHub is a web based hoisting service for version control using Git. It is mostly used for computer code. It offers all of the distributed version control and source code management functionality of Git as adding its own features.

HEROKU:

Heroku is a container-based cloud Platform as a Service (PaaS). Developers use **Heroku** to deploy, manage, and scale modern apps. Our platform is

elegant, flexible, and easy to use, offering developers the simplest path to getting their apps to market.

DESIGN

DFD

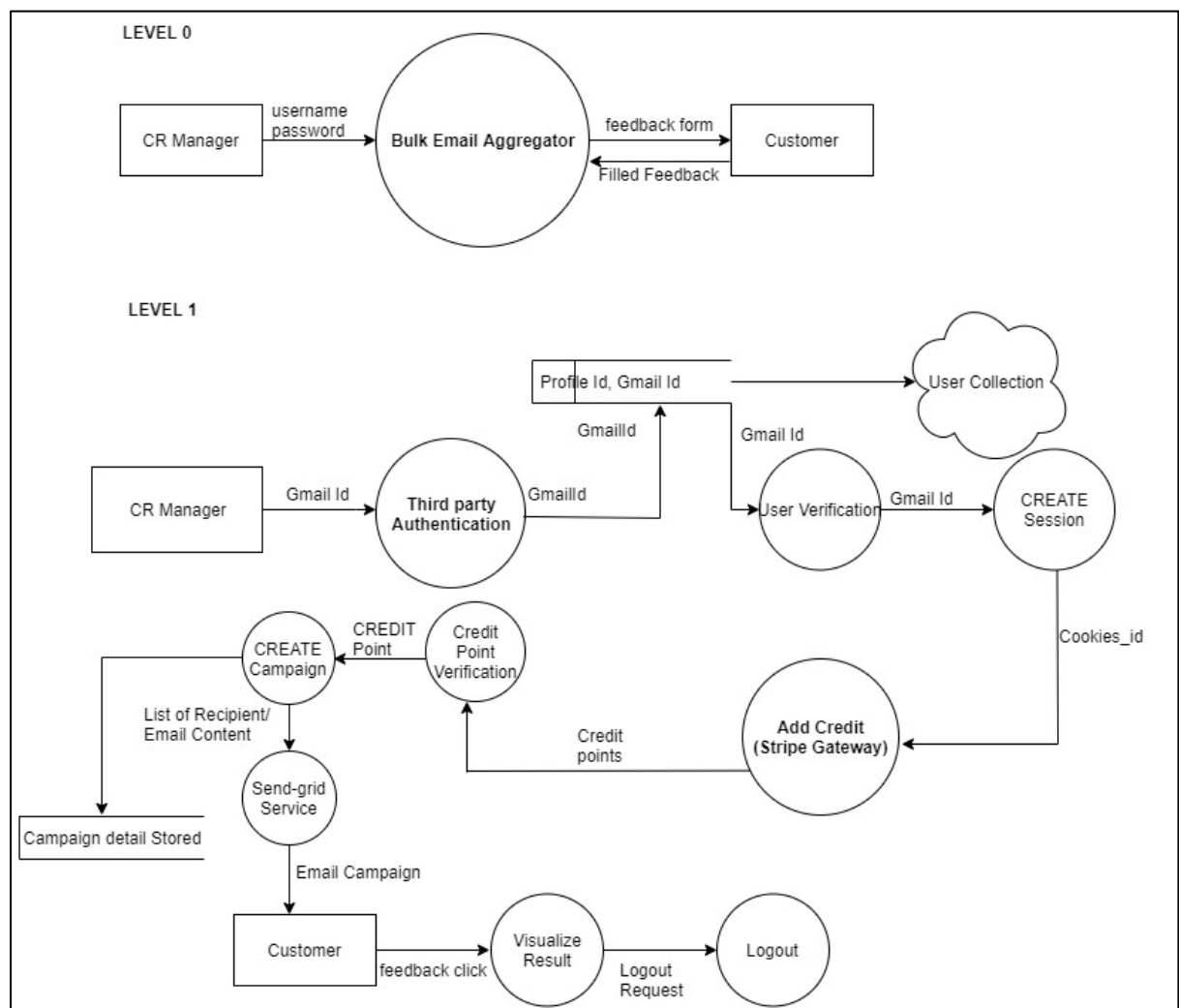


Figure 3.1.1 DFD Level 0 and Level 1

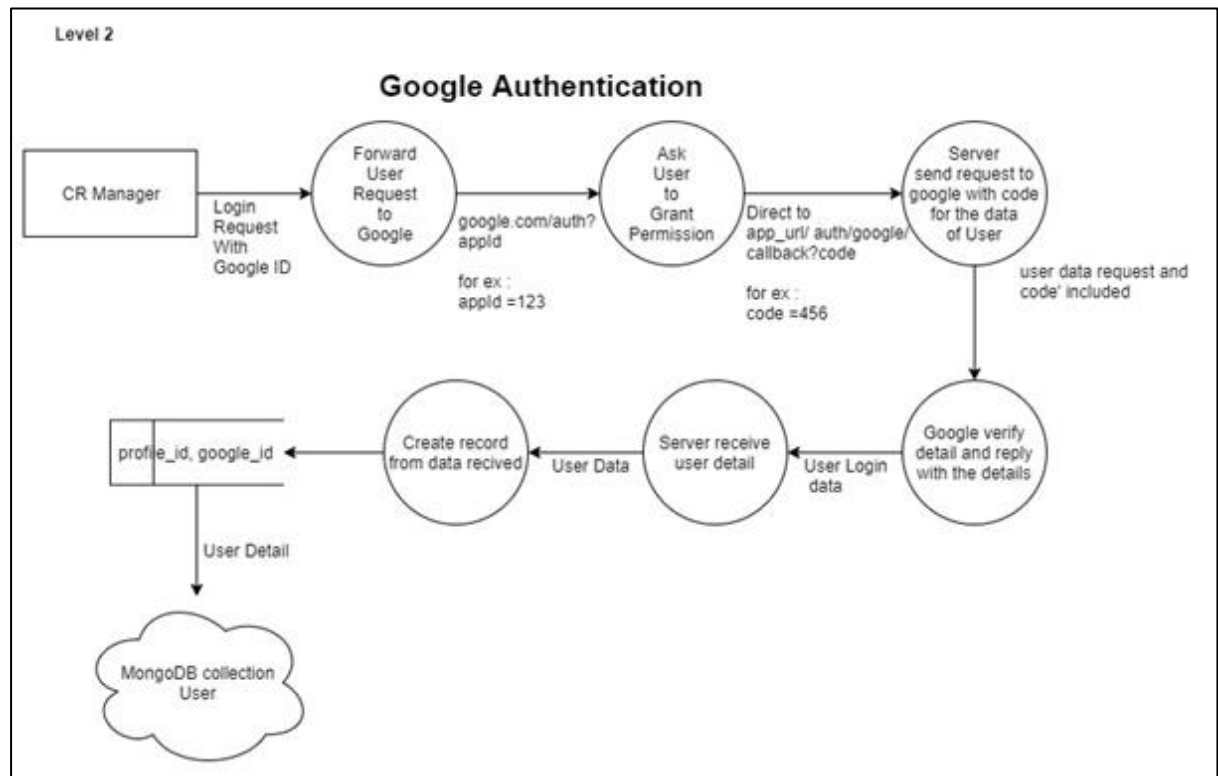


Figure 3.1.2 DFD Level 2 Google Authentication

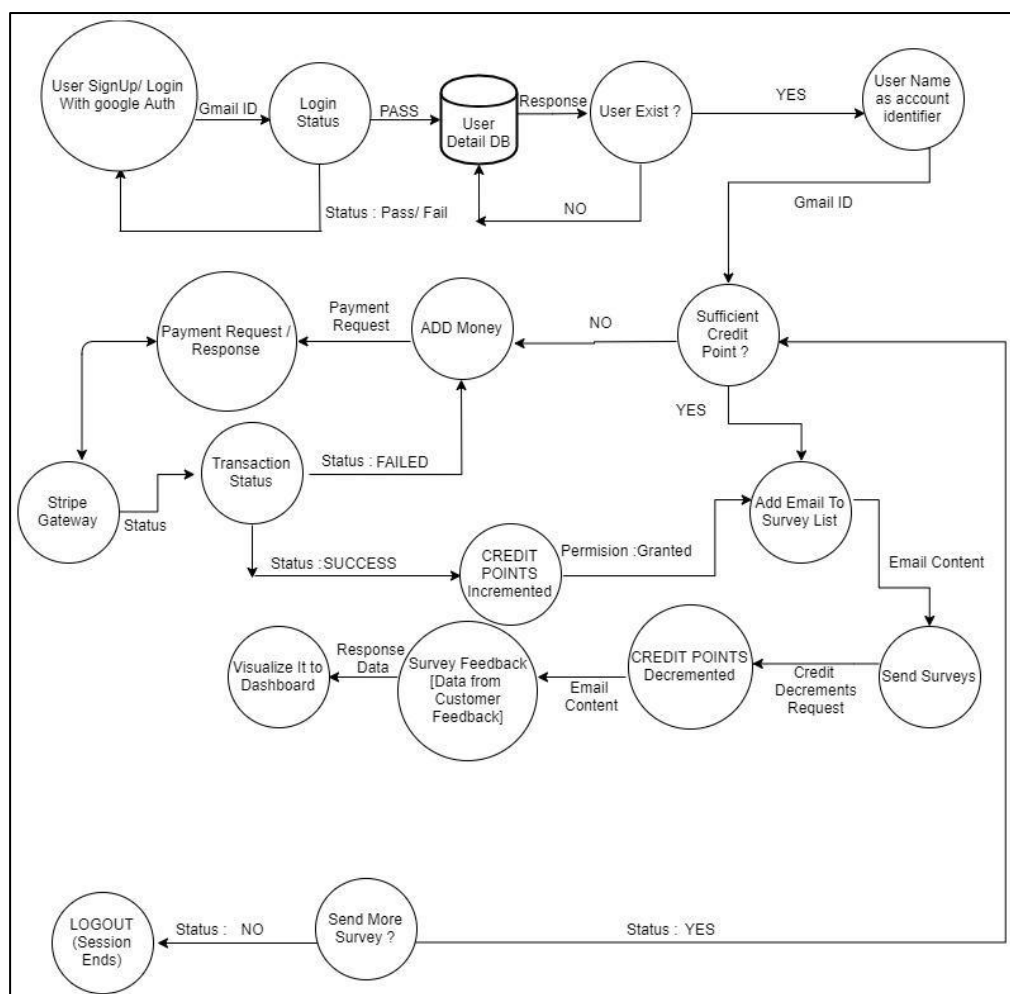


Figure 3.1.3 DFD Level 2

<pre> "user":{ _id: ObjectId(""), googleId: "String Type", __v: "Integer Type", credit: "Integer Type" } </pre>	<pre> "survey":{ _id: ObjectId(""), yes: "Integer Type", no: "Integer Type", title: "String Type", subject: "String Type", body: "String Type", recipients: "String Array Type" { index: "Integer Type", responded: "Boolean Type", _id: ObjectId(""), email: "String Type" }, </pre>	<pre> _user: ObjectId(""), dateSent: "Date Time Type", __v: "Integer Type" } </pre>
<pre> "recipient": { email: "String Type", responded: "Boolean Type" } </pre>		

Figure 3.1.4 Document Structure

Our project consists of two folds:

1. Customer Relationship Manager (CRM).
2. Customers: Who purchase products from different electronic companies.

USE CASE DIAGRAM

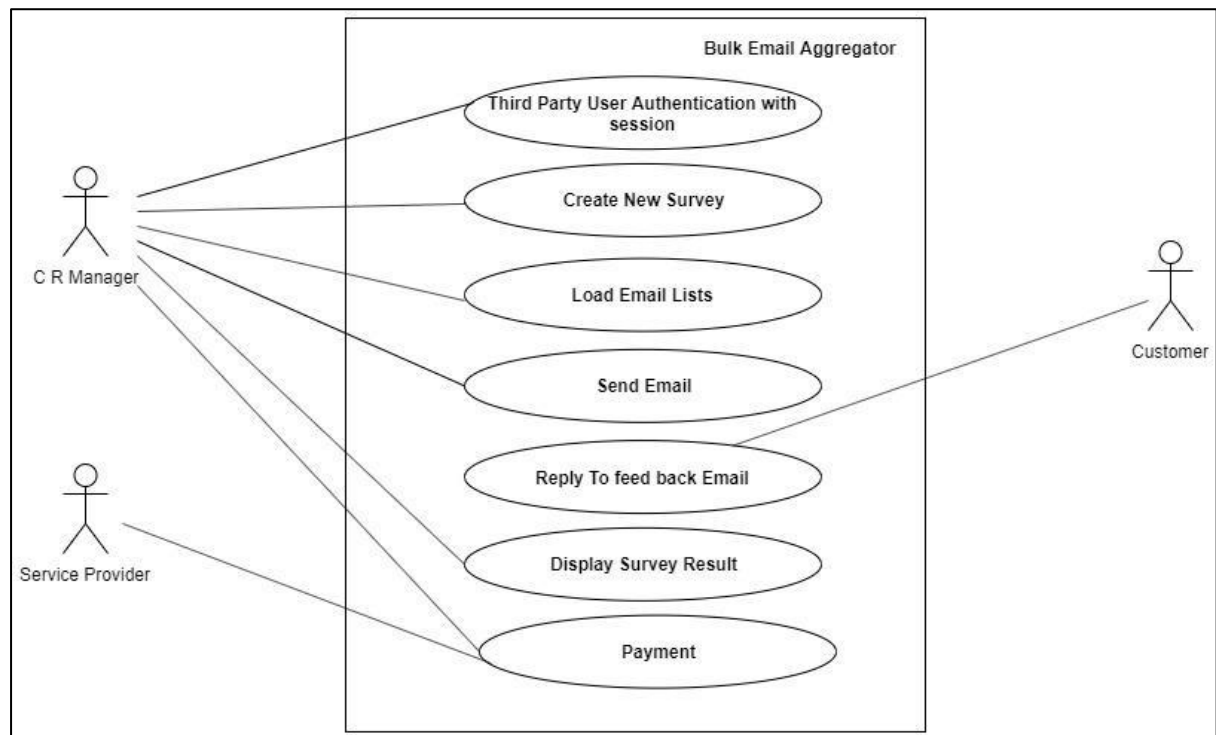


Figure 3.1.5 Use Case Diagram

SCREEN SHOTS

LOGIN SCREEN

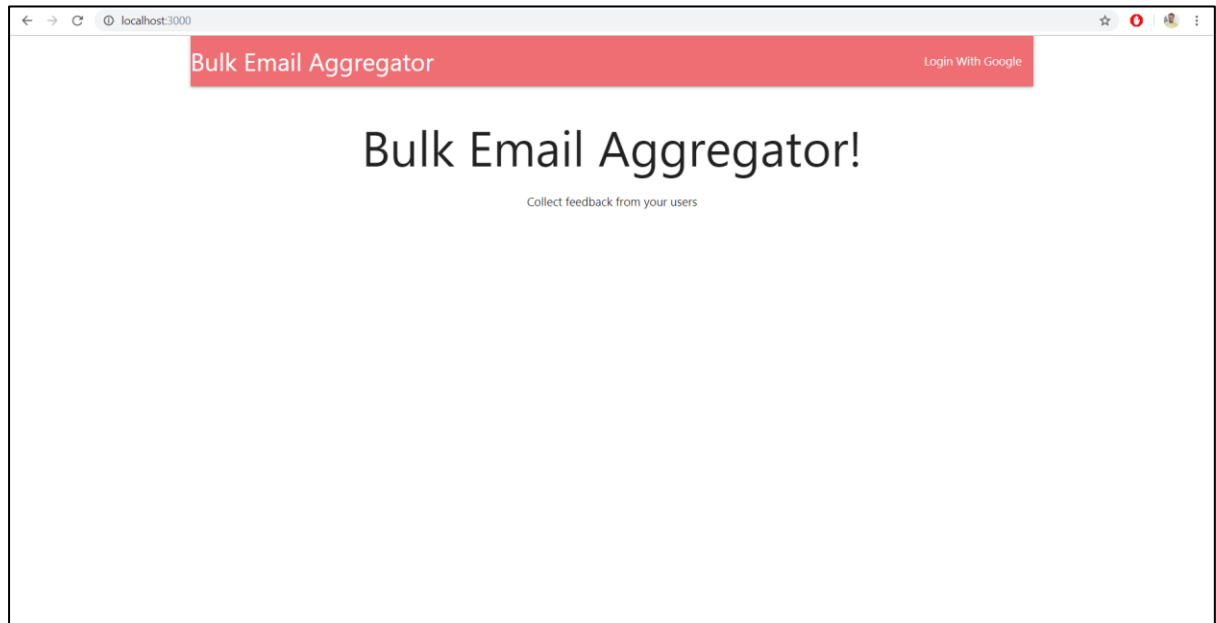


Figure 4.1.1 Login Screen

HOME PAGE

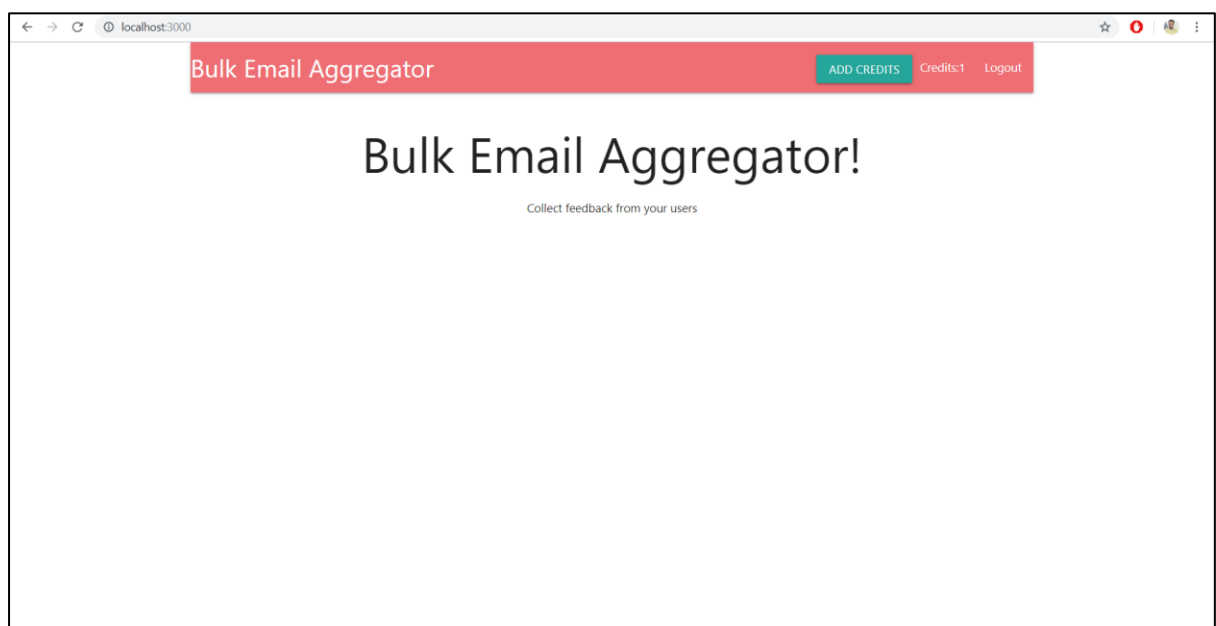


Figure 4.1.2 Home Page Screen

DASHBOARD

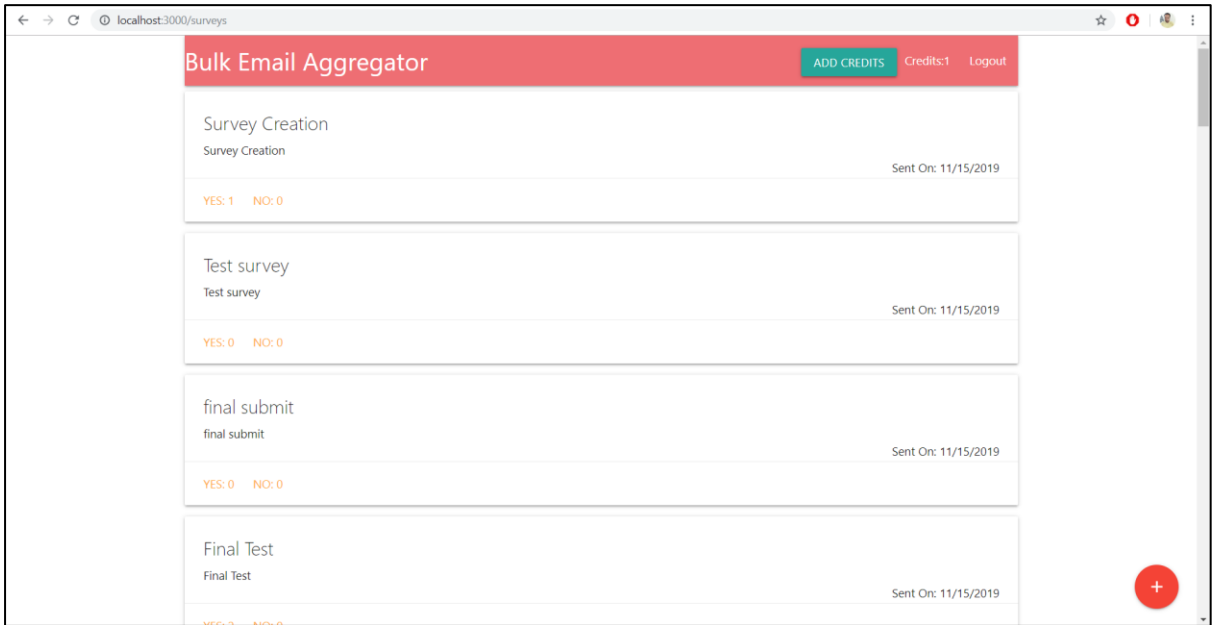


Figure 4.1.3 Dashboard

FEEDBACK FORM

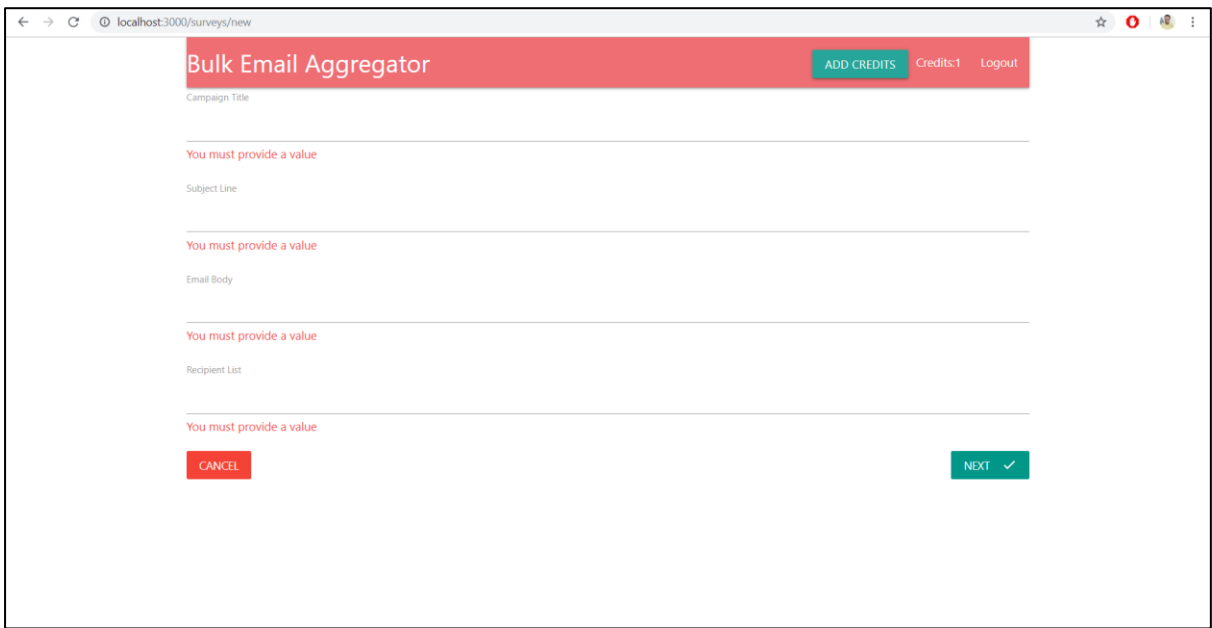


Figure 4.1.4 Feedback Form

REVIEW PAGE

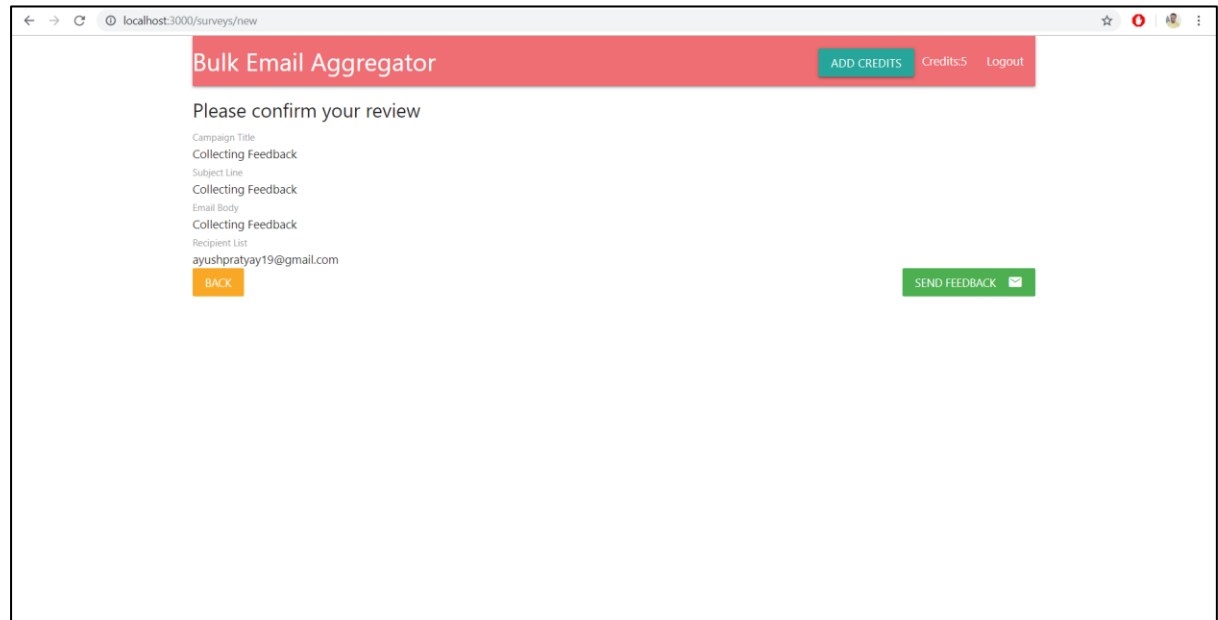


Figure 4.1.5 Review Page

USER RECEIVING FEEDBACK

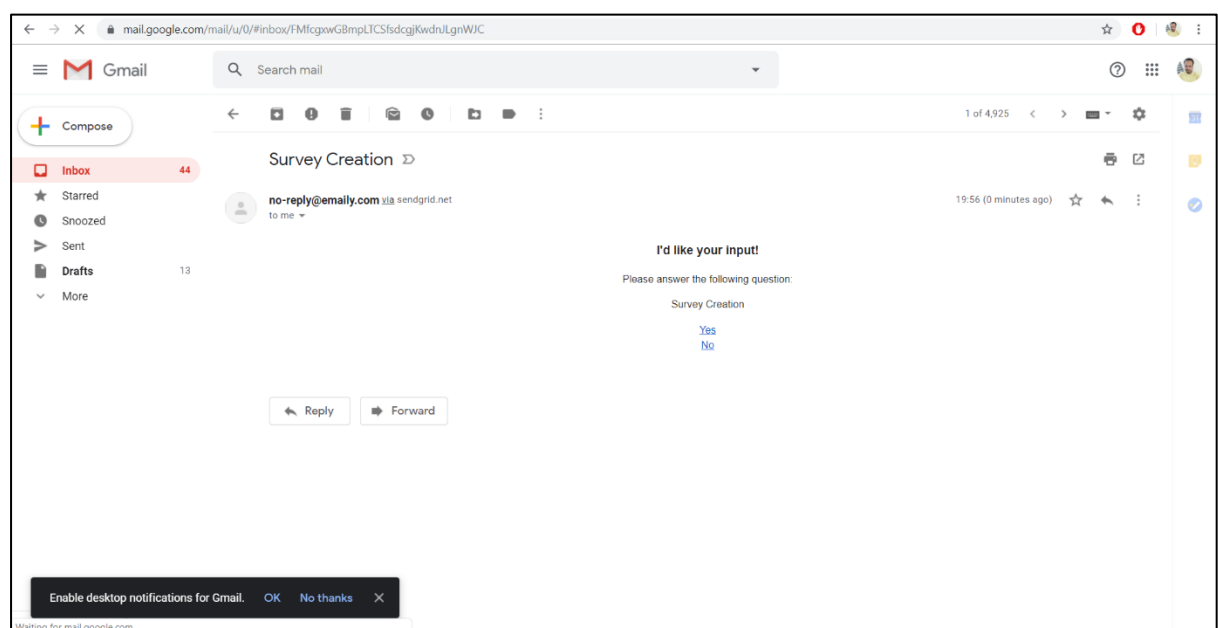


Figure 4.1.6 User Receiving Feedback

USER RECEIVES CONFIRMATION



Figure 4.1.7 User Receives Confirmation

STRIPE

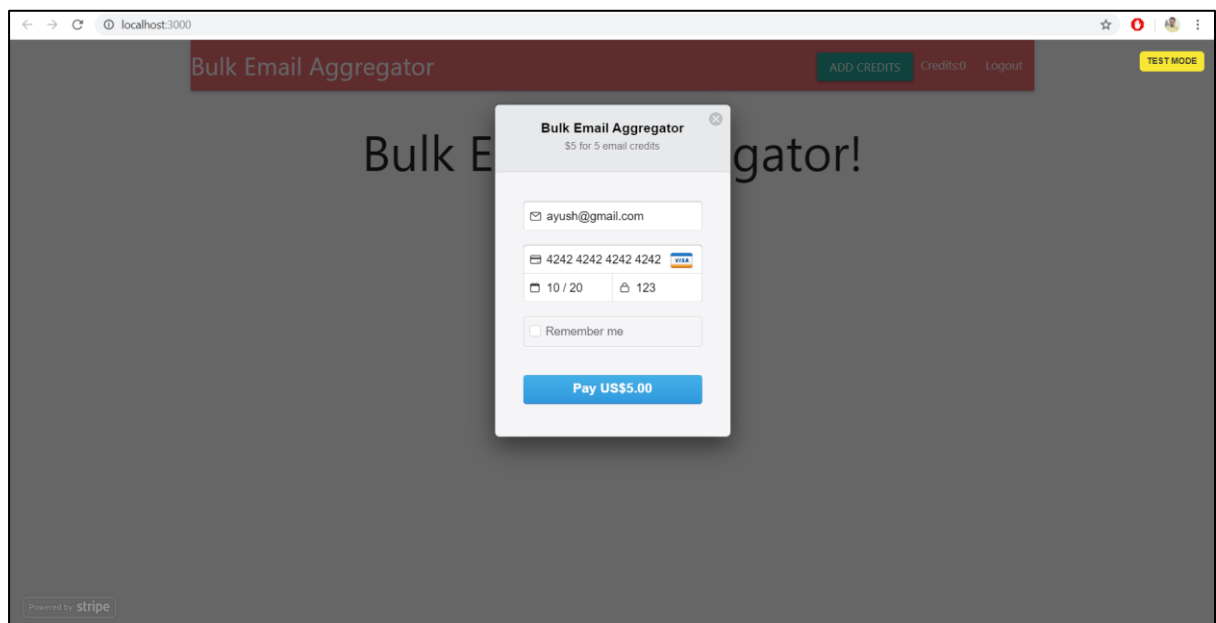


Figure 4.1.8 Stripe Payment Gateway

MONGODB STRUCTURE

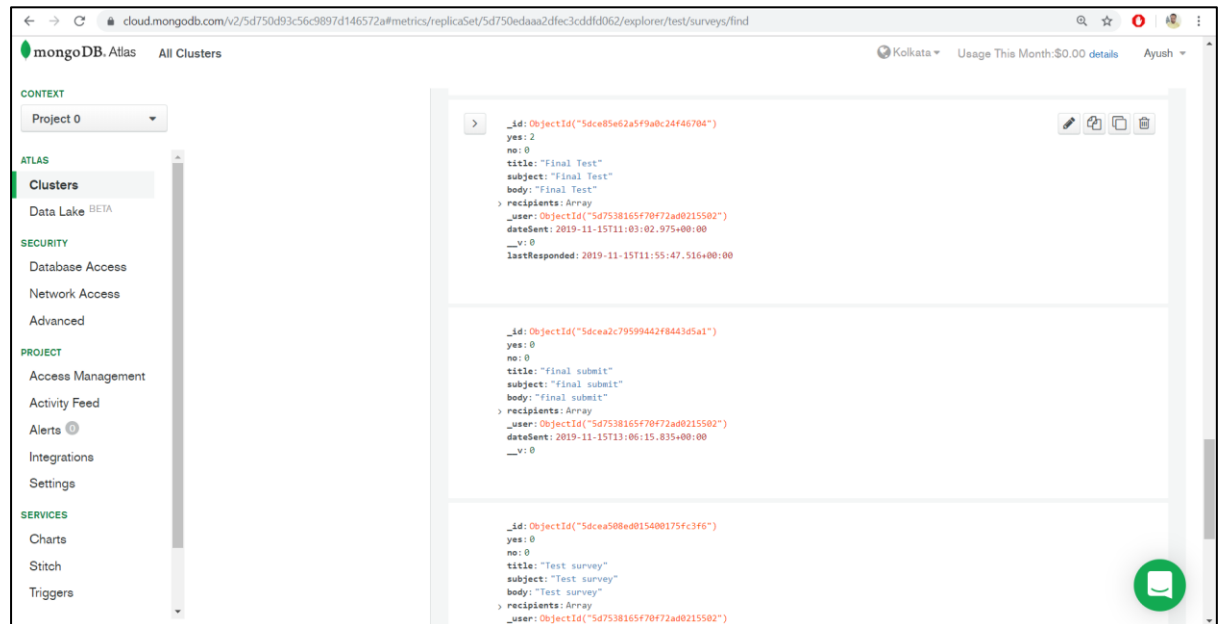


Figure 4.1.8 MongoDB Atlas

TESTING

Table 5.1 Test Case

Test Case ID	PES_001	Test Case Description	Test the Login Functionality in login screen			
Created By		Reviewed By	-	Version	1	
QA Tester's Log						
Tester's Name		Date Tested	17-Nov-2019	Test Case (Pass/Fail/Not Executed)	Pass	
S #	Prerequisites:			S #	Test Data	
1	Access to Chrome Browser			1	E-mail = vijaykumarpai@gmail.com	
2	https://sheltered-reef-50053.herokuapp.com/			2		
3				3		
4				4		
Test Scenario	Verify on clicking Login With Google, the user logs into the application using his/her google account					
Step #	Step Details	Expected Results	Actual Results			Pass / Fail / Not executed / Suspended
1	Navigate to https://sheltered-reef-50053.herokuapp.com/	Logged into application after clicking Login With Google	User is logged in			Pass
2	Page displayed	Page should be redirected to https://sheltered-reef-50053.herokuapp.com/surveys	Home Page is displayed			Pass

Table 5.2 Test Cases

Test Case ID	PES_002	Test Case Description	Test the functionality of creating new feedback form with 0 credits				
Created By		Reviewed By	-	Version	1		
QA Tester's Log							
Tester's Name		Date Tested	17-Nov-2019	Test Case (Pass/Fail/Not Executed)	Fail		
S #	Prerequisites:			S #	Test Data		
1	Access to Chrome Browser			1	Campaign title - Test		
2	https://sheltered-reef-50053.herokuapp.com/			2	Subject Line - Test		
3				3	Email Body – This is a test data		
4				4	Recipient list – vijaykumarpai@gmail.com,.....		
				5			
				6			
Test Scenario	Creating new feedback form on clicking + button followed by entering the required details						
Step #	Step Details		Expected Results		Actual Results		Pass / Fail / Not executed / Suspended
1	Navigate to https://sheltered-reef-50053.herokuapp.com/surveys/new		Redirected to the feedback form creation page		Successfully redirected		Pass
2	Enter Campaign Title, Subject Line, Email Body, Recipient List		Should redirect to next page on clicking next button		Successfully redirected		Pass
3	Confirm the details and click on Send Feedback		Should successfully create new feedback form		Failed to create because there are no credits in the account		Fail

Table 5.3 Test Case

Test Case ID	PES_003	Test Case Description	Test the functionality of creating new feedback form.			
Created By		Reviewed By	-	Version	1	
QA Tester's Log						
Tester's Name		Date Tested	17-Nov-2019	Test Case (Pass/Fail/Not Executed)	Pass	
S #	Prerequisites:		S #	Test Data		
1	Access to Chrome Browser		1	Campaign title - Test		
2	https://sheltered-reef-50053.herokuapp.com/		2	Subject Line - Test		
3			3	Email Body – This is a test data		
			4	Recipient list – vijaykumarpai@gmail.com,.....		
Test Scenario	Creating new feedback form on clicking + button followed by entering the required details					
Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended		
1	Navigate to https://sheltered-reef-50053.herokuapp.com/surveys/new	Redirected to the feedback form creation page	Successfully redirected	Pass		
2	Enter Campaign Title, Subject Line, Email Body, Recipient List	Should redirect to next page on clicking next button	Successfully redirected	Pass		
3	Confirm the details and click on Send Feedback	Should successfully create new feedback form	Successfully created new feedback and sent to the entered email id	Pass		

Table 5.4 Test Case

Test Case ID	PES_004	Test Case Description	Test the functionality of creating new feedback form.			
Created By		Reviewed By	-	Version	1	
QA Tester's Log						
Tester's Name		Date Tested	17-Nov-2019	Test Case (Pass/Fail/Not Executed)	Pass	
S #	Prerequisites:		S #	Test Data		
1	Access to Chrome Browser		1	Campaign title -		
2	https://sheltered-reef-50053.herokuapp.com/		2	Subject Line -		
3			3	Email Body –		
			4	Recipient list –		
Test Scenario	Creating new feedback form on clicking + button followed by entering the required details					
Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended		
1	Navigate to https://sheltered-reef-50053.herokuapp.com/surveys/new	Redirected to the feedback form creation page	Successfully redirected	Pass		
2	Did not fill any field	Should say 'You must provide a value'	Says 'You must provide a value'	Pass		
3	Click Next	Should not go to review page	Did not redirect to review page	Pass		

Table 5.5 Test Case

Test Case ID		PES_005	Test Case Description		Adding Credits through Stripe Gateway			
Created By			Reviewed By		-	Version	1	
QA Tester's Log								
Tester's Name			Date Tested		17-Nov-2019	Test Case (Pass/Fail/Not Executed)	Pass	
S #	Prerequisites:				S #	Test Data		
1	Access to Chrome Browser				1	Email – wdawda@awdawd.com		
2	https://sheltered-reef-50053.herokuapp.com/				2	Card number – **** * 1234 5678 9010		
3					3	Expiry date – 09/20		
					4	CVC - 123		
Test Scenario		Adding credits by clicking on Add Credits						
Step #		Step Details		Expected Results		Actual Results		
1	Navigate to https://sheltered-reef-50053.herokuapp.com/surveys		Should redirect successfully		Redirected successfully		Pass	
2	Click on ‘Add Credits’		Should ask to enter card details		Opened card details page		Pass	
3	Enter email, card no, expiry month and year and CVC		Enter details		Entered details		Pass	
4	Click on Pay		Should increment credits		Credits incremented		Pass	

Table 5.6 Test Case

Test Case ID	PES_006	Test Case Description	Adding Credits through Stripe gateway without entering card details			
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Table 5.7 Test Case

QA Tester's Log									
Tester's Name			Date Tested	17-Nov-2019		Test Case (Pass/Fail/Not Executed)		Pass	
S #	Prerequisites:			S #	Test Data				
1	Access to Chrome Browser			1	Email – wdawda@awdawd.com				
2	https://sheltered-reef-50053.herokuapp.com/			2	Card number – **** * 1234 5678 9010				
3				3	Expiry date – 09/20				
4				4	CVC - 123				
Test Scenario		Adding credits by clicking on Add Credits							
Step #	Step Details		Expected Results		Actual Results			Pass / Fail / Not executed / Suspended	
1	Navigate to https://sheltered-reef-50053.herokuapp.com/surveys		Should redirect successfully		Redirected successfully			Pass	
2	Click on 'Add Credits'		Should ask to enter card details		Opened card details page			Pass	
3	Did not enter email, card no, expiry month and year and CVC		Details not entered		Details not entered			Pass	
4	Click on Pay		Should not do any transaction and credit will not be incremented		Did not do any transaction and credit not incremented			Pass	

Table 5.7 Test case

Test Case ID	PES_007	Test Case Description	Testing Logout functionality				
Created By		Reviewed By	-	Version		1	
QA Tester's Log							
Tester's Name		Date Tested	17-Nov-2019	Test Case (Pass/Fail/Not Executed)		Pass	
S #	Prerequisites:		S #	Test Data			
1	Access to Chrome Browser		1				
2	https://sheltered-reef-50053.herokuapp.com/surveys		2				
3			3				
4			4				
5			5				
6			6				
Test Scenario	Verify on clicking logout button, the user is logged out						
Step #	Step Details	Expected Results	Actual Results		Pass / Fail / Not executed / Suspended		
1	Navigate to https://sheltered-reef-50053.herokuapp.com/surveys	Should redirect successfully	Redirected successfully		Pass		
2	Click on 'Logout' button	Should logout out of the application	Successfully logged out of the application		Pass		

CONCLUSION

1. The objective of the project was to solve the difficulties faced by the CRM's who have to send individual emails to each customer.
2. This has been solved with our application as it provides a paid service to CRM's which will enable them to send bulk emails for collecting feedback of their own electronic products.
3. In addition, the whole application has been deployed on Heroku platform. So in the future, if the user requests for any changes, it can be easily done through git version control.

FUTURE ENHANCEMENT

1. Lot of features and functionalities can be integrated in our project. Firstly, we can group certain customers into one batch so that we can send bulk emails in one shot.
2. Secondly, we can build a customized Mobile app which will make user more convenient to use.

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7. <https://sendgrid.com/docs/for-developers/>
8. <https://docs.mongodb.com/cloud/>