

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 deducted.

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.

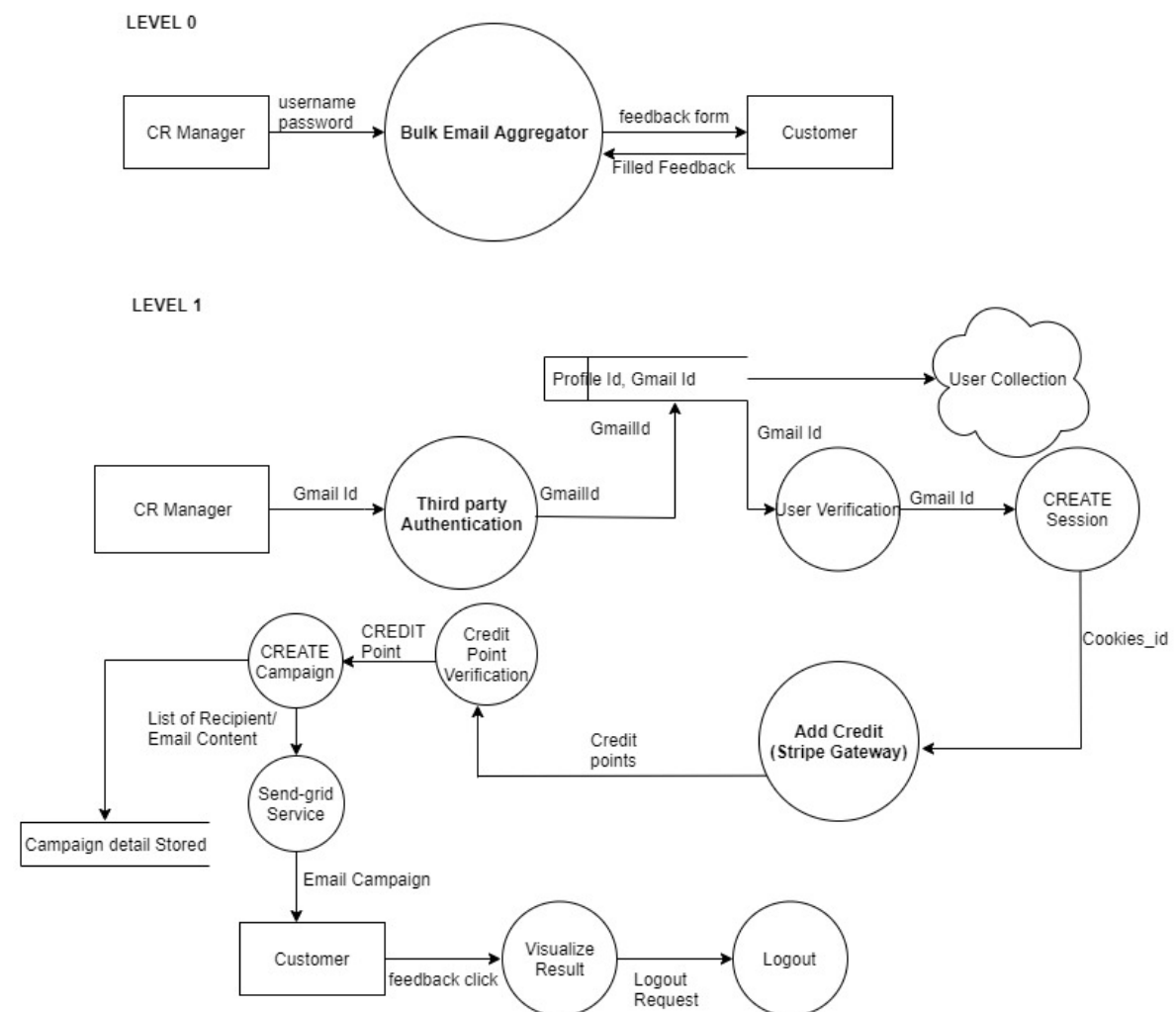
HEROKU:

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

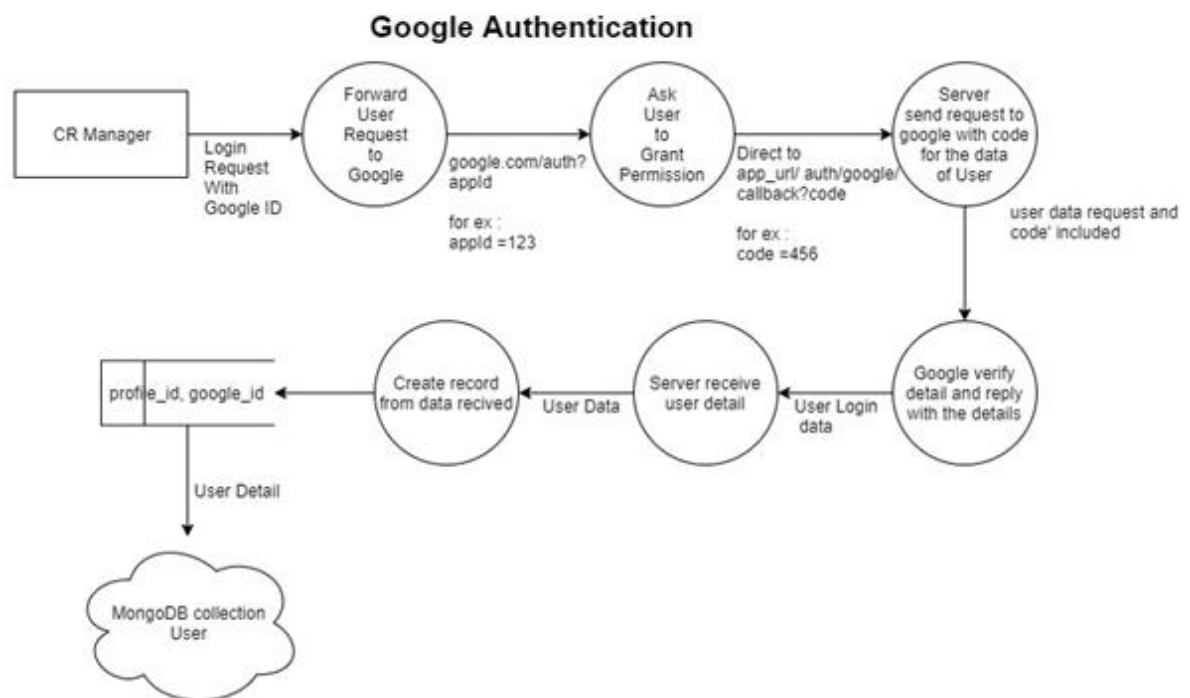
elegant, flexible, and easy to use, offering developers the simplest path to getting their apps to market.

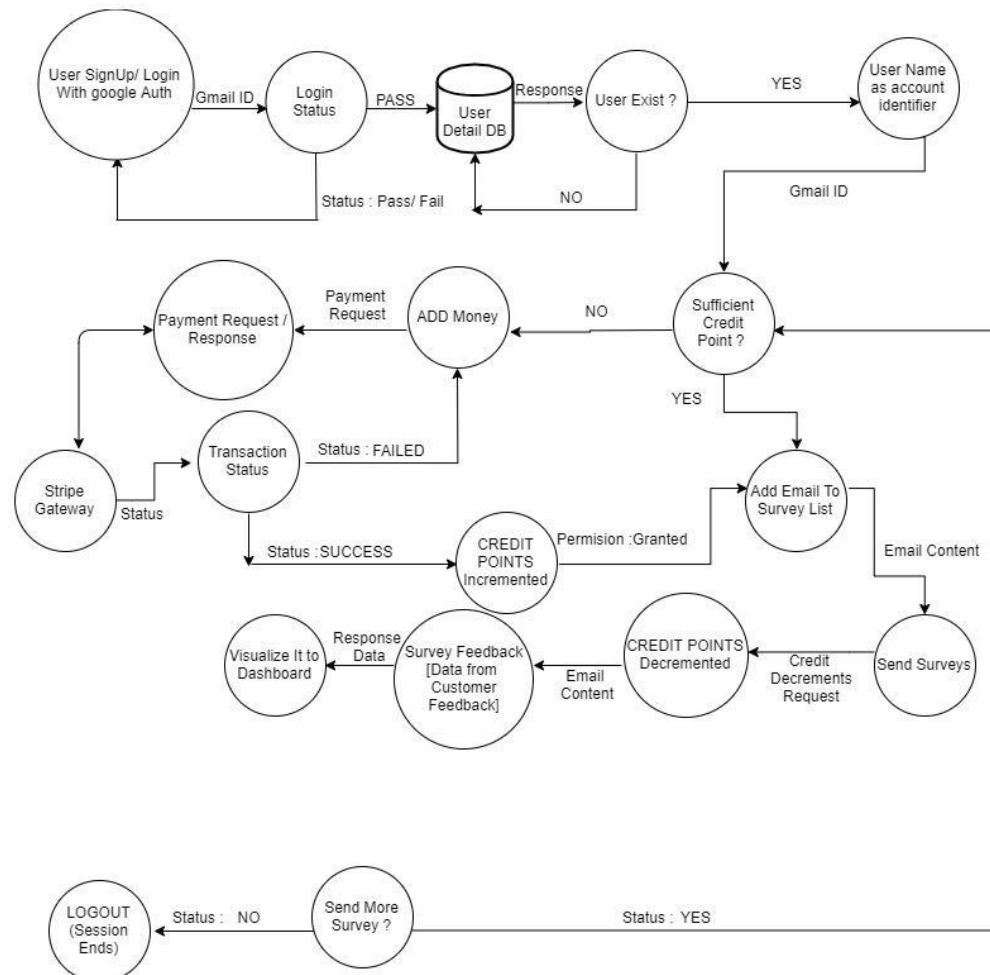
DESIGN

DFD



Level 2





DOCUMENT STRUCTURE

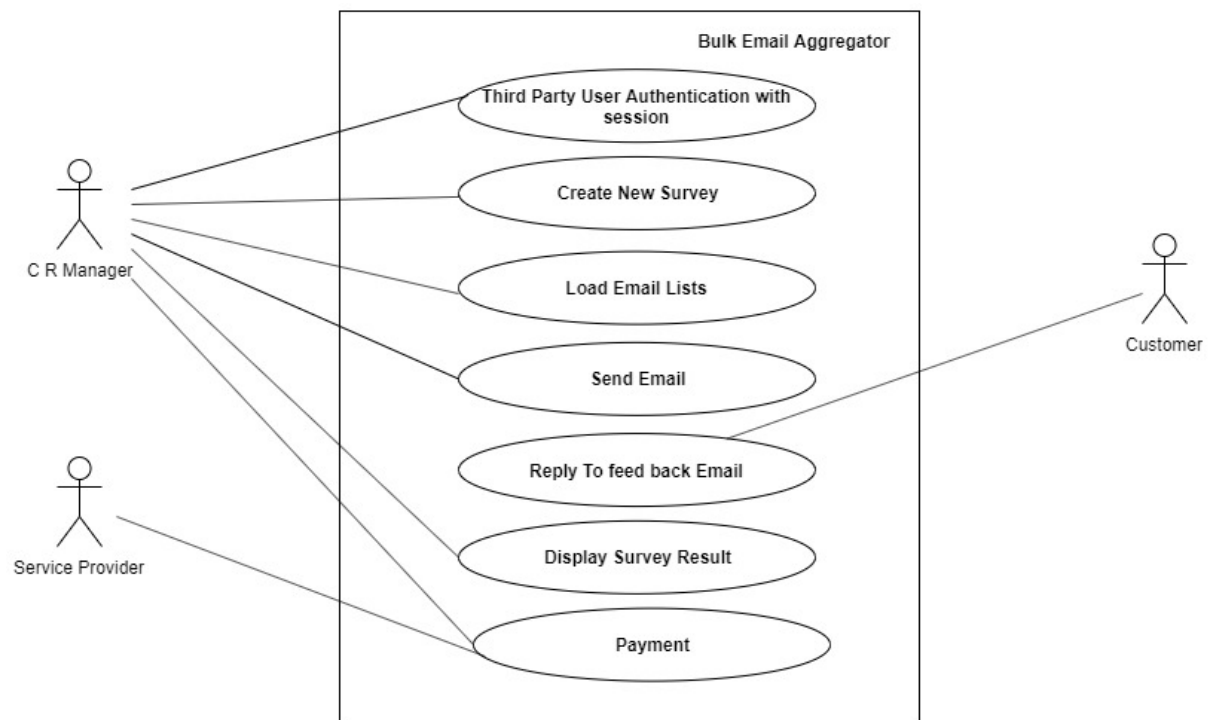
```
"user":{  
  _id : ObjectId(""),  
  googleId : "String  
Type",  
  __v : "Integer Type",  
  credit : "Integer  
Type"  
}
```

```
"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

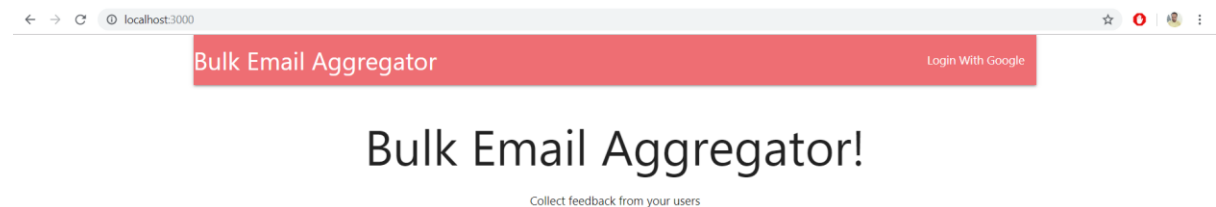


Our project consists of two folds:

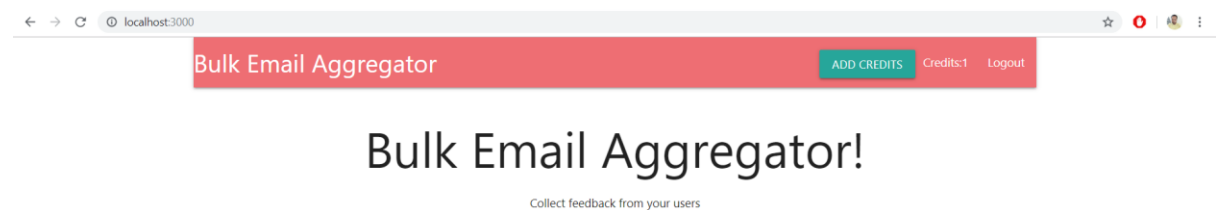
1. Customer Relationship Manager (CRM).
2. Customers: Who purchase products from different electronic companies.

IMPLEMENTATION

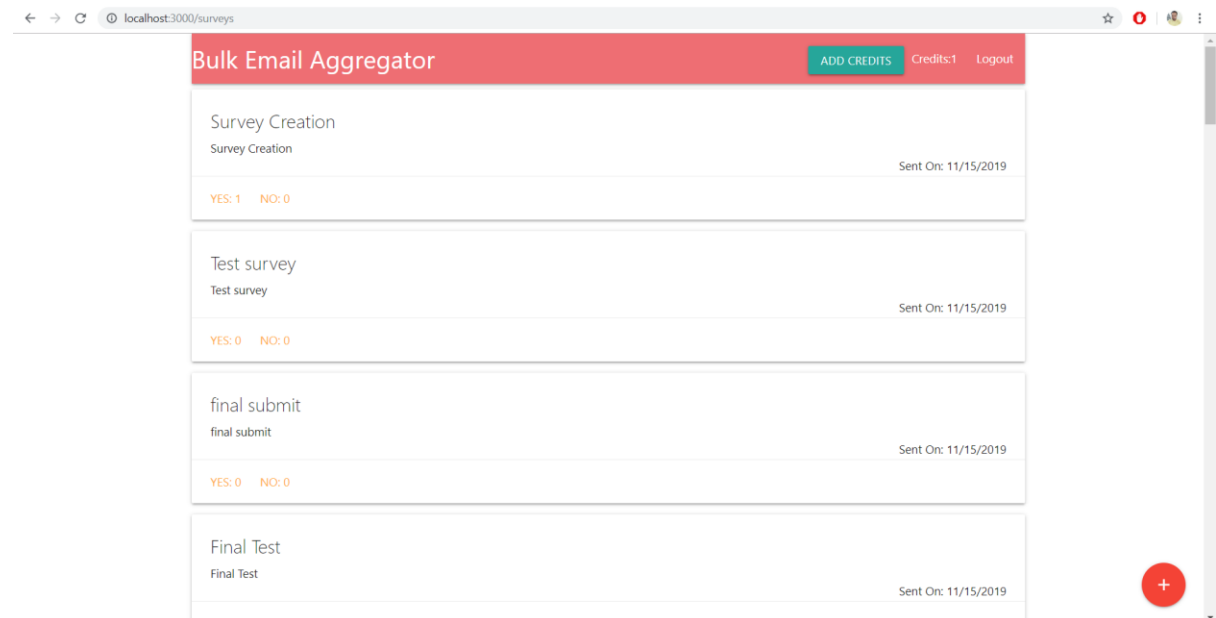
LOGIN SCREEN



HOME PAGE



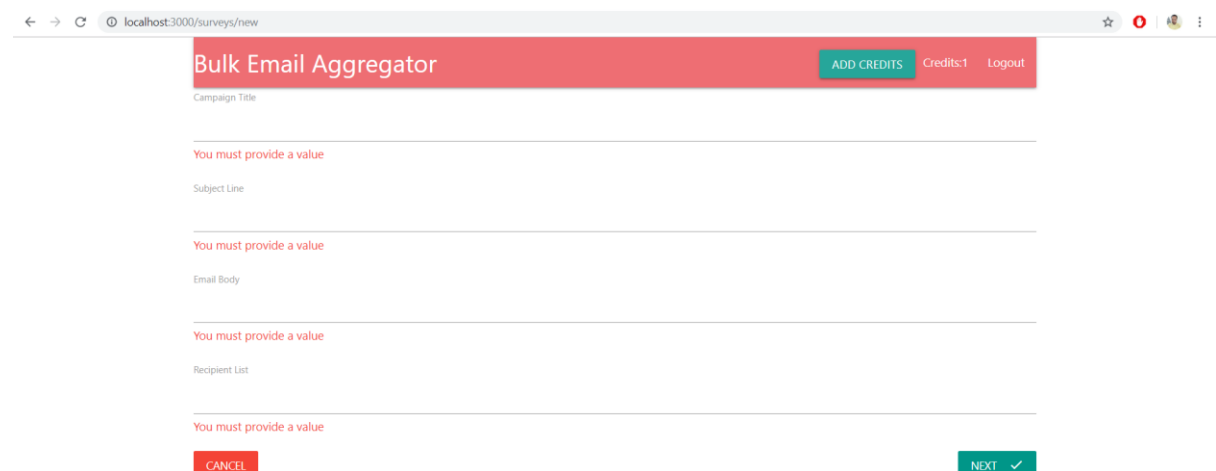
DASHBOARD



The screenshot shows a web browser at localhost:3000/surveys. The dashboard has a red header with the title "Bulk Email Aggregator", a green "ADD CREDITS" button, and links for "Credits:1" and "Logout". The main content area lists four surveys, each with a title, a subtitle, a "Sent On" date of 11/15/2019, and a status bar showing "YES" and "NO" counts. A red circular button with a white plus sign is on the right side.

Survey Title	Survey Subtitle	Sent On	YES	NO
Survey Creation	Survey Creation	11/15/2019	1	0
Test survey	Test survey	11/15/2019	0	0
final submit	final submit	11/15/2019	0	0
Final Test	Final Test	11/15/2019	0	0

FEEDBACK FORM



The screenshot shows a web browser at localhost:3000/surveys/new. The form has a red header with the title "Bulk Email Aggregator", a green "ADD CREDITS" button, and links for "Credits:1" and "Logout". The form fields are: Campaign Title, Subject Line, Email Body, and Recipient List. Each field has a red error message "You must provide a value". At the bottom, there are "CANCEL" and "NEXT" buttons.

Campaign Title

You must provide a value

Subject Line

You must provide a value

Email Body

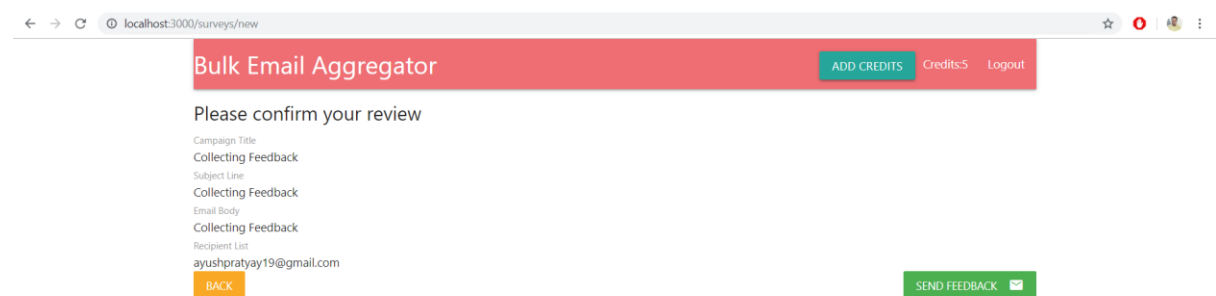
You must provide a value

Recipient List

You must provide a value

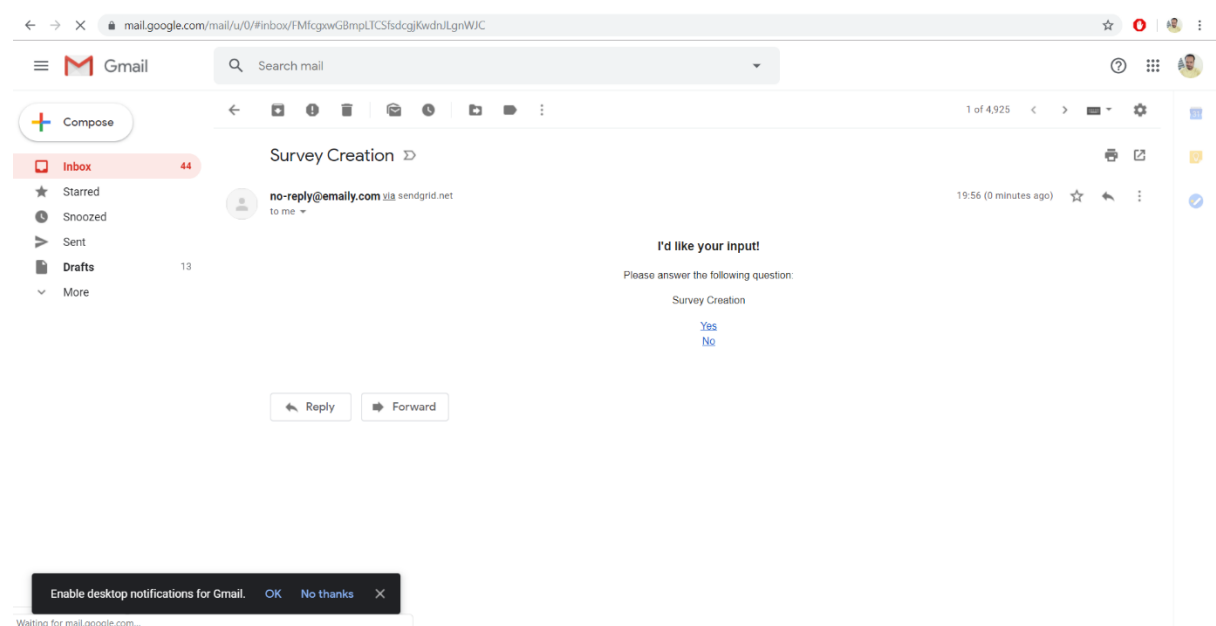
CANCEL NEXT ✓

REVIEW PAGE



A screenshot of a web browser showing the 'Bulk Email Aggregator' review page. The browser's address bar displays 'localhost:3000/surveys/new'. The page has a red header bar with the title 'Bulk Email Aggregator' and navigation links 'ADD CREDITS', 'Credits:5', and 'Logout'. The main content area asks the user to 'Please confirm your review' and lists the details of the survey: Campaign Title 'Collecting Feedback', Subject Line 'Collecting Feedback', Email Body 'Collecting Feedback', and Recipient List 'ayushpratyay19@gmail.com'. At the bottom of the form, there are two buttons: an orange 'BACK' button and a green 'SEND FEEDBACK' button with an envelope icon.

USER RECEIVING FEEDBACK

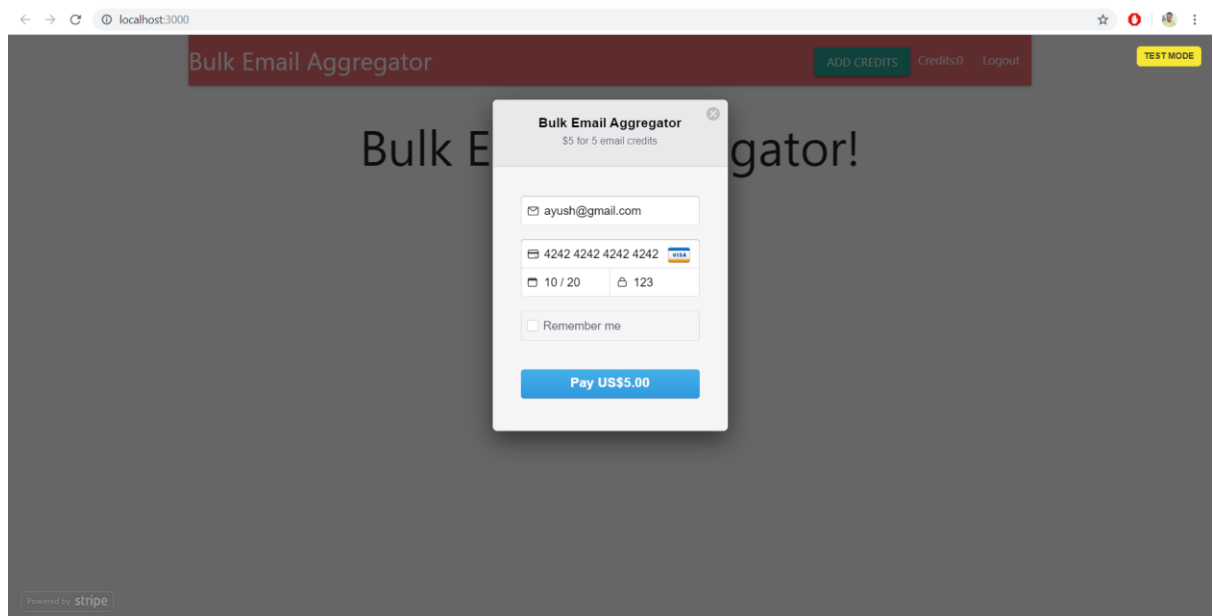


A screenshot of a Gmail inbox on a desktop browser. The email being viewed is from 'no-reply@email.com' with the subject 'Survey Creation'. The email body contains the text 'I'd like your input!', 'Please answer the following question:', and 'Survey Creation'. Below this text are two blue links, 'Yes' and 'No'. The email is dated '19:56 (0 minutes ago)'. The Gmail interface shows the 'Inbox' with 44 emails, and a sidebar with 'Starred', 'Snooted', 'Sent', 'Drafts', and 'More'. At the bottom of the email, there are 'Reply' and 'Forward' buttons. A notification banner at the bottom of the screen asks to 'Enable desktop notifications for Gmail.' with 'OK' and 'No thanks' buttons.

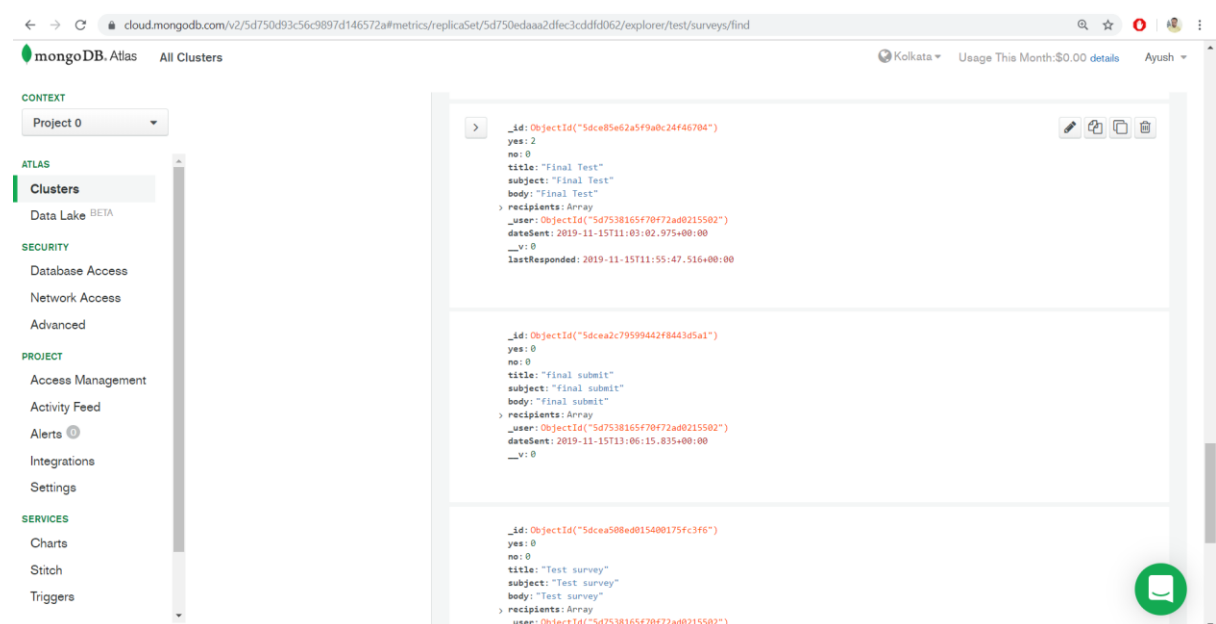
USER RECEIVES CONFIRMATION



STRIPE



MONGODB STRUCTURE



TESTING

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
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

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
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

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
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

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
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

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	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

Test Case ID		PES_006	Test Case Description		Adding Credits through Stripe gateway without entering card details					
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					4	CVC - 123				
Test Scenario	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/>