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

By

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2019

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Bangalore 85

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

Dept. of CA

PES University

ACKNOWLEDGEMENT

This project would not have been successful without the kind support and help of many individuals and organization. I would like to extend my sincere thanks to all of them.

I express my deep sense of gratitude to Vice-Chancellor, PESU **Dr. K N B Murthy** and **Dr. Veena S**, Chairperson, Department of MCA for providing the platform and opportunity for Mini Project.

I am highly indebted to **Dr. Veena S,** Chairperson, PESU for her guidance and constant supervision as well as for providing necessary information regarding the project and for her support in completing the project.

I would like to express my gratitude towards my parents for their kind co-operation and encouragement, which helped me in completion of this project.

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.

CONTENTS

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

2. 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.

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.

With this application, it is sending 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, this application works based on assigned credit points to user. Therefore, once the CRM does transaction through this 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 this 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.

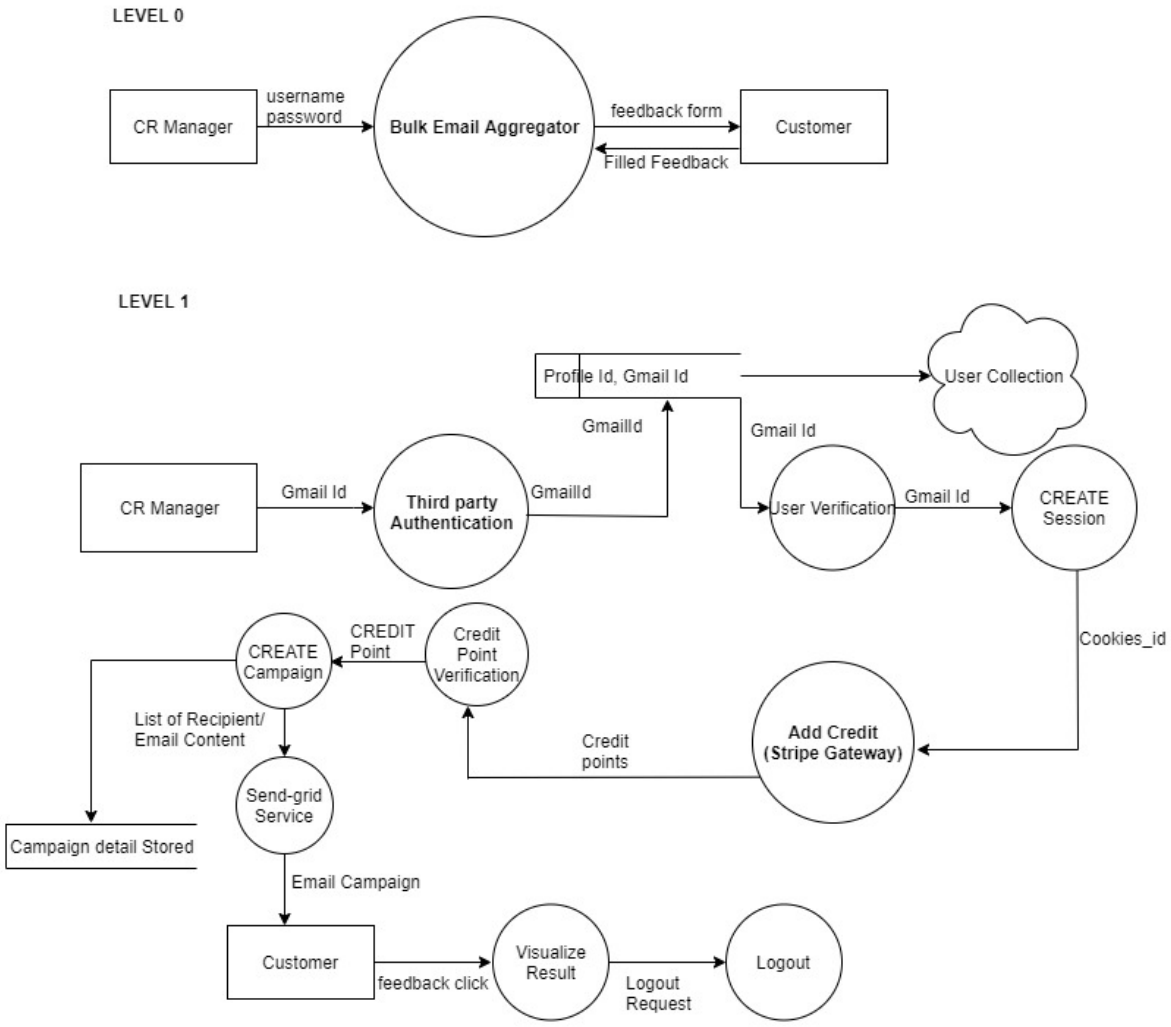
HEROKU:

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

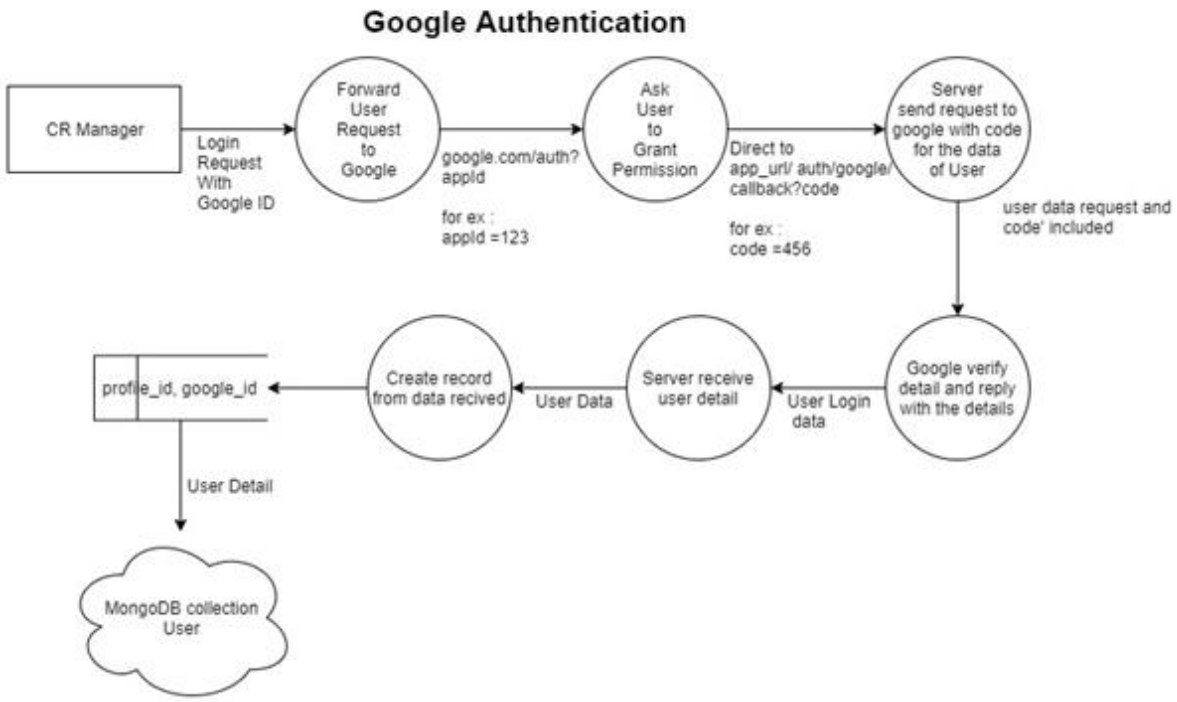
elegant, flexible, and easy to use, offering developers the simplest path to getting their apps to market.

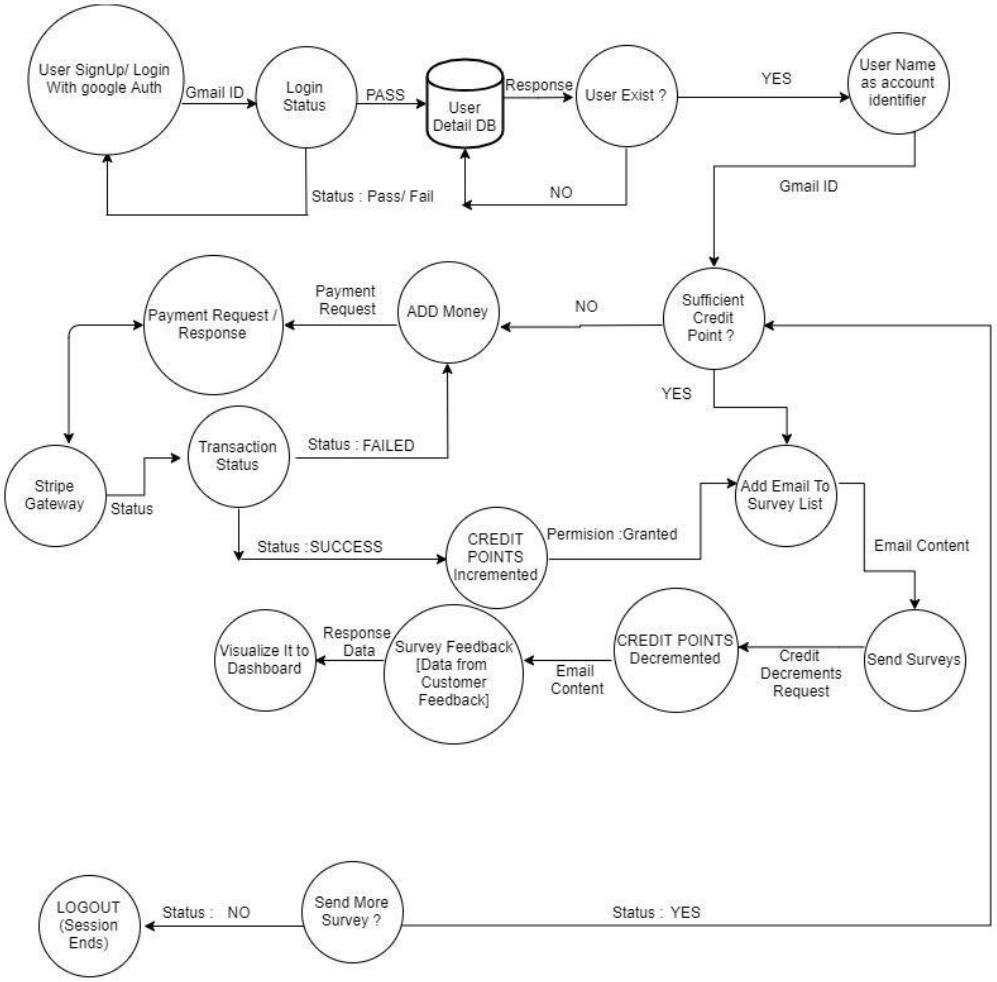
DESIGN

DFD



Level 2


Google Authentication
CR Manager
Login Request With Google ID
Forward User Request to Google
google.com/auth? appId
for ex : appId =123
Ask User to Grant Permission
Direct to app_url/ auth/google/ callback?code
for ex : code =456
Server send request to google with code for the data of User
user data request and code' included
Google verify detail and reply with the details
User Login data
Server receive user detail
User Data
Create record from data recived
profile_id, google_id
User Detail
MongoDB collection User


User SignUp/ Login With google Auth
Gmail ID
Login Status
PASS
User Detail DB
Response
User Exist ?
YES
User Name as account identifier
Status : Pass/ Fail
NO
Gmail ID
Payment Request / Response
Payment Request
ADD Money
NO
Sufficient Credit Point ?
YES
Transaction Status
Status : FAILED
Stripe Gateway
Status
Add Email To Survey List
Status :SUCCESS
CREDIT POINTS Incremented
Permision :Granted
Email Content
Visualize It to Dashboard
Response Data
Survey Feedback [Data from Customer Feedback]
Email Content
CREDIT POINTS Decremented
Credit Decrements Request
Send Surveys
LOGOUT (Session Ends)
Status : NO
Send More Survey ?
Status : YES

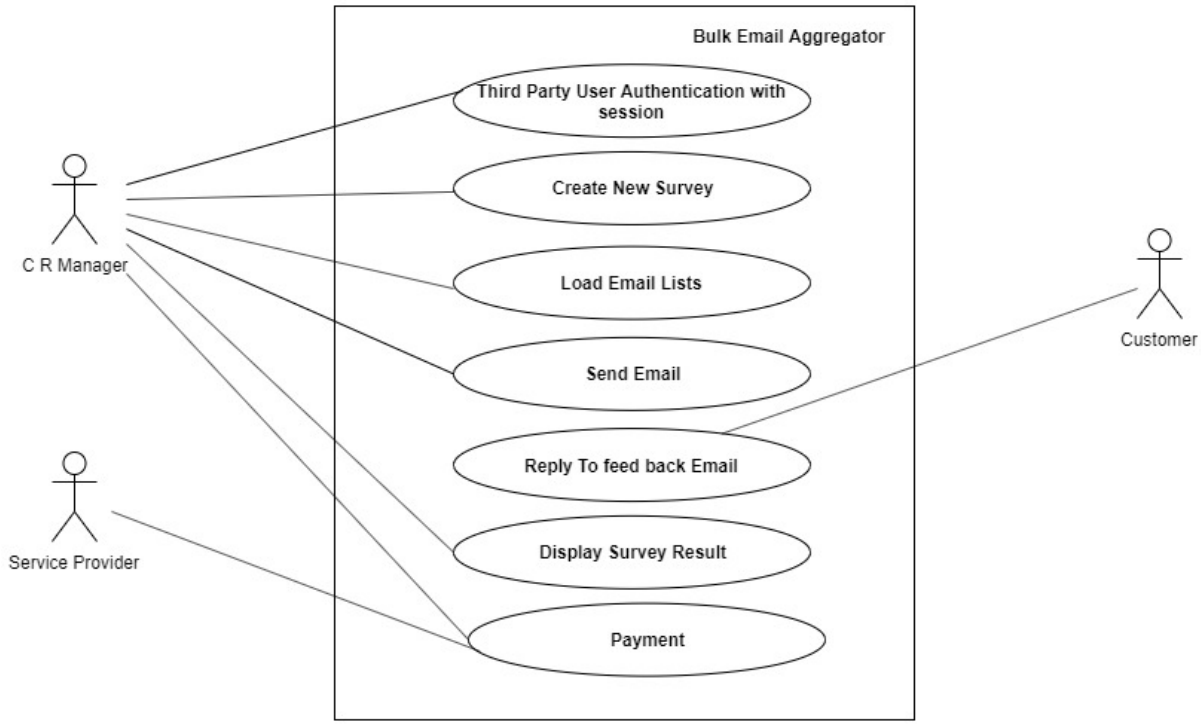
DOCUMENT STRUCTURE

```
"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’’
}
```

USE CASE DIAGRAM

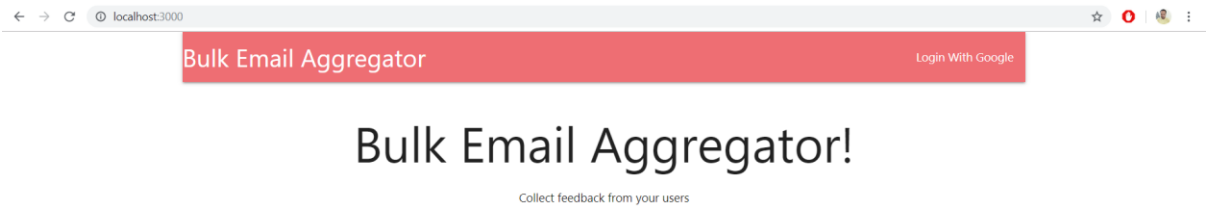


Our project consists of two folds:

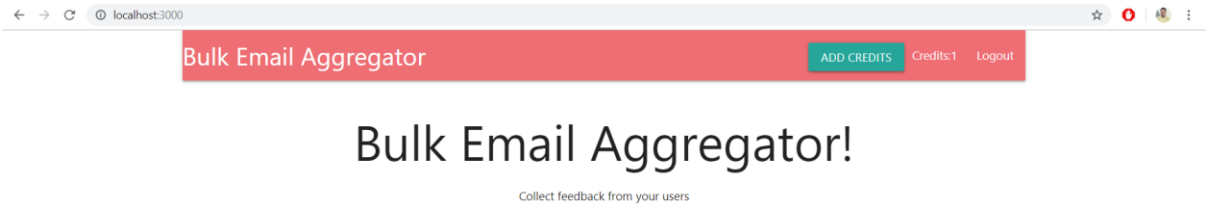
1. Customer Relationship Manager (CRM).
2. Customers: Who purchase products from different electronic companies.

IMPLEMENTATION

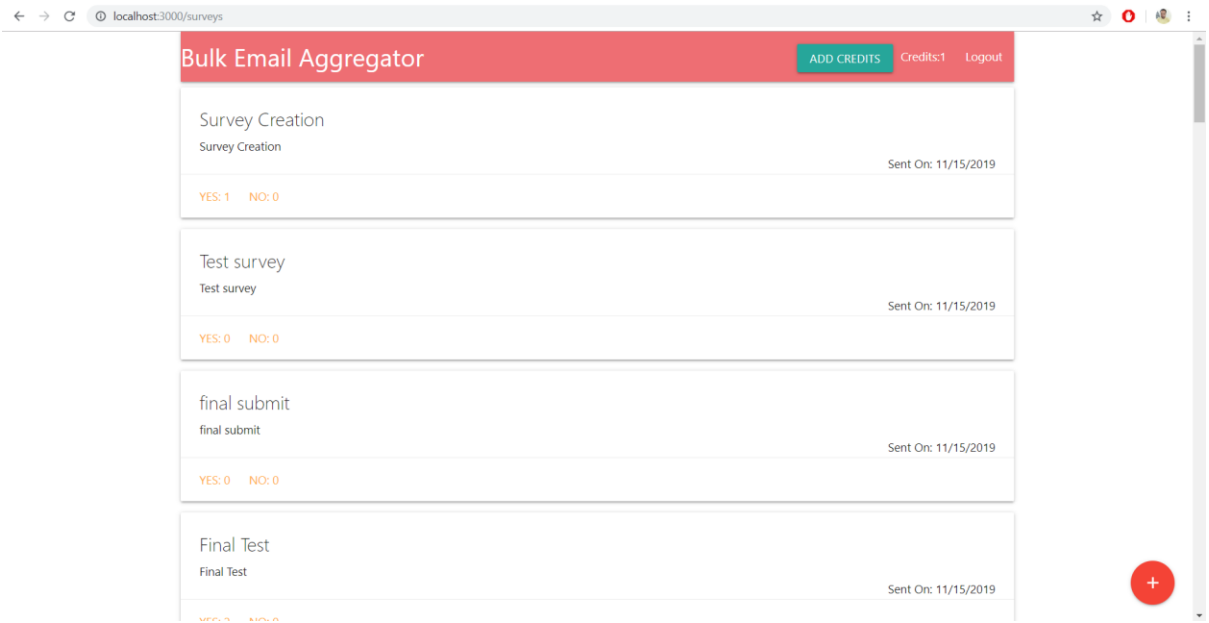
LOGIN SCREEN



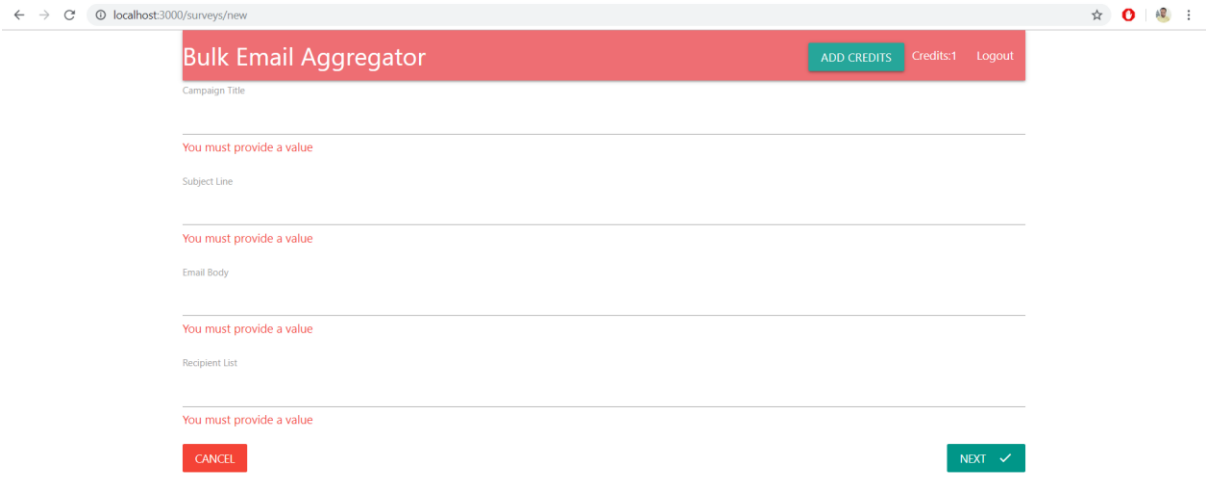
HOMEPAGE



DASHBOARD

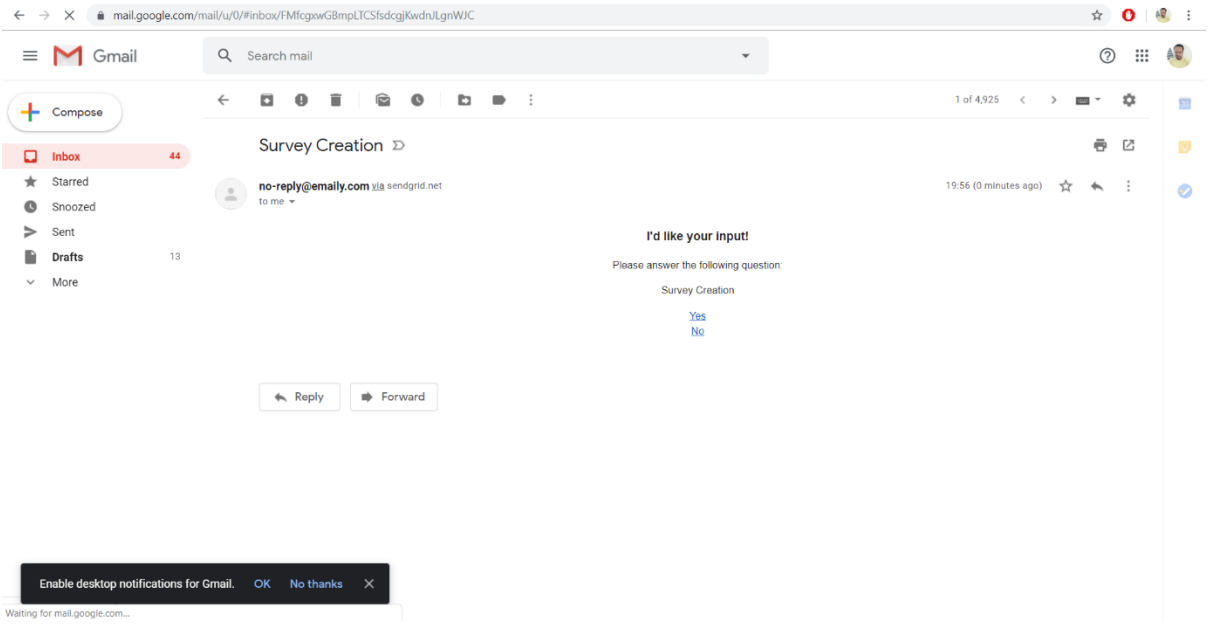


FEEDBACK FORM

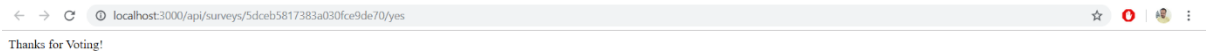


REVIEW PAGE

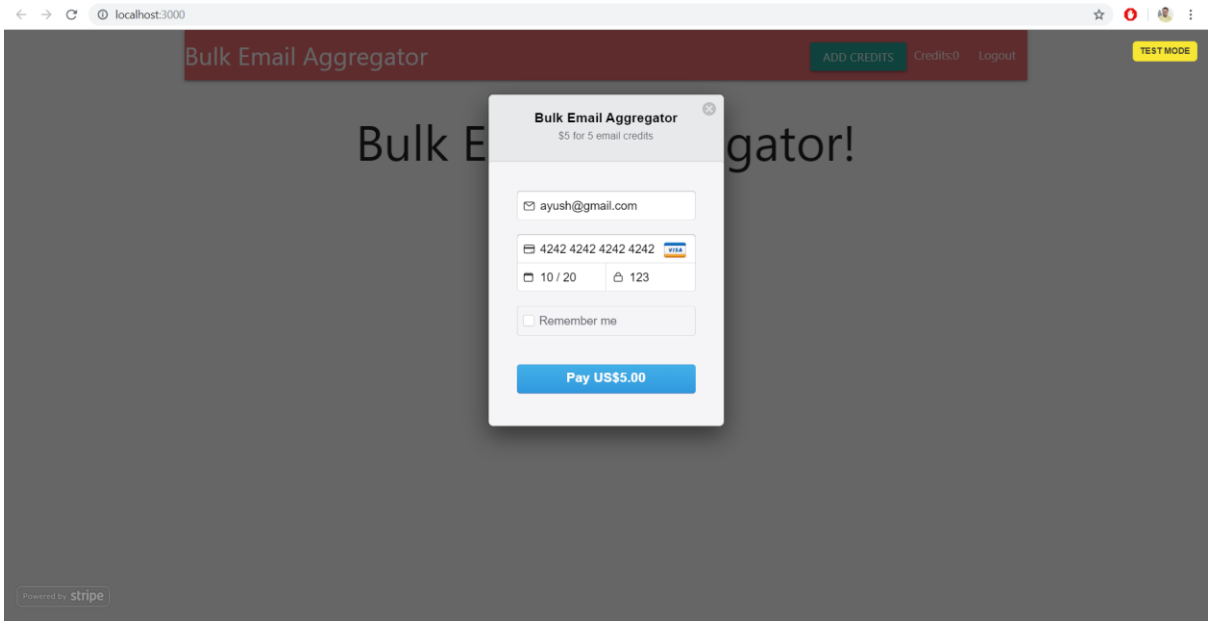
USER RECEIVING FEEDBACK



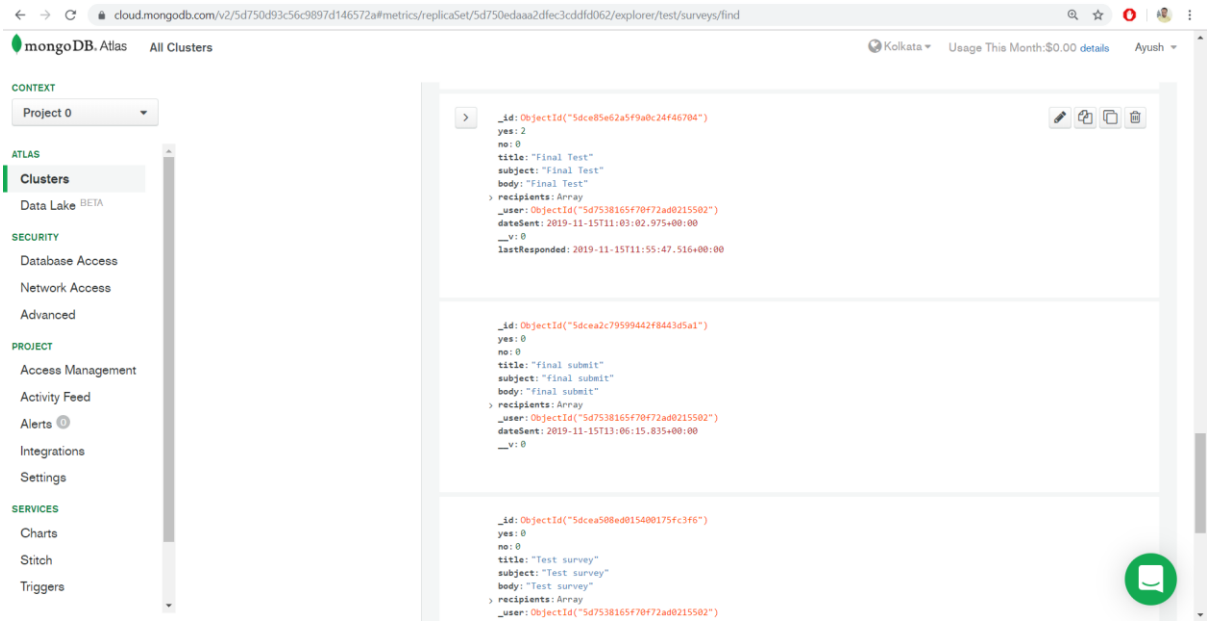
USER RECEIVES CONFIRMATION



STRIPE



MONGODB STRUCTURE



TESTING

est Case ID	PES_001	Test Case Description	Test the Login Functionality in login screen		
reated By		Reviewed By	-	Version	1
A Tester's Log					
ester'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
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

est Case ID	PES_002	**Test Case Description**	Test the functionality of creating new feedback form with 0 credits		
reated By		**Reviewed By**	-	**Version**	1
A Tester's Log					
ester'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**
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

est Case ID	PES_003	Test Case Description	Test the functionality of creating new feedback form.		
reated By		Reviewed By	-	Version	1
A Tester's Log					
ester'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
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

est Case ID	PES_004	**Test Case Description**	Test the functionality of creating new feedback form.		
reated By		**Reviewed By**	-	**Version**	1
A Tester's Log					
ester'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
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

est Case ID	PES_005	**Test Case Description**	Adding Credits through Stripe Gateway		
reated By		**Reviewed By**	-	**Version**	1
A Tester's Log					
ester'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**
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

est Case ID	PES_006	**Test Case Description**	Adding Credits through Stripe gateway without entering card details		
reated By		**Reviewed By**	-	**Version**	1
A Tester's Log					
ester'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

est cenario	Adding credits by clicking on Add Credits				

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed /
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

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 /**
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

Test Case ID	PES_008	**Test Case Description**	Testing by responding to feedback form received		
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 id = vijay@gmail.com
2	Log into your registered email account	2	Pass = dawdawd
3		3	
4		4	

Test Scenario	Verify while responding to the feedback, the response is recorded

Step #	**Step Details**	**Expected Results**	**Actual Results**	**Pass / Fail / Not executed /**
1	Navigate to Gmail account	Logged into account	Logged into account	Pass
2	Respond to received feedback form	Should able to click yes or no	Response recorded	Pass
3	Redirected to page saying 'thank you for voting'	Redirect to the message page	Redirected to the message page successfully	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 end users 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 ENHANCEMENTS

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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6. https://devcenter.heroku.com/categories/nodejs-support
7. https://sendgrid.com/docs/for-developers/
8. https://docs.mongodb.com/cloud/