A Project Report on

BULK EMAIL AGGREGATOR

Submitted in partial fulfilment of requirement

For the award of the degree

MASTER OF COMPUTER APPLICATIONS

Of

PES University

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2019

C E R T I F I C A T E

This is to certify that the project entitled **BULK EMAIL AGGREGATOR** is a bonafide work carried out by **VIJAYKUMAR R PAI (PES1201702013), AYUSH PRATYAY (PES1201702164), SUBHAM SINGH (PES1201801830)** submitted in partial fulfilment of the requirement of fifth semester course work of MCA during the academic session Aug-Dec 2019.

Project Guide and Chairperson

Dr. Veena S

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PES University

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My thanks and appreciation goes to my teammates in developing the project and people who have willingly helped me out in different capacities.

It took 2 months to learn the concepts and develop the project. It is definitely worth remembering those precious moments when new ideas popped up in our minds.

We have worked hard to the best of our abilities and tried not to make any mistakes. If any are found, they are unintended.

Vijaykumar R Pai

Ayush Pratyay

Subham Singh

ABSTRACT

Bulk Email Aggregator is a web application that is used to provide a paid service to the end user who is CRM. This will enable them to send bulk emails for collecting feedback of their own electronic products once they do any payment through the Stripe payment gateway. With the help of session, the user details will be stored in the database.

This application uses **Google OAuth authentication** that will enhance the authentication in the app.

This application provides service based on assigned credit points to the user. Therefore, once the CRM who will be using the application does payment, 5 credit points will be incremented to the person's account and he can send emails with this credit.

Each time the CRM sends a mail, 1 credit point gets deduced.

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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

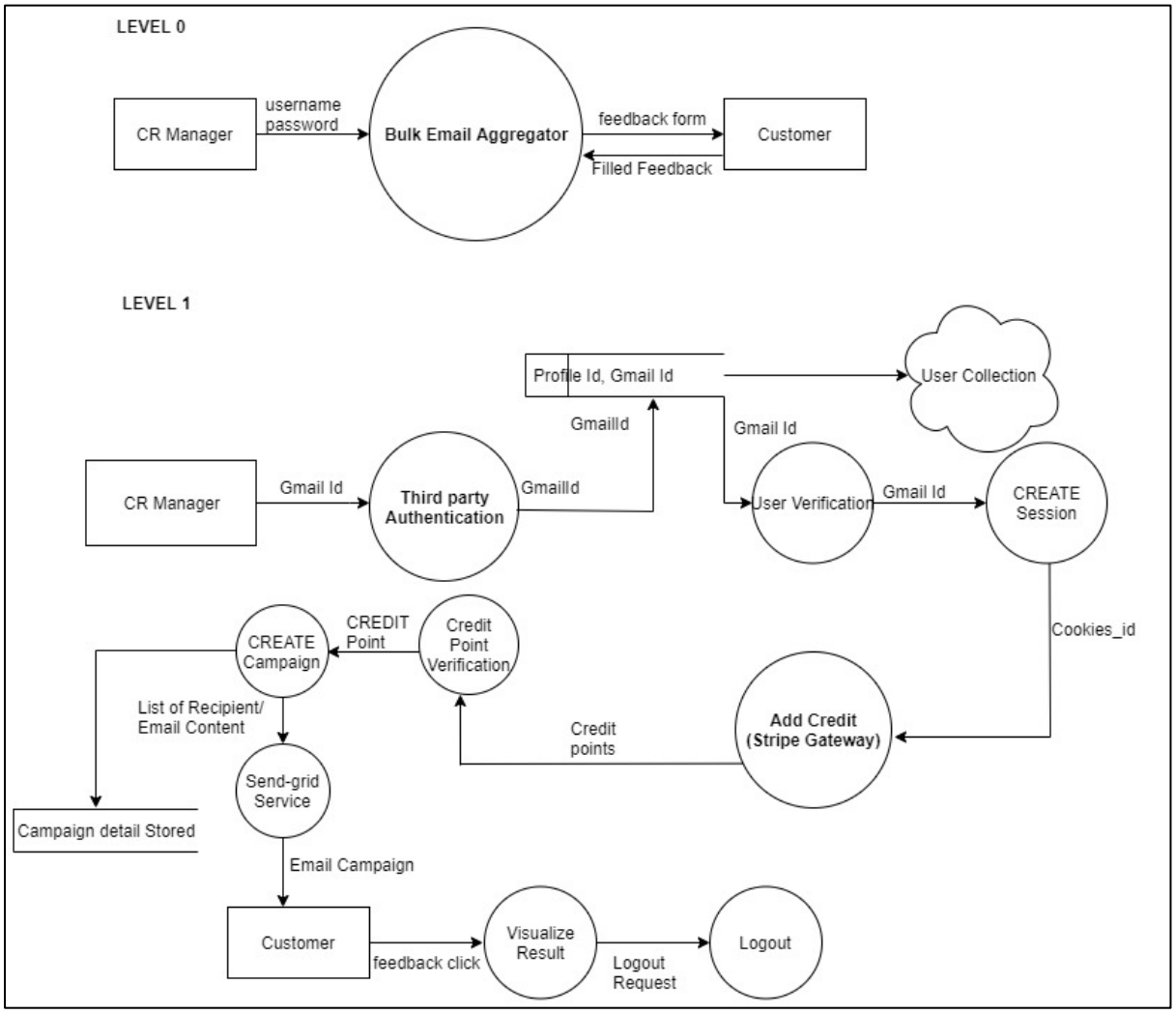

Figure 3.1.1 DFD Level 0 and Level 1

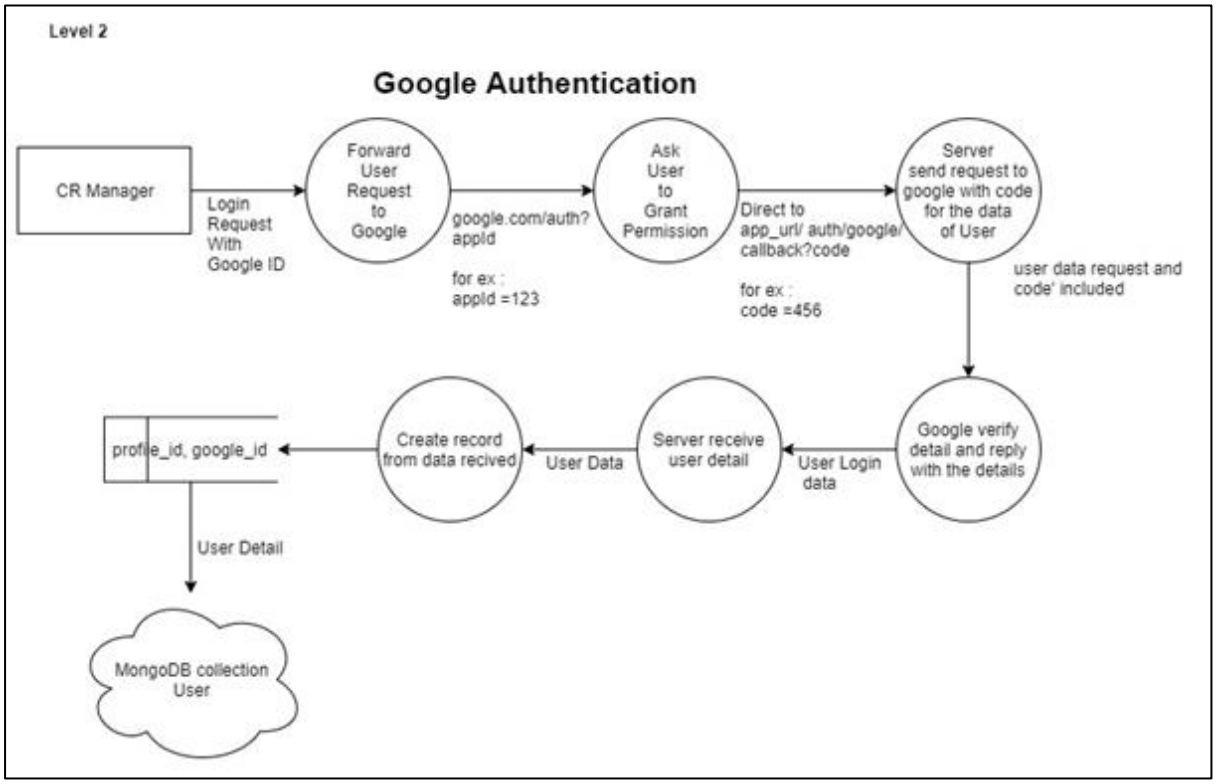

Figure 3.1.2 DFD Level 2 Google Authentication

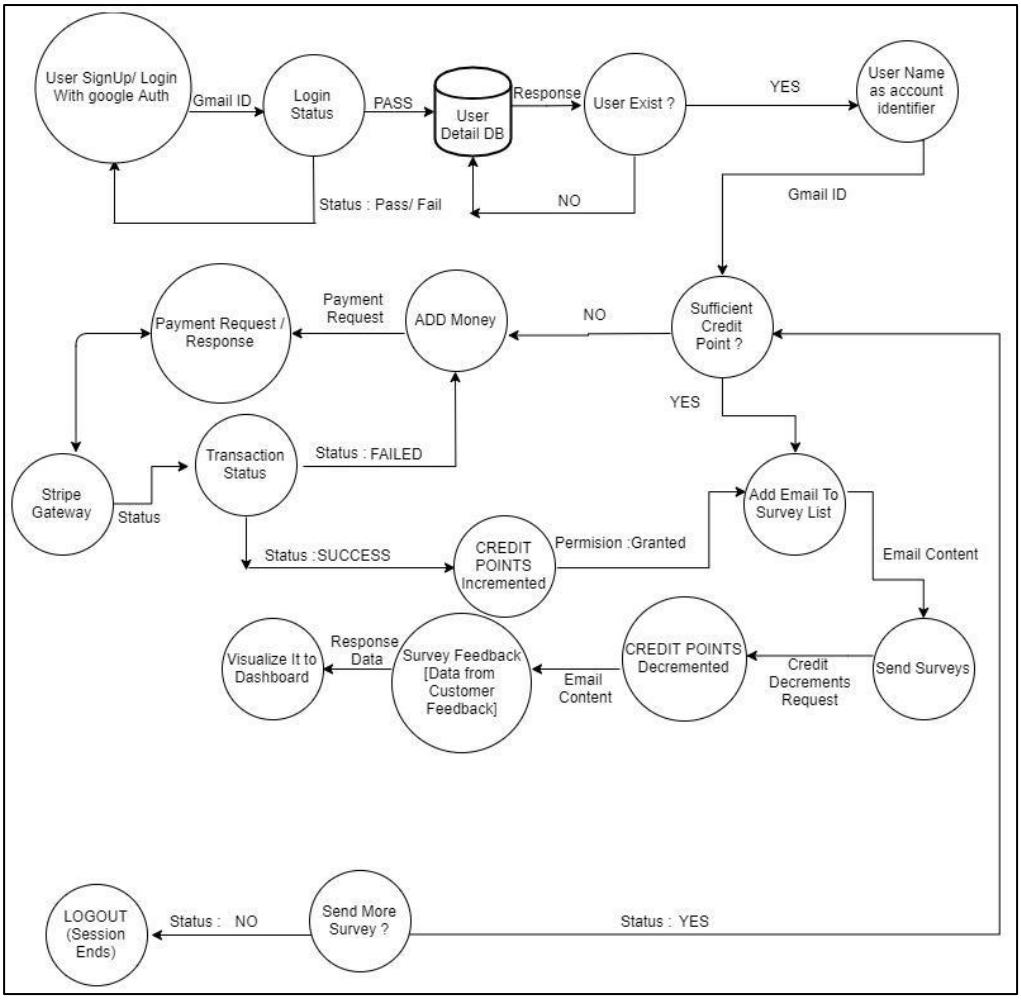

Figure 3.1.3 DFD Level 2

```
"user":{
    _id : ObjectId(""),
    googleId : "String Type",
    __v : "Integer Type",
    credit : "Integer Type"
}
```

```
"recipient" : {
    email : "String Type",
    responded : "Boolean Type"
}
```

```
"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"
    },
    _user : ObjectId(""),
    dateSent : "Date Time Type",
    __v : "Integer Type"
}
```

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

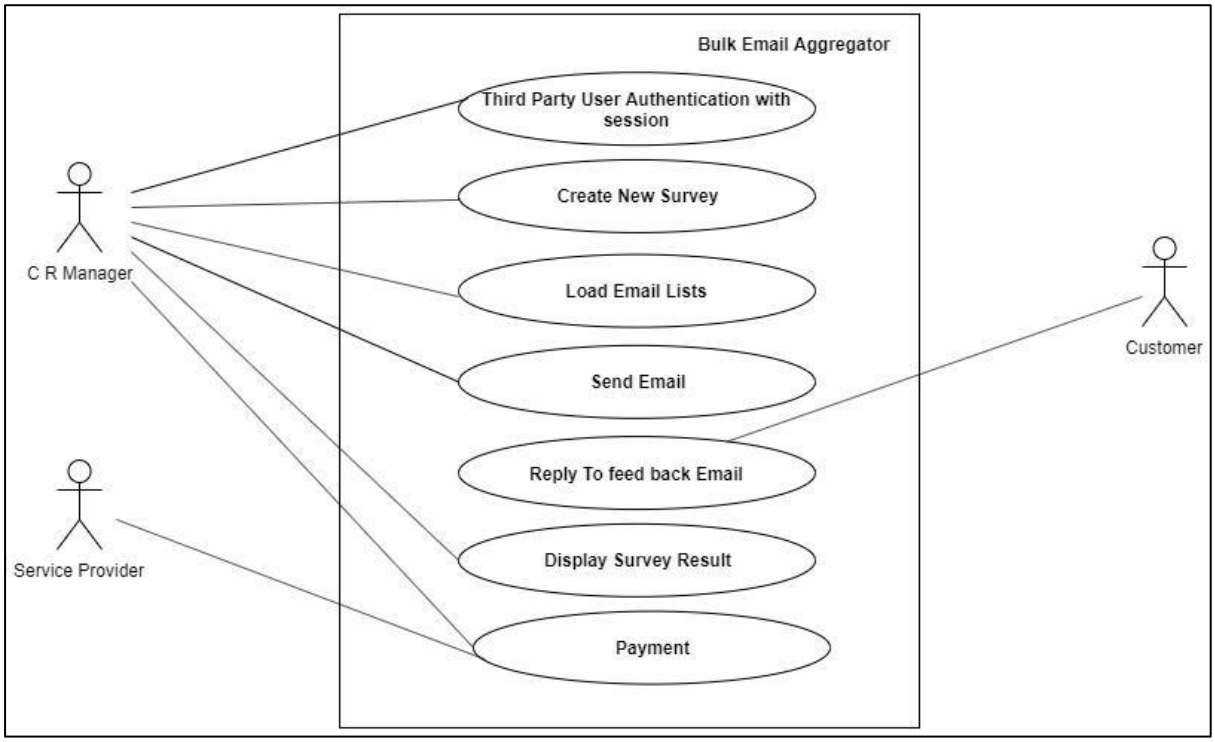

Figure 3.1.5 Use Case Diagram

SCREEN SHOTS

LOGIN SCREEN

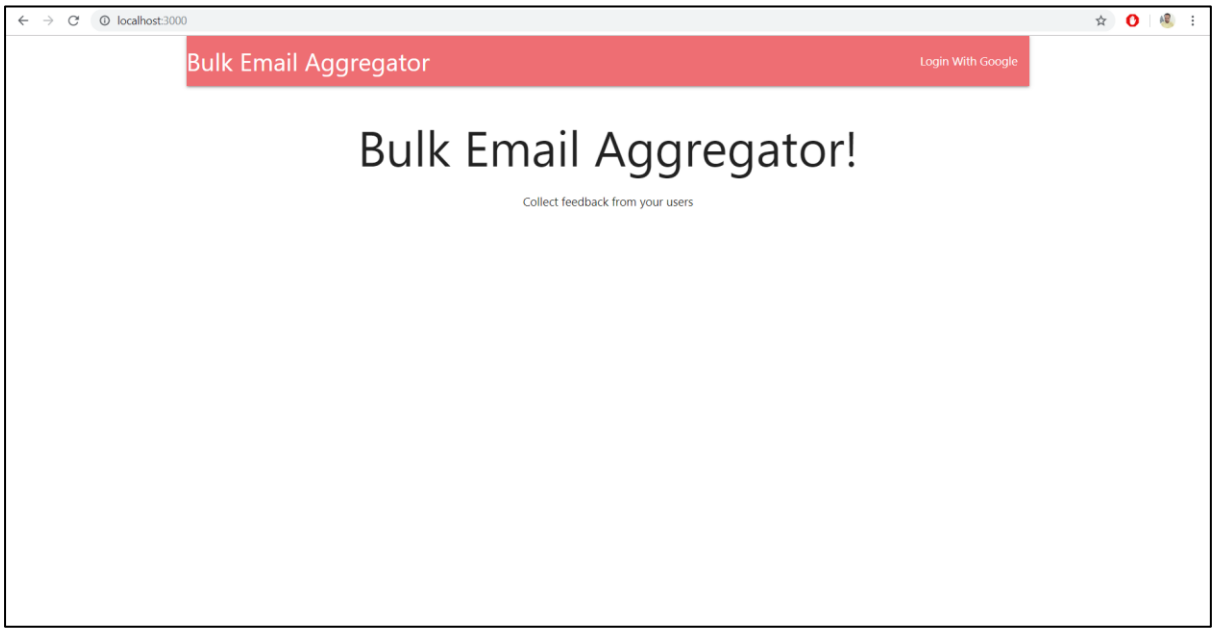

Figure 4.1.1 Login Screen

HOMEPAGE

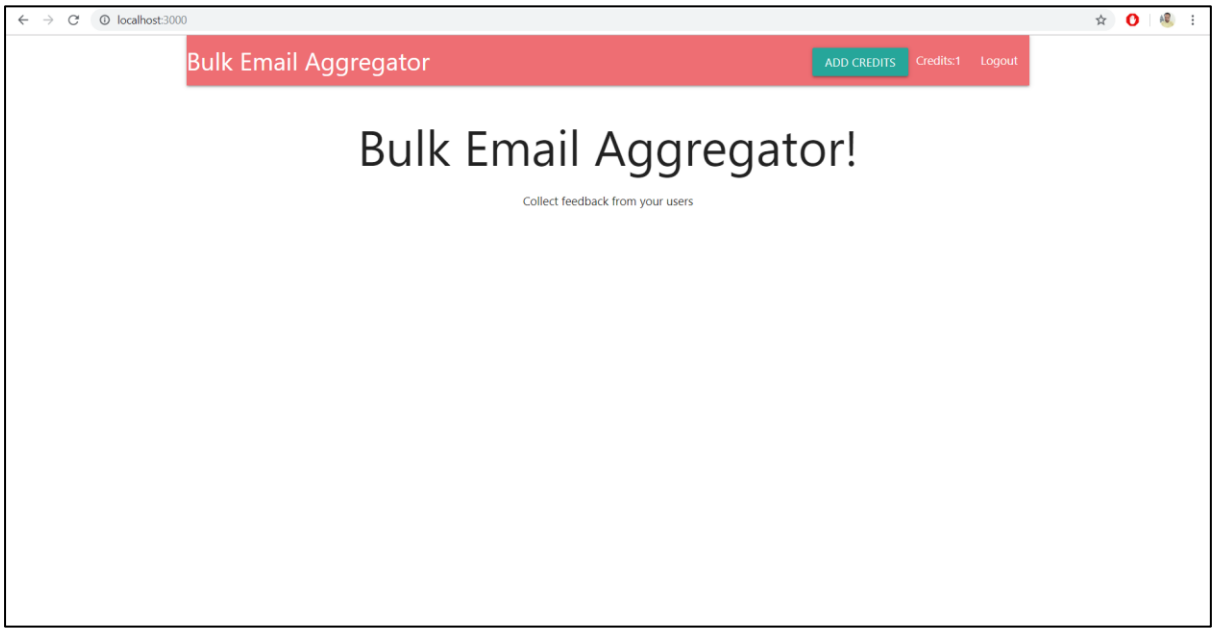

Figure 4.1.2 Home Page Screen

DASHBOARD

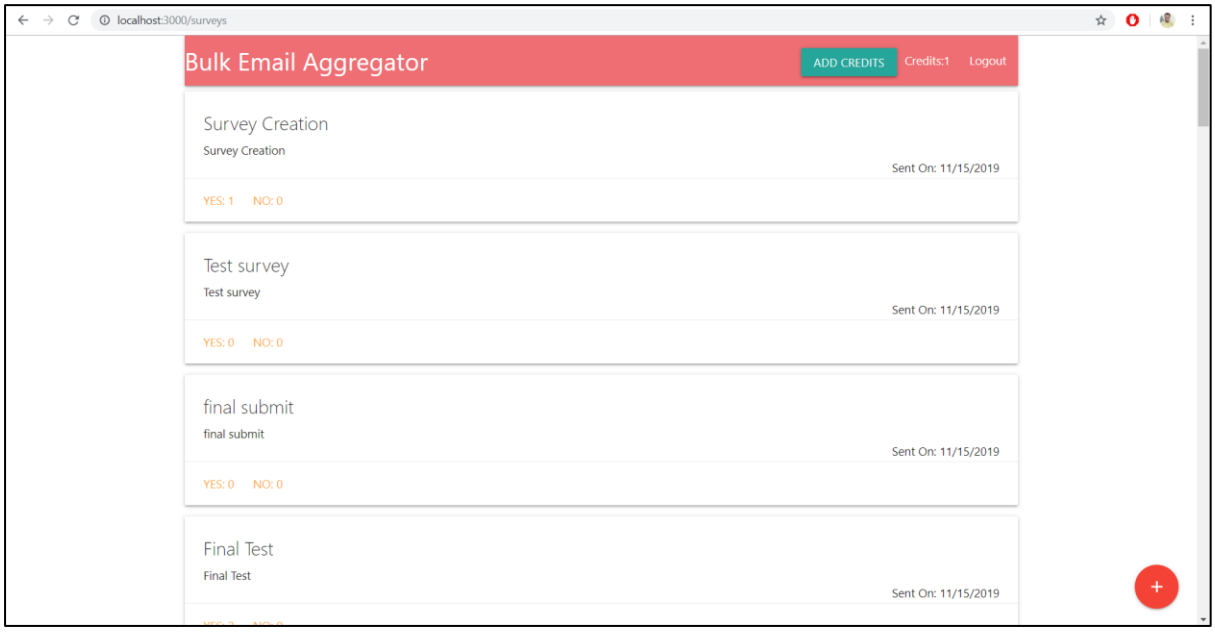

Figure 4.1.3 Dashboard

FEEDBACK FORM

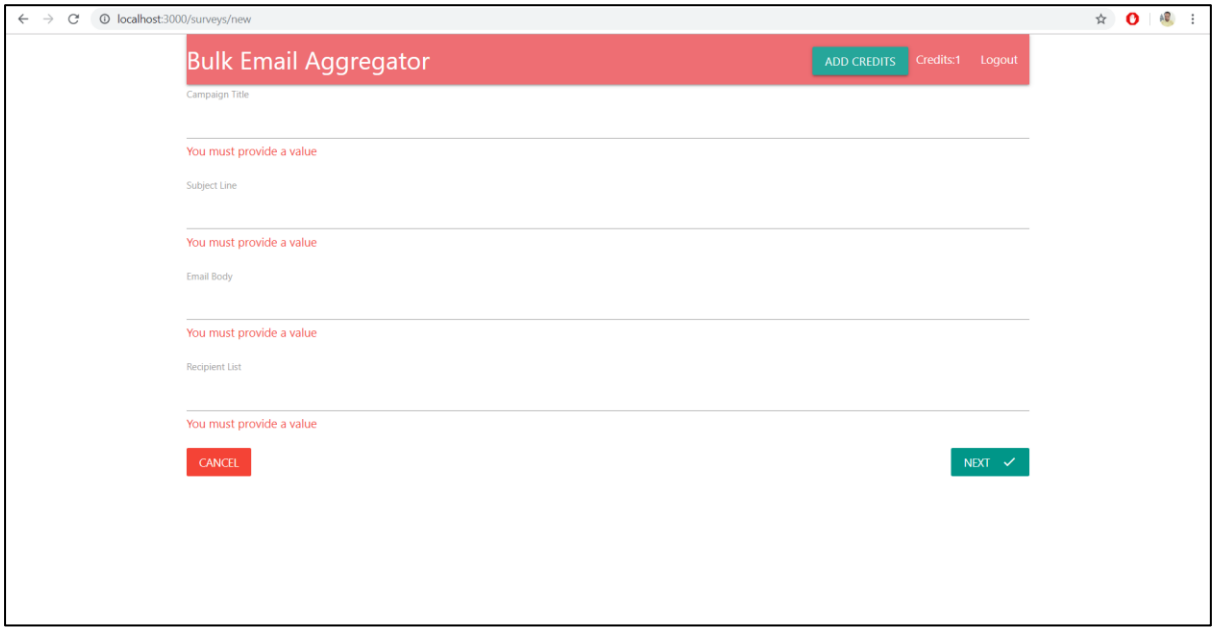

Figure 4.1.4 Feedback Form

REVIEW PAGE

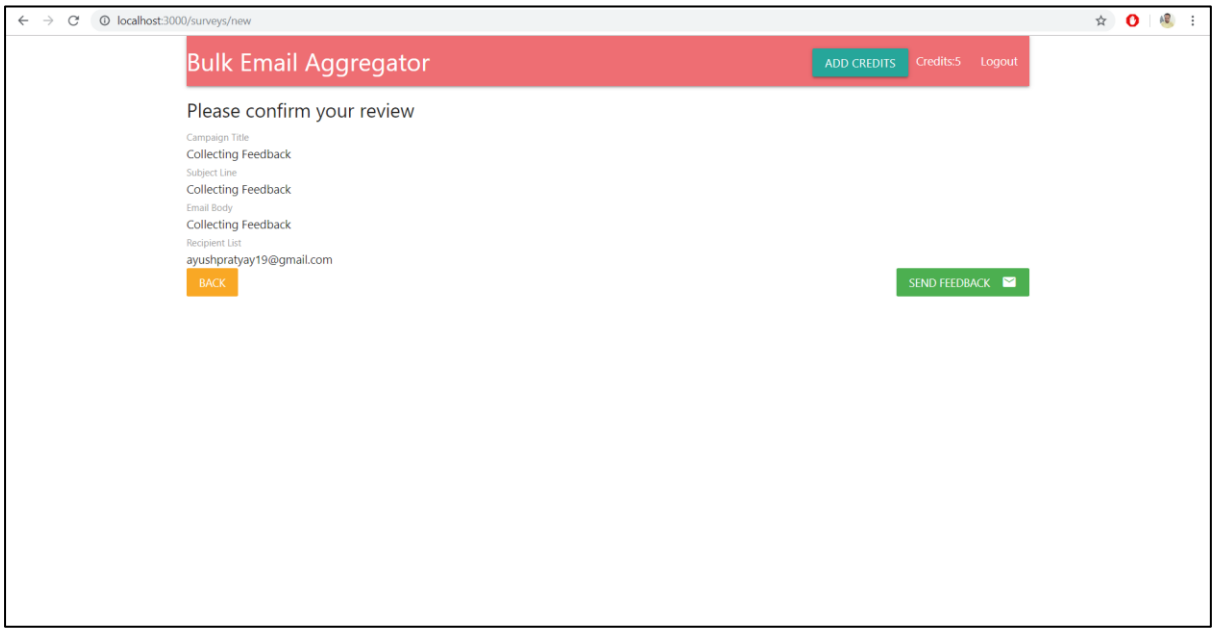

Figure 4.1.5 Review Page

USER RECEIVING FEEDBACK

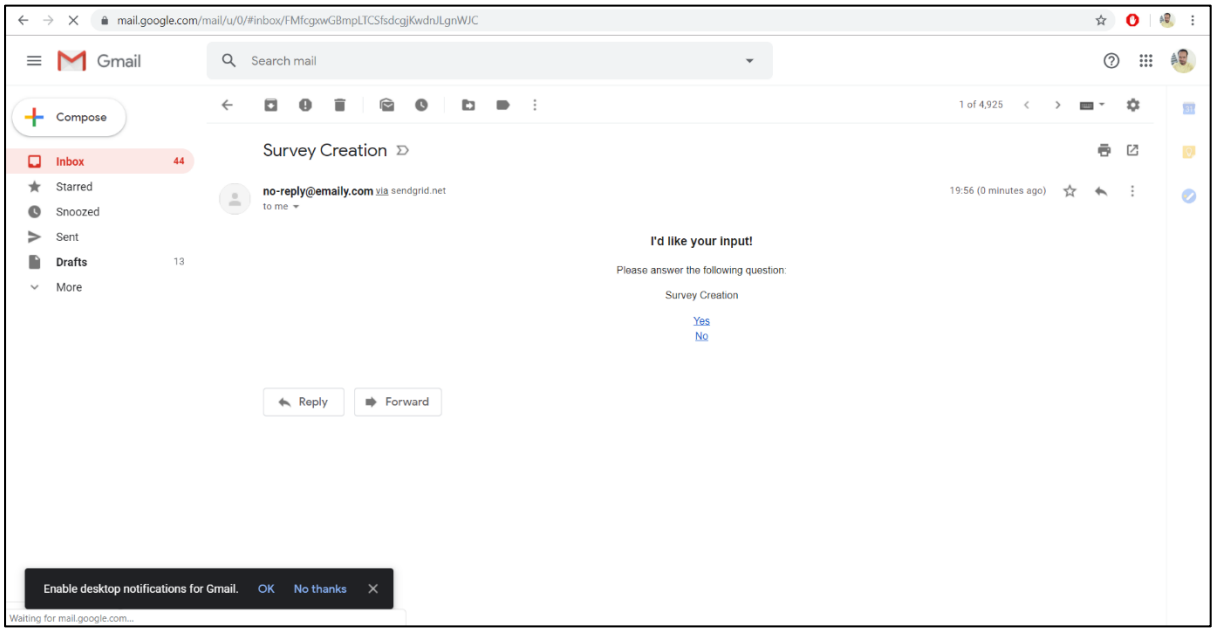

Figure 4.1.6 User Receiving Feedback

USER RECEIVES CONFIRMATION

Figure 4.1.7 User Receives Confirmation

STRIPE

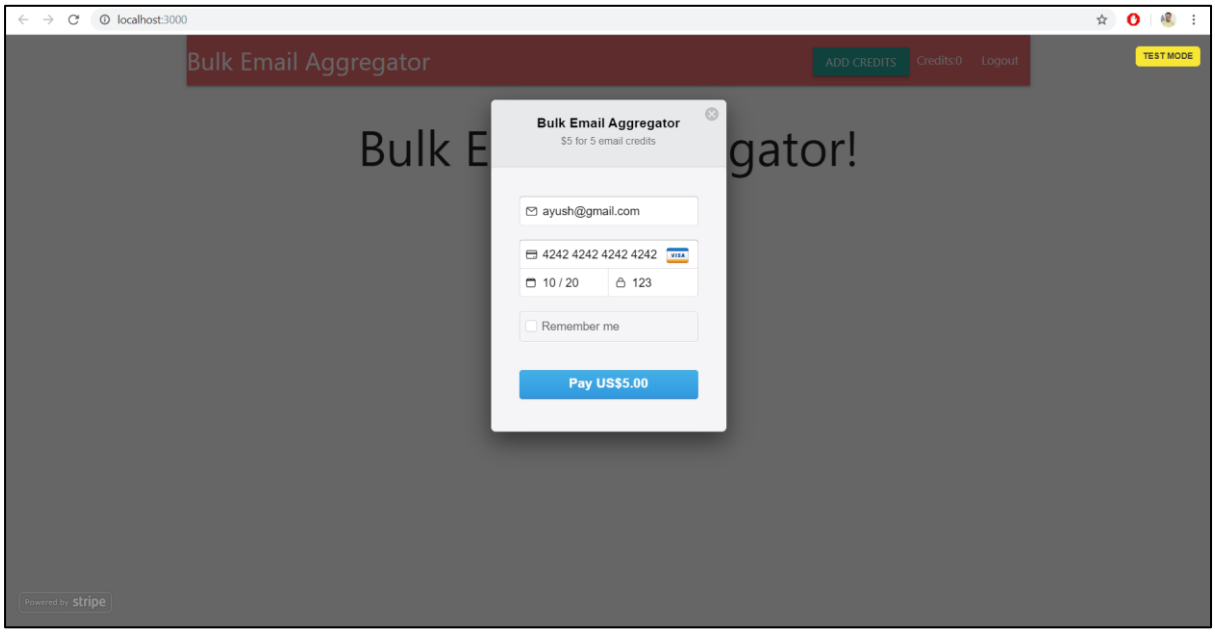

Figure 4.1.8 Stripe Payment Gateway

MONGODB STRUCTURE

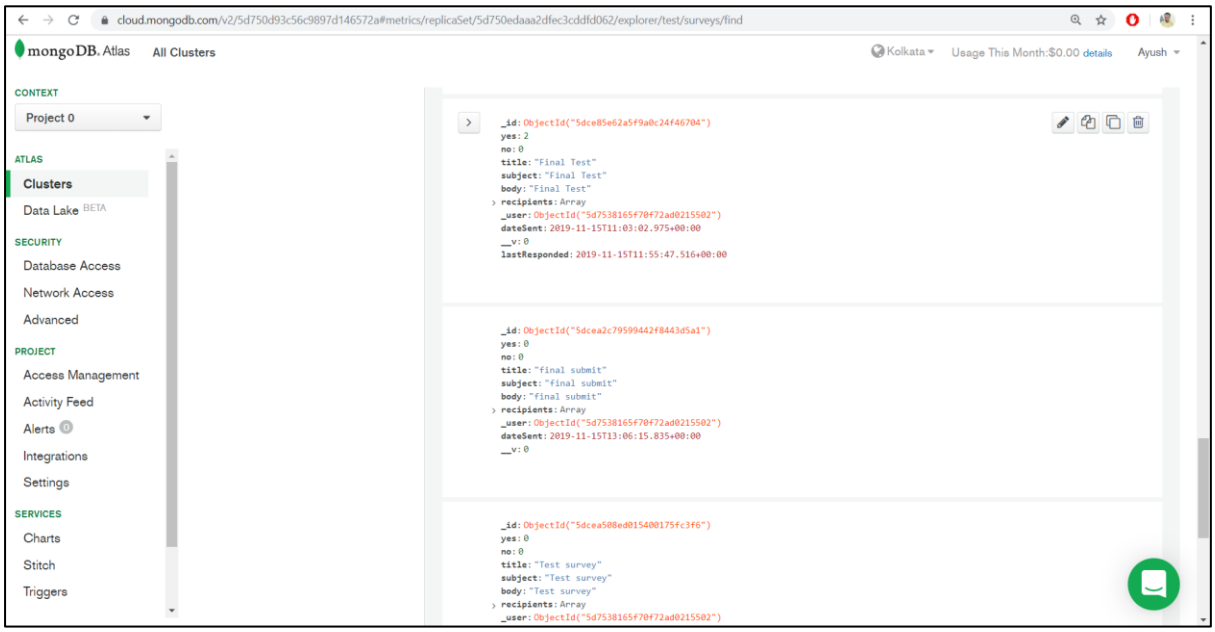

Figure 4.1.8 MongoDB Atlas

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 = vijaykumarrpai@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 – vijaykumarrpai@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 – vijaykumarrpai@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 – **** **** **** ****
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	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	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

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 – **** **** **** ****
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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