B. TECH. PROJECT REPORT
On
ShipIt Mobile Application Development

By
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DISCIPLINE OF COMPUTER SCIENCE & ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY INDORE
December 2018

ShipIt Mobile Application Development

A PROJECT REPORT

Submitted in partial fulfillment of the requirements for the award of the degrees

of
BACHELOR OF TECHNOLOGY
in
COMPUTER SCIENCE & ENGINEERING

Submitted by:
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INDIAN INSTITUTE OF TECHNOLOGY INDORE
December 2018

CANDIDATE'S DECLARATION

I hereby declare that the project entitled **"ShipIt Mobile Application Development"** submitted in partial fulfillment for the award of the degree of Bachelor of Technology in 'Computer Science & Engineering' completed under the supervision of **Dr. Surya Prakash, Assistant Professor, Discipline of Computer Science & Engineering, IIT Indore, Mr. Ashish Parkhi, Senior Manager at IDeaS – A SAS Company** and **Mrs. Ashwini Raskar, Manager at IDeaS – A SAS Company** is an authentic work.

Further, I declare that I have not submitted this work for the award of any other degree elsewhere.

Priyanka Meena

CERTIFICATE by BTP Guide

It is certified that the above statement made by the students is correct to the best of my/our knowledge.

Dr. Surya Prakash,

Assistant Professor,

Discipline of Computer Science & Engineering,

IIT Indore

Preface

This report on “ShipIt Mobile Application Development" is prepared under the guidance of Dr. Surya Prakash, Assistant Professor, Discipline of Computer Science & Engineering, IIT Indore and Mrs. Ashwini Raskar, Manager at IDeaS.

Through this report I have tried to give a detailed design of the application that was developed during my internship period at IDeaS to simplify the process of submitting the ideas and voting the ideas for the hackathon IDeaS.

I have tried to the best of my abilities and knowledge to explain the content in a lucid manner. I have also added screensshots to make it more illustrative.

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Acknowledgement

I would like to express my deepest appreciation to all those who provided me the opportunity to complete this project. I would like to give special gratitude to my BTP project supervisor, Dr. Surya Prakash, Assistant Professor, Discipline of Computer Science & Engineering, IIT Indore.

Furthermore, I would also like to acknowledge with much appreciation the crucial role of IDeaS, who gave me the opportunity to work for the company. Special thanks goes to tester, Mr Vishal Mishra, who tested this project. Last but not the least, many thanks to the managers of the project, Mr. Ashish Parkhi, and Mrs. Ashwini Raskar and my guides, Mr. Pradeep Chabukswar and Mr. Maksood Shaikh who invested their full effort in guiding me in achieving this goal. I appreciate the guidance given by other supervisors as well as the comments and advice given by the panel during our presentation.

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My Contributions

In this project, Initially I removed the bugs which were present in the ShipIt app before I started further development as this was necessary for the next ShipIt hackathon was coming in September. Then I developed some new functionalities on the My Dashboard page, All ideas page, current quarter's ideas page, Add ideas page, register page and setting's page.

I changed the Algorithm for result page. On result Page now admin can see the result along with the number of votes for the voted ideas.

Then I created some new Pages from scratch. Those were Home page of the ShipIt app, FAQ page and Presentation recordings page. And I have done some manual testing on the app so that I can see if the code is breaking after it is deployed on the server.
This month last quarter of the ShipIt hackathon will be organized and the company will use the app, as it is tested and have no bugs.

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CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

IDeaS organize quarterly 24-hour hackathon where any IDeaS team member can propose ideas to their products, teams, or company and present it on the ShipIt day. Earlier the employees used to propose their ideas on the company's official website where only the IDeaS team members can propose the ideas.

Then every time they need to go to the website and go on the sharepoint where you can add you new ideas, edit or delete your ideas, there they have to go another site which leads them to the voting page where they need to login first and after that they can vote for the ideas of that quarter, after the quarter ends they get a mail about the result and again go on the site and search for the results.

The whole process is very complex so my manager came up with this idea of making an app which can make this task easy and less complex.

So, to simplify the process of submitting the ideas, editing them, deleting ideas, and see the past and current ideas, and for voting and displaying result at the same place ShipIt app is introduced.

1.2 ABOUT THE COMPANY

IDeaS – A SAS Company

Integrated Decisions and Systems, Inc. (IDeaS) is a private company founded in 1989, headquartered in Minneapolis, MN. IDeaS Pune is a major development centre for the company.

With more than one million rooms priced daily on its advanced systems, IDeaS Revenue Solutions leads the industry with the latest revenue management software solutions and advisory services.

Powered by SAS® and more than 25 years of experience, IDeaS supports more than 9,000 clients in 94 countries and is relentless about providing hoteliers more insightful ways to manage the data behind hotel pricing. IDeaS empower its clients to build and maintain revenue management cultures by focusing on a simple promise: Driving Better Revenue. Recently they have completed 10,000 properties in 10 years which a big achievement.

IDeaS has the knowledge, expertise and maturity to build upon proven revenue management principles with next-generation analytics for more user-friendly, insightful and profitable revenue opportunities—not just for rooms, but across the entire hotel enterprise.

Specialties:

- Revenue Management
- Hospitality Pricing
- Forecasting & Revenue Optimization
- Car Park
- Travel
- Hospitality
- SaaS Applications
- Lodging
- Hotels
- Smart Spaces

1.3 OBJECTIVE

The main is objective to develop this mobile application to minimize the complexity of submitting the ideas and updating them time to time. And the main thing was to make it user friendly so that the users don't need to worry about the rest of the things after voting the ideas and the algorithm should be up to the mark so that there should not be a single mistake in the results.

CHAPTER 2

DEVELOPMENT APPROACH

To develop this application, I have used the ‘Agile Methodology’, which comprises of small incremental additions and refactoring, with each refactoring building on previous functionalities.

2.1 AGILE MODEL

Agile is a software development life cycle model and is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile Methods break the product into small incremental builds. These builds are completed in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like –

- Planning
- Requirements Analysis
- Design
- Coding
- Unit Testing
- Acceptance Testing

At the end of the iteration, a working product is displayed to the customer and important stakeholders.

2.1.1 What is Agile?

Agile model believes that every project needs to be handled differently and the existing methods need to be tailored to best suit the project requirements. In Agile, the tasks are divided to time boxes (small time frames) to deliver specific features for a release.

Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features; the final build holds all the features required by the customer.

The Agile thought process had begun early in the software development and became popular as time passed due to its flexibility and adaptability.

The principles of Agile Manifesto given below were followed and practiced throughout this project –

- **Individuals and interactions** − In Agile development, self-organization and motivation are important, as are interactions like co-location and pair programming.
- **Working software** − Demo working software is considered the best means of communication with the customers to understand their requirements, instead of just depending on documentation.
- **Customer collaboration** − As the requirements cannot be gathered completely in the beginning of the project due to various factors, continuous customer interaction is very important to get proper product requirements. Since, this project was developed with an aim to release to the audience.
- **Responding to change** − Agile Development is focused on quick responses to change and continuous development.

Agile methods are being widely accepted in the software world recently. However, this method may not always be suitable for all products. Still it has become the top choice as a

development model for newer businesses. The advantages of the Agile Model are as follows –

- Is a very realistic approach to software development.
- Promotes teamwork and cross training
- Functionality can be developed rapidly and demonstrated.
- Resource requirements are minimum.
- Suitable for fixed or changing requirements
- Delivers early partial working solutions
- Good model for environments that change steadily.
- Minimal rules, documentation easily employed.
- Enables concurrent development and delivery within an overall planned context.
- Little or no planning required.
- Easy to manage.
- Gives flexibility to developers.

CHAPTER 3

APPLICATION DESIGN

In the following sections, I have explained the design of the application and the overall flow of the application starting from the registration of one self to the displaying of results. The flow described below comprises of all the stages of the application. I have added the screenshots of the application's UI here to understand the flow better.

3.1 FLOW OF THE APPLICATION

Register and login:-

- The first step in the application flow is to register the new user. If the user already exists in the database then you don't need to register the user just need to login to get access.

Re-set Password:-

- If the user forgets the password then he/she can reset it. For this the user have to submit the IDeaS's Email id and a token will be sent to that email id, and the user can reset the password.

Add new Ideas:-

- The next step is to go on the Add Ideas page and add your idea and the related information. The user can add the new idea from My Dashboard only if he/she has not submitted any idea till date.
- The information we added will be saved in the database and we can use this information in future for voting or just to see the ideas.

All Ideas:-

- On this page we fetch data from the database and show it on this page. This page displays the ideas of the current year and the past year.

Voting for the Ideas

- Here you can vote for the ideas of the current quarter. If this page is enabled by the admin then the current ideas page will not be displayed. You can vote for maximum three ideas.

Results

- After the ShipIt ends the admin enable this page where users can see the winners and their idea title.
- There are some new functionalities that are added such as the admin can also see the number of votes the ideas got but the normal user can only see the list of the winners not the number of votes.
- A MySQL query runs here and calculate the total number of votes for a particular idea and then accordingly it calculates the winners.

Home Page

- The home page is added recently, Here you can get the information about what the shipIt and what are the dates of the shipIt this year, and also you can contact the organizers by mailing them directly from here.
- I have used JavaScript and jQuery to fetch the data from the database in Jason form and then converting it to strings I used it in my application.

Presentation recordings

- Here you can see the previous years presentation recordings and download them. These recordings are not saved in the database they were put on the server.

TECHNOLOGY STACK

The different technologies and resources that I have used in this project have been categorically listed below followed by brief descriptions of each of them. The back end here consists of the database (which is a MySQL database in this case), REST API is used with spring MVC whereas the front end consists of the client side source that mainly comprises of the HTML pages and JavaScript script files.

- **Database**
  - MySQL
- **APIs**
  - REST API
- **Java**
  - Spring MVC
- **Front End**
  - HTML and CSS
  - jQuery (JavaScript)
  - Bootstrap

The project has been developed using Spring framework for Java EE applications. Spring MVC to create and consume RESTful web services. development of the web application.

BACK END

The backend of the application is written in Java using Spring MVC Framework to develop RESTful web services. In Spring MVC, a controller can handle the requests for all HTTP methods, which is a backbone of RESTful web services.The MySQL database which store all the user and ideas's information is accessed using REST calls.

APIs

RESTful API is used with the help of Spring MVC to fetch the data from the database.
jQuery UI API to effectively use jQuery to execute features such as search autocomplete, show related videos.

FRONT END

The frontend of the application consists of the code that runs on the client side and mainly consists of code written in HTML and jQuery (JavaScript), the Bootstrap framework, and CSS.

CHAPTER 4

RESULTS

Here I am displaying some screenshots of the application in which I made changes related to UI and developed new functionalities. Here I am displaying all the pages because I have made changes to every page related to UI and I have developed new pages such as HOME page, FAQ and Presentation recordings etc. As the ideas were confidential to the company so the data displayed in the screenshots will be the data from my testing.

5.1 Login Screen and Registration page

The Login page consists of login option where the user can login to the application to access the information or to insert his or her ideas. If new user comes then he can register himself. If the user forgets the password then he can also reset it from the link given on this page.

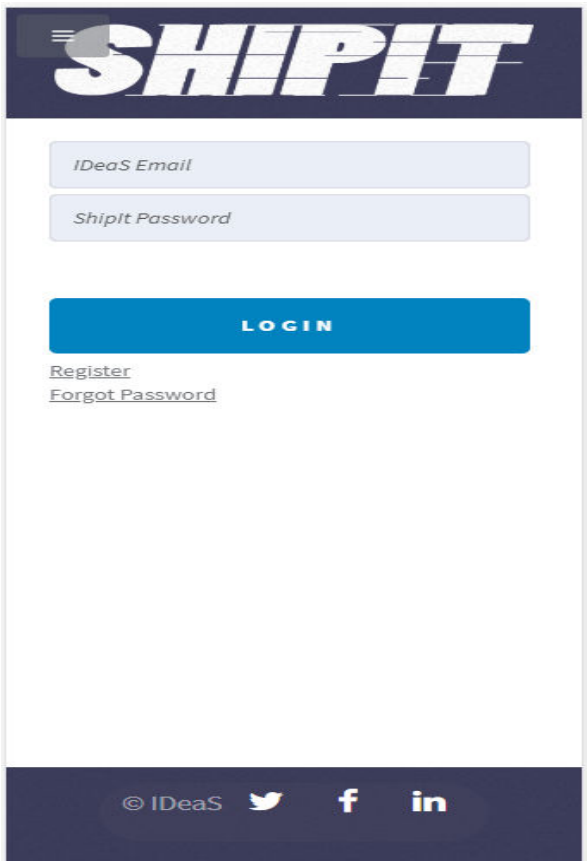

Figure 5.1 Screenshot of the Login page

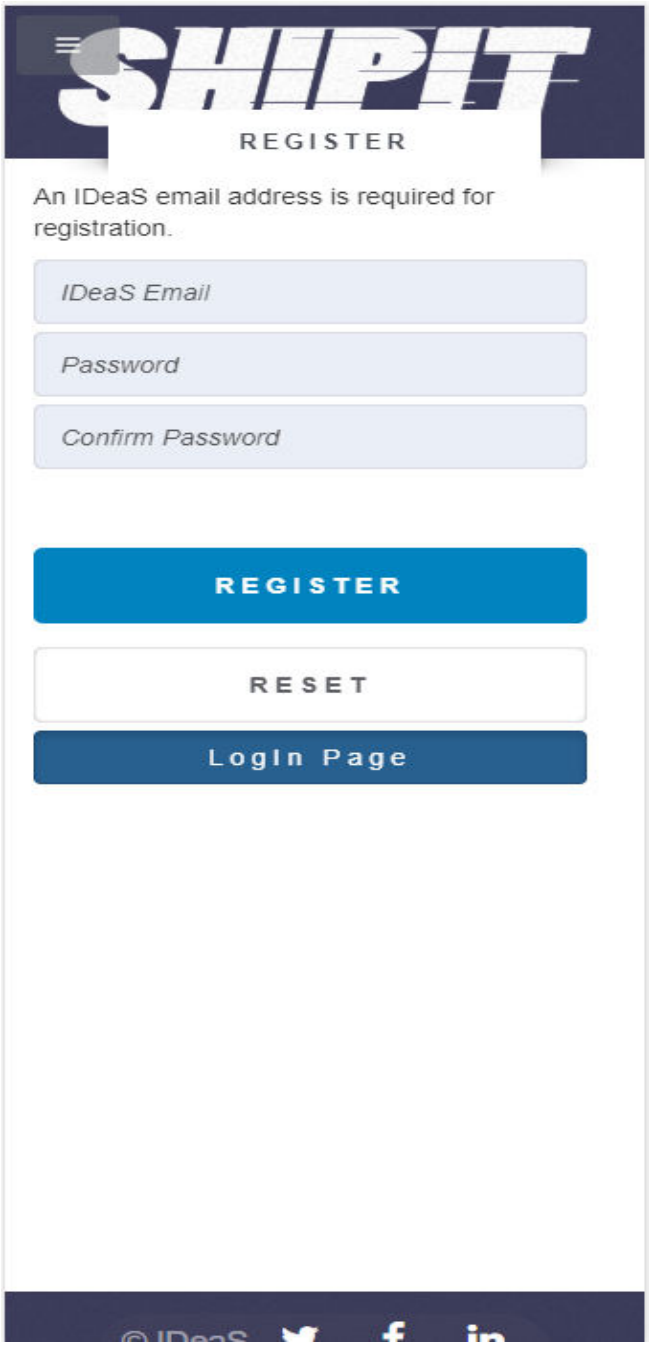

Figure 5.2 Screenshot of the register page

5.1 Home page

This page is for the introduction about ShipIt. Here user can see the dates of the Shipit which are going to be organized this year. User can also watch the past years ShipIt's presentations on this page. And if he/she has any query then he/she can directly contact to the organizer of the ShipIt via mail.

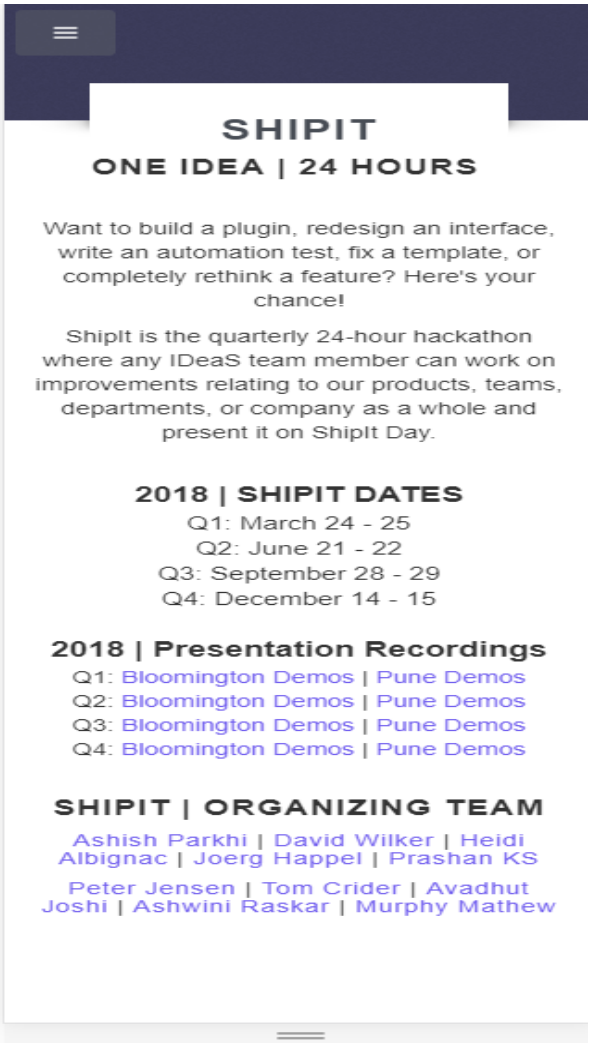

Figure 5.3 Screenshot of the home page

5.1 My Dashboard page

On this page User can see his/her name with welcoming message. User can add new idea from this page if he has never submitted any idea before or he/she has submitted any ideas in the past then those ideas will be displayed here on this page. Here the user can subscribe to the app so that he can get the notifications in the mail about the addition of new ideas or enabling of voting or result declaration. He will also get the notification if anyone has changed his idea or edited the ideas.

From the toggle button the user can change the location to see the ideas of that particular location, vote for the ideas of that location and see the results of that location. Only the owner of the idea can delete the idea, but anyone can edit the ideas.

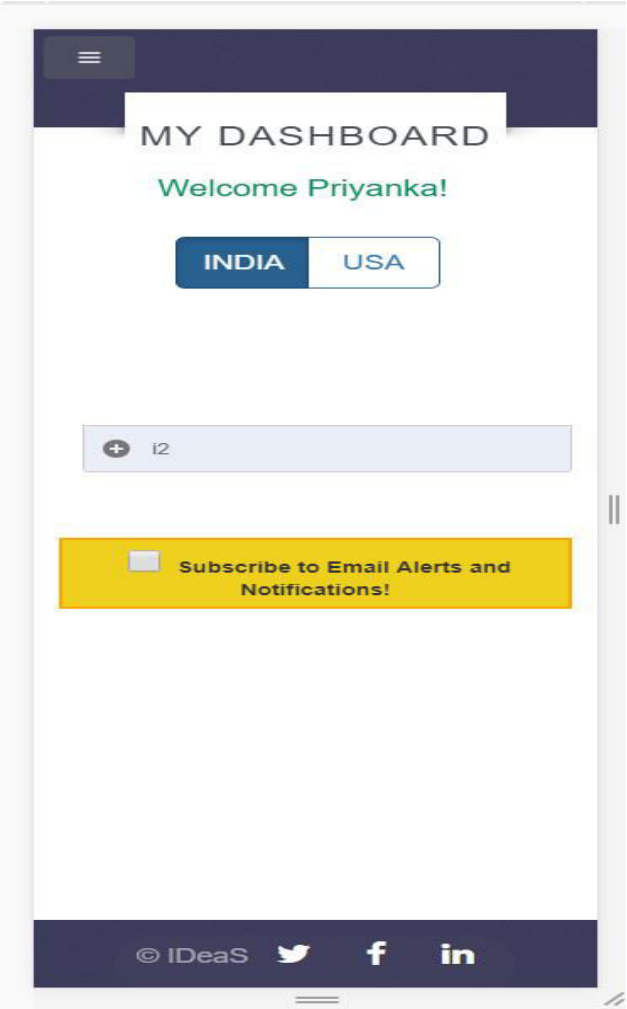

Figure 5.4 Screenshot of the My Dashboard page

5.1 Settings page

This page is only visible to the admin of this application. The admin can change the ShipIt dates accordingly. He/she can also enable the notifications, voting page and result page as well.

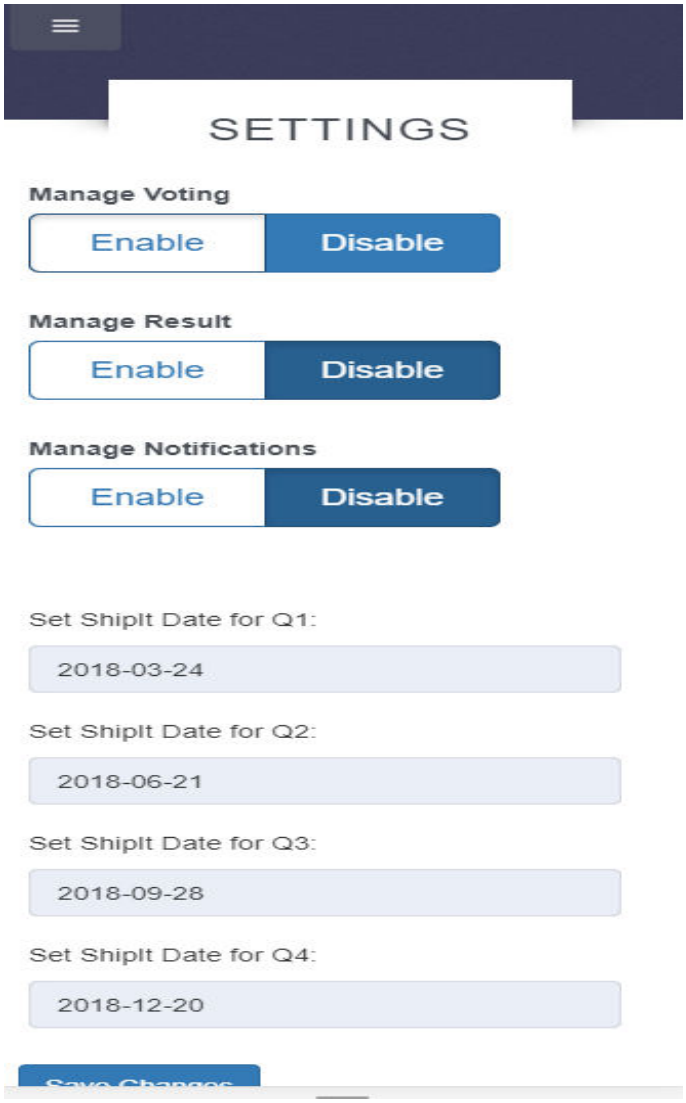

Figure 5.5 Screenshot of the settings page

5.1 All Ideas Screen

Here users can see whole ideas of the ShipIt that are already being presented or are going to present in the future. User can search the ideas by the title name, owners name or description of the idea. He can also filter the ideas by year. If the idea is winning then there will be a trophy next to the title name.

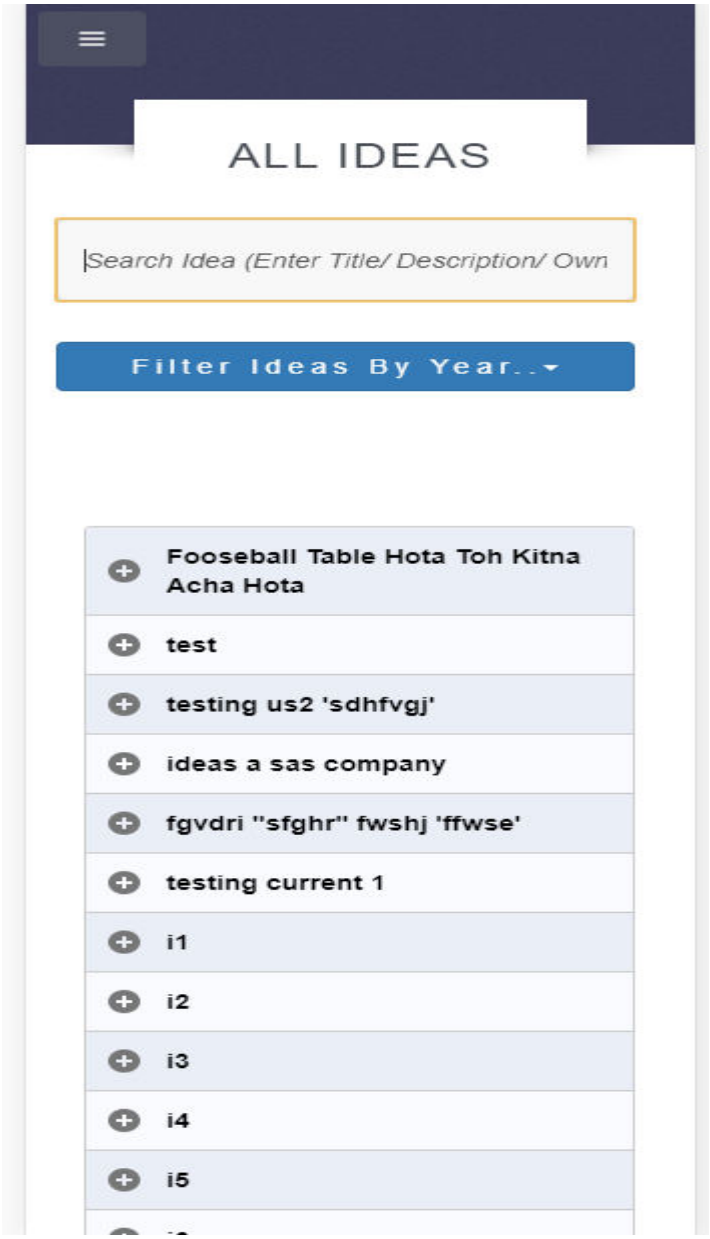

Figure 5.6 Screenshot of the All-Ideas page

Users can also see the details about the ideas by clicking on the plus sign or on the idea. There he can see the owner's name, date of the ShipIt for which this idea was presented, or the idea is winning idea or not, contributors of the particular idea.

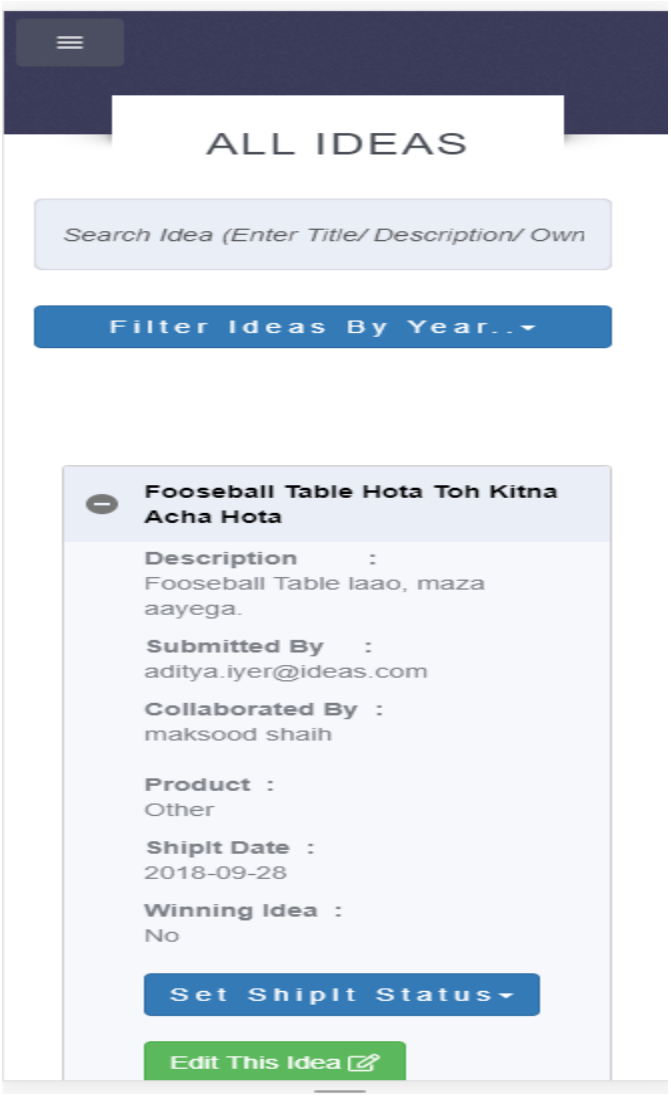

Figure 5.7 Screenshot of the All-Ideas page with the details of the idea

5.1 Current Quarter Ideas screen

On current ideas page the users can see the ideas of the current quarter's Ideas only. And if the user wants to update about anything then he can edit from here also. If the voting is enabled then this page will not appear.

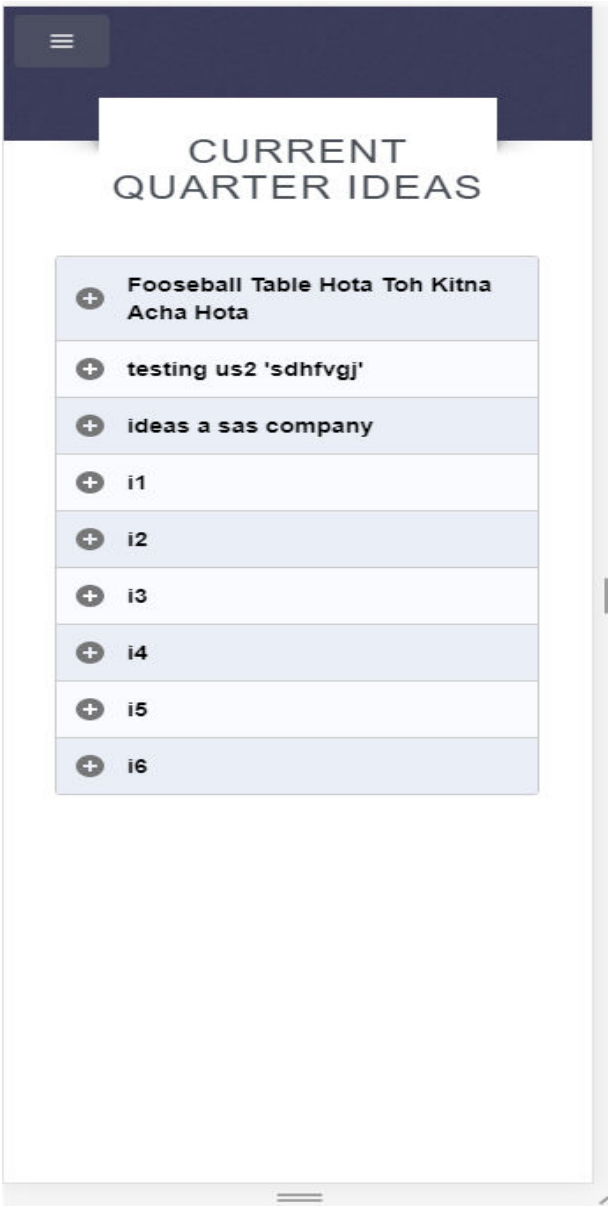

Figure 5.8 Screenshot of the current quarter's ideas page

5.1 Voting Screen

When voting is enabled after the presentations of the ideas, users can vote for the ideas except for their own ideas.

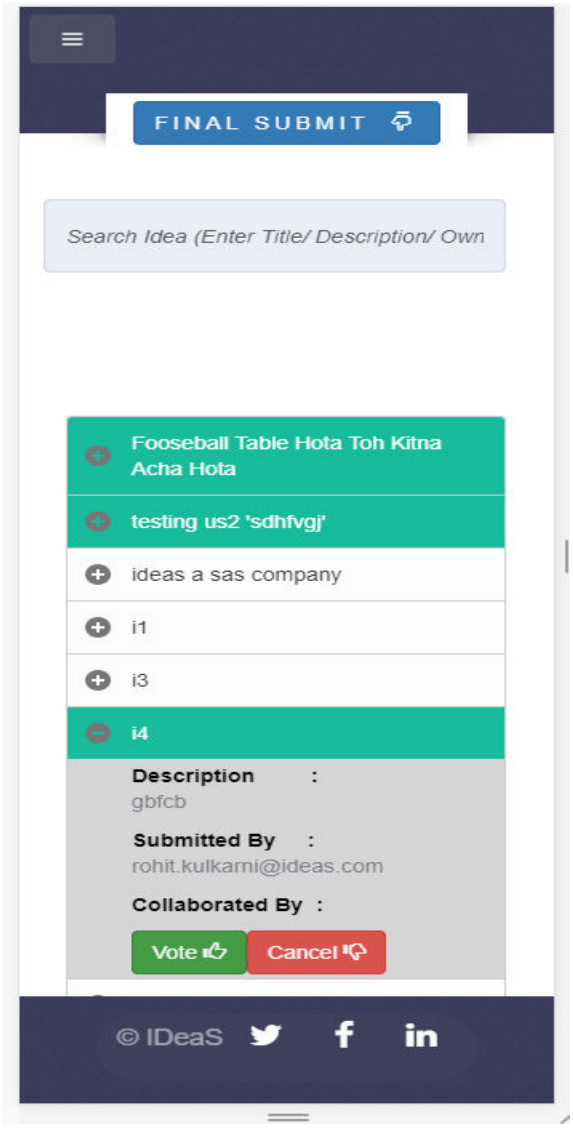

Figure 5.9 Screenshot of the voting screen

5.1 Results Screen

After the voting is done voting screen is disabled and result page is enabled. On this page normal users can see the top three winners according to the algorithm along with the title of the idea, but the admin can see the number of votes those ideas got.

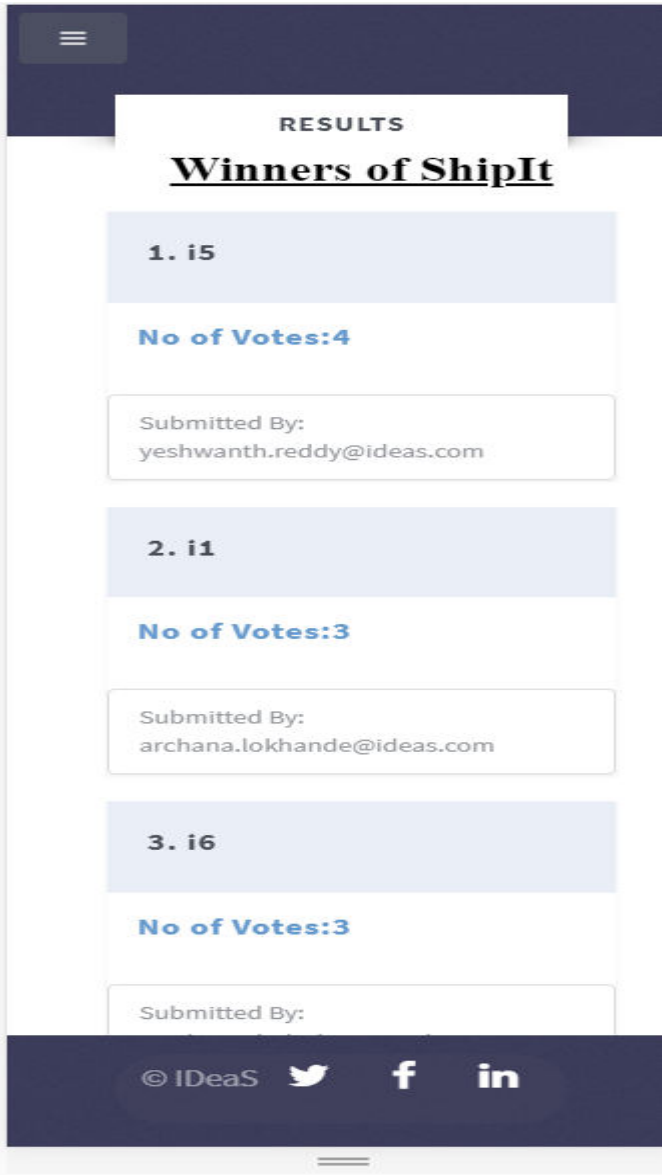

Figure 5.10 Screenshot of the Results screen for admin

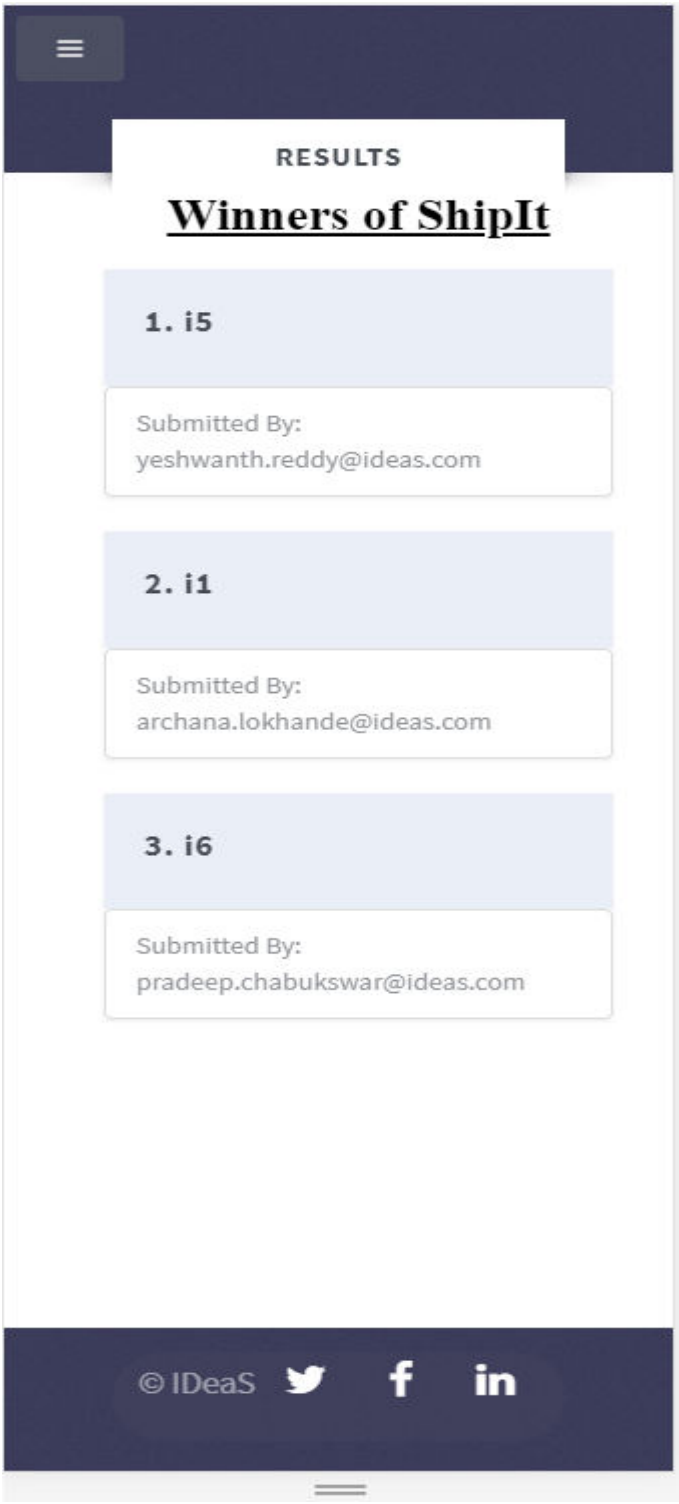

Figure 5.11 Screenshot of the Results screen for normal users

5.1 FAQ Page

Any user who has a very little knowledge about the ShipIt platform he/she can know about it here. There are some frequently asked questions are available so that the user can get his answers. The user can search the topic and get his/her answers.

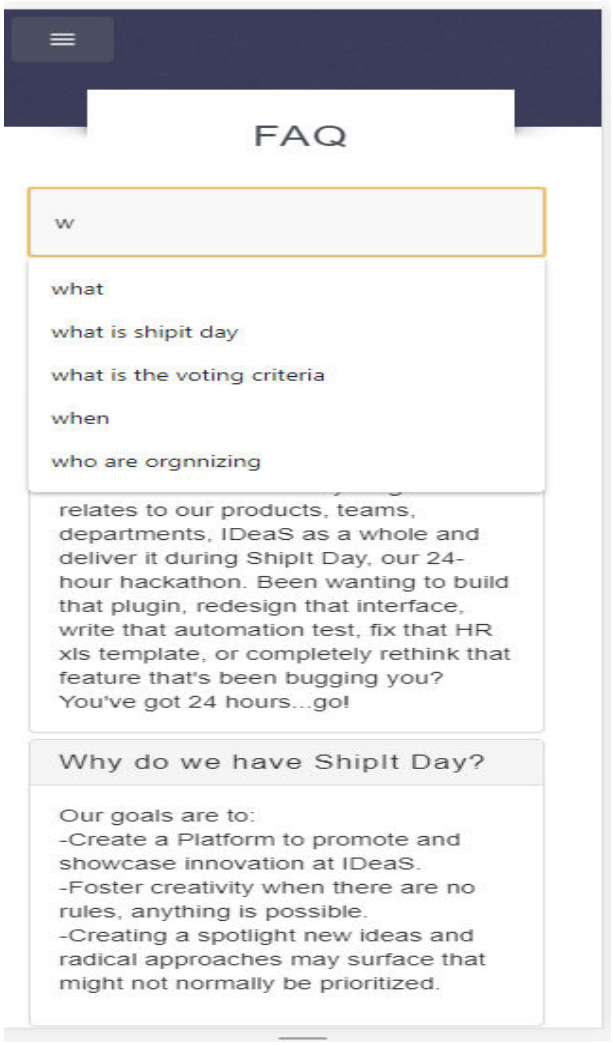

Figure 5.12 Screenshot of the FAQ screen

5.1 Presentation Recordings Page

If a user wants to watch the recordings of the previous ShipIt, then he/she can watch them here, and the videos can be downloaded too. The videos are sorted according to years. On clicking on the year you can go to the quarter and inside that you will be able to watch the presentation of the particular location such as India or USA.

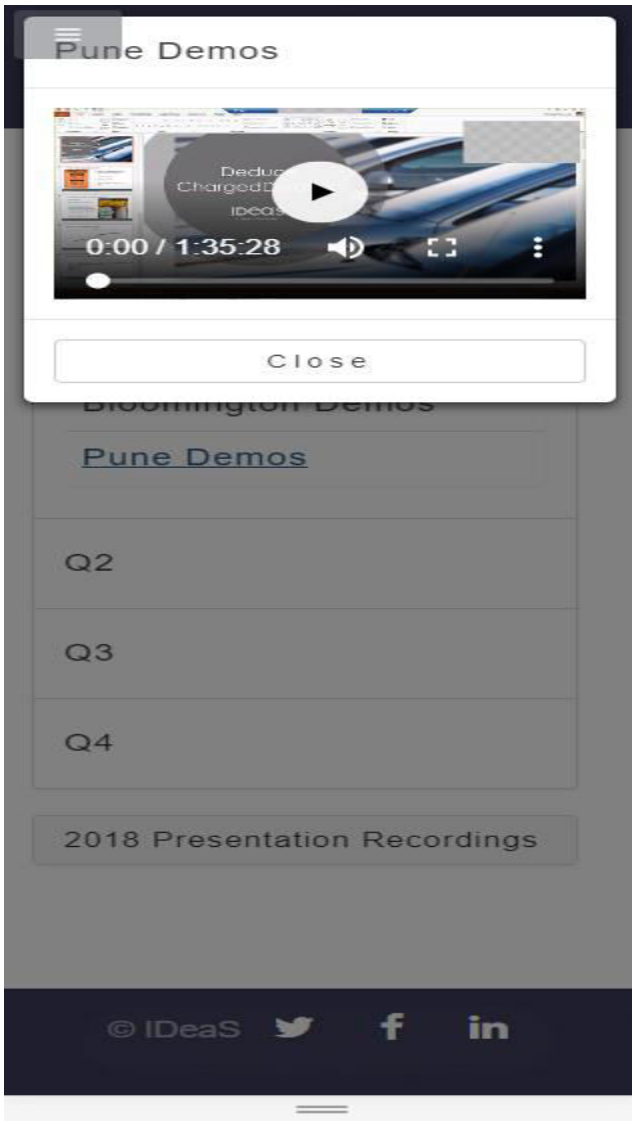

Figure 5.13 Screenshot of the presentation recording page where you can watch the video

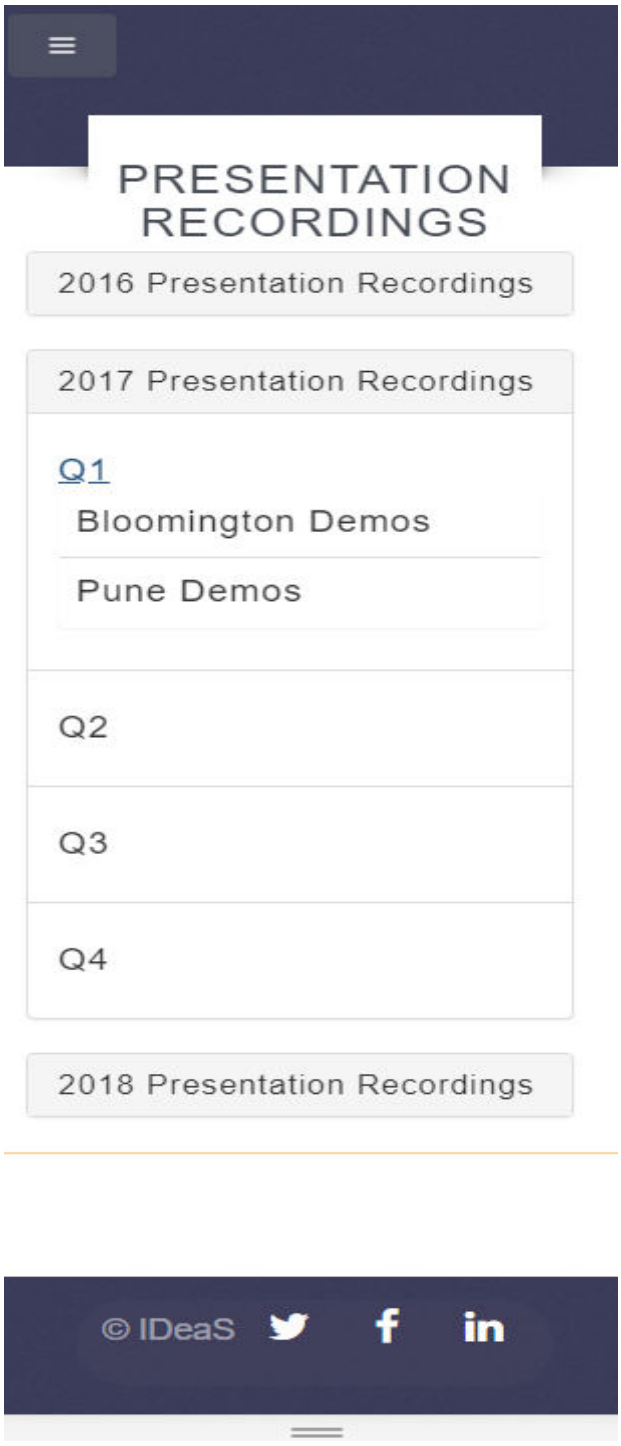

Figure 5.14 Screenshot of the presentation recording page

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

I learned JAVA, JDBC templete and test driven development in the bootcamp and developed a small web application named GoaPicnic where the employees can give the information about the Annual trip of IdeaS to Goa. In which the users will give details such as travelling mode, number of the family members coming along with him/her, contacts etc. In my main project I have modified already developed mobile app and developed some new functionalities using RESTful API with Spring MVS. The project was developed using agile methodology, wherein I participated in scrums, where I concluded what I did the previous day and planned on future work. In other words, this project was an excellent aid in understanding and acclimate myself with software development as it is practiced in the software industry today.

The entire application was developed using the Agile methodology of software development to aid in faster development and refactoring cycles and using the Test-Driven Development cycle to ensure maximum code coverage and minimum code duplication.
Remaining other methods consists of UI for which, testing has been done by the tester who was also doing internship at Ideas and I solved those small UI realted problems later.
In this application a new page can be added where the admin can upload videos of after the presentation is done. And the UI can be made more attractive. This quarter they will use this app as it is ready to use.

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