HUBS TMS

iOS Application Development Internship Reflection
July 2015
Hi-Tech Outsourcing Services
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Background

During my internship at Hi-Tech Outsourcing Services, I developed an iOS application to be used with the HUBS logistics system. The app, dubbed “Task Management System” (TMS), is a compliment to the web version for HUBS. The app is intended to help workers manage tasks in a to-do list fashion based on multiple projects they may be a part of. In its current form, TMS is intended to be used for personal use but has the potential to be scaled to a full fledged server based app that can be used to coordinate tasks amongst various teams and help project managers delegate work to different members.

Technical Subjects

1. SQLite 3
    1. Data Base Management
        1. Learned how to implement a database using SQLite 3 for iOS application. Understood how a database, various tables, and data entries gets stored in the database and how it is represented using queries. Learned that the database file must be stored in the documents directory to properly function for the application.
    2. Queries in SQL
        1. Learned how to use queries and proper syntax for queries in order to run SQL commands. This helped to integrate the database into my app using the SQLite 3 browser.
2. Xcode
    1. Learned how to properly use Xcode and the iOS SDK to create an iPhone app. Properly implemented views, view controllers, segues, navigation controllers, and table views to design a functional app. Used various classes to maintain organization throughout the work process.
    2. Implemented various different dynamic labels and controllers to enhance the UI for the user.
3. Objective C
    1. Object Orientated Programming
        1. Got a better grasp of object orientated programming and learned about the robust structure of Objective C and in a more holistic sense the C programming language.
    2. Syntax
        1. Learned about the syntax and logic behind Objective C and learned how to implement several basic tasks such as concatenating two strings, declaring objects, and importing classes.
4. RevealViewController
    1. I used the SWRevealViewController library to implement a slide out menu interface in order to easily navigate through the app. In order to add this feature, it required knowledge of how cocoa touch classes worked and interacted with one another. This helped to also gain a deeper understanding of how iOS development works.
5. Editing Tasks
    1. A big part and challenge of my application was editing tasks. After creating a task, I wanted to implement an interface to update the task as well. This meant using different queries to accomplish the task. Additionally, I had to make sure

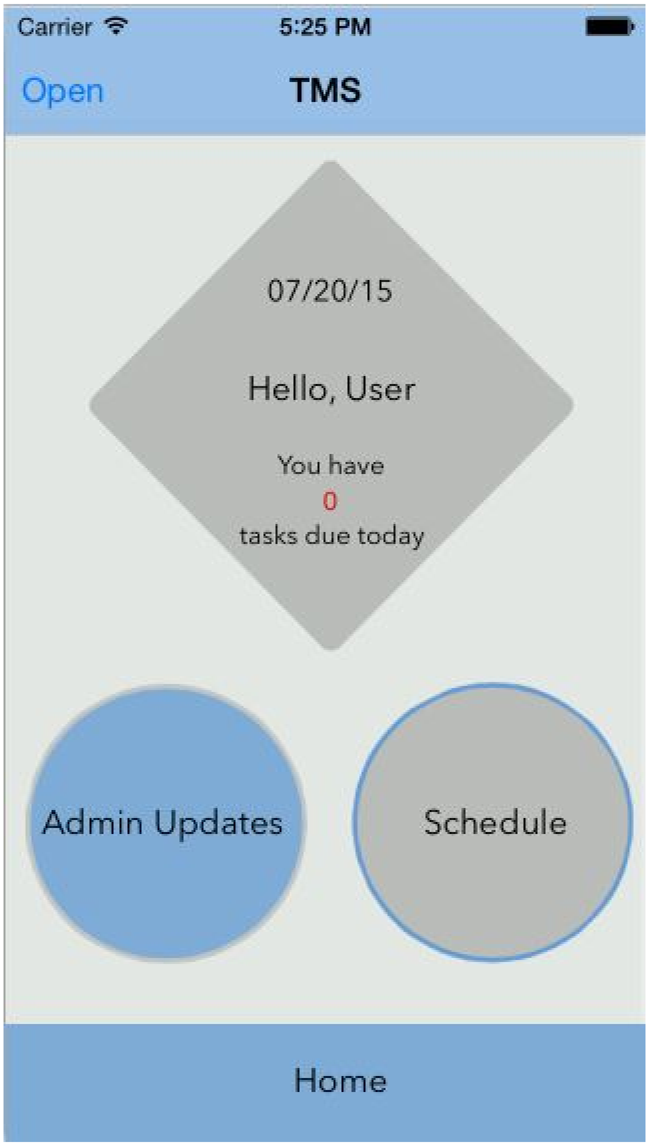
that I was editing only that specific task and not all the tasks so I kept track of the entries with a Integer Primary Key in the database. I also had to implement this for editing projects.

6. Picker Menu
    a. The picker menu is a helpful tool that ensures that only a certain list of options can be used to be stored in the database. I used the picker thrice: once for picking the due date, once for picking the project the task is part of, and once to pick a project to view the subsequent tasks related to that project. I also had to implement a NSDateFormatter to implement the dates in the format I desired them to be.

Non Technical Subjects

1. Workplace
    a. Finally, one intangible skill that I learned during my time at Hi-Tech was working in a formal environment managing deadlines and interacting with other workers. This was a extremely insightful experience to understand how the industry works and helped to prepare me for future endeavors.
2. Task Scheduling
    a. SDLC (Software Development Life Cycle)
        i. During the process of creating my first iOS application, I gained a better perspective on how the SDLC works in the real world. I learned that a proper plan before actually coding is one of the most important parts of a CS project. I got a better perspective in the actual cycle as well: Requirement Gathering, Documentation, Development, and Testing.

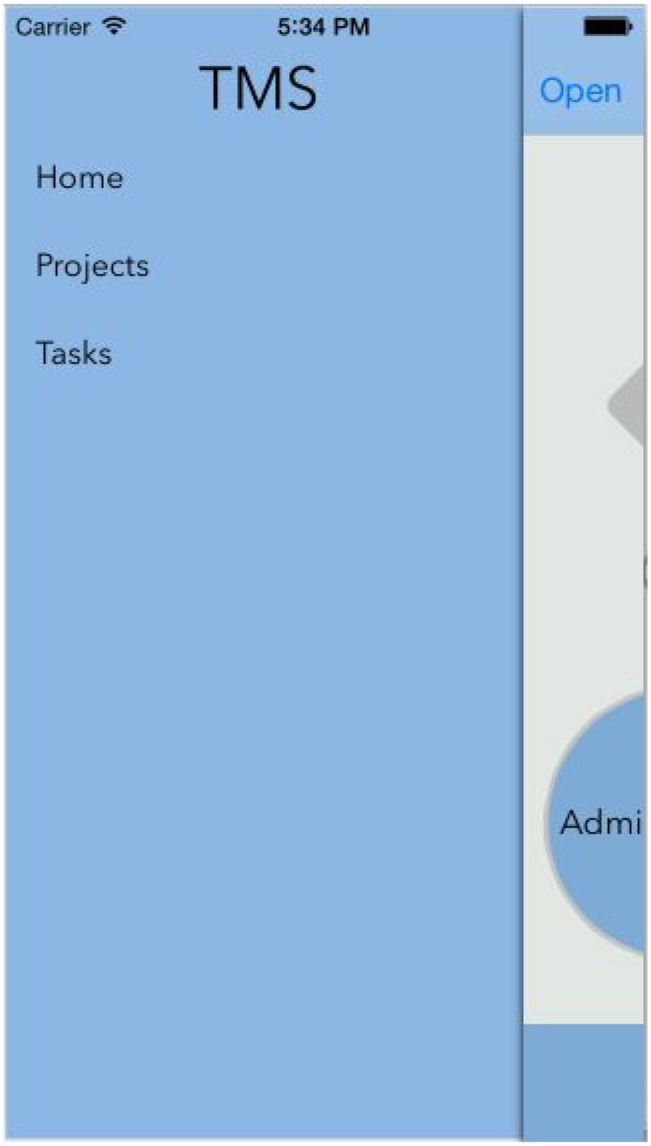
Application Functionality Demo



07/20/15

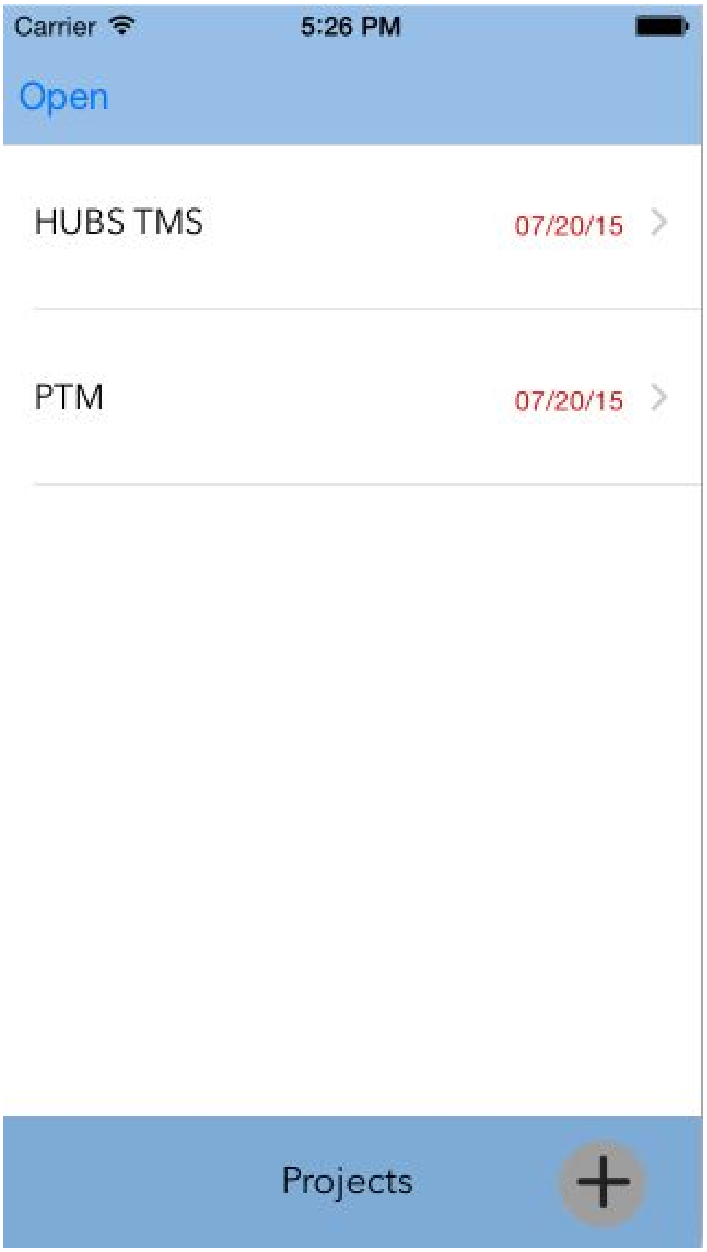
Hello, User

You have
0
tasks due today



These two screenshots are the home screens of TMS. Here we can see a greeting message with a dynamic counter and date as well as buttons for admin updates and the schedule. The schedule redirects the user to the page with the tasks due today so the user can understand what he or she needs to complete by the end of the day. As of now, the Admin Updates is not functional because it was not a part of the initial build of TMS. As mentioned earlier, TMS as of now is built for basic personal use but has the layout and vision to be scaled to a full fledge industrial application for the workplace.

The second screenshot is the reveal view controller I implemented for navigation through my application. It gets activated when "Open" is clicked or swiped from the left of the screen.



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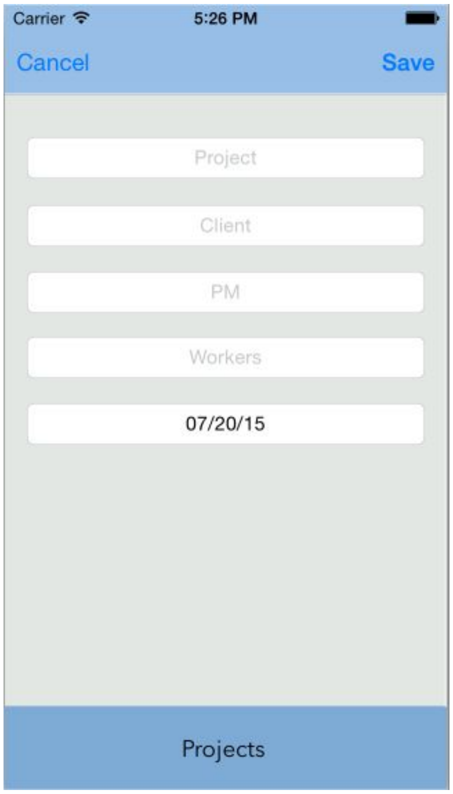
PTM 07/20/15



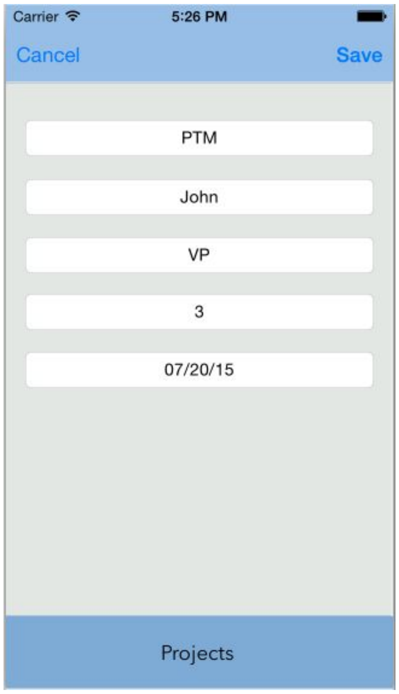
Project

Client

PM

Workers

07/20/15



PTM

John

VP

3

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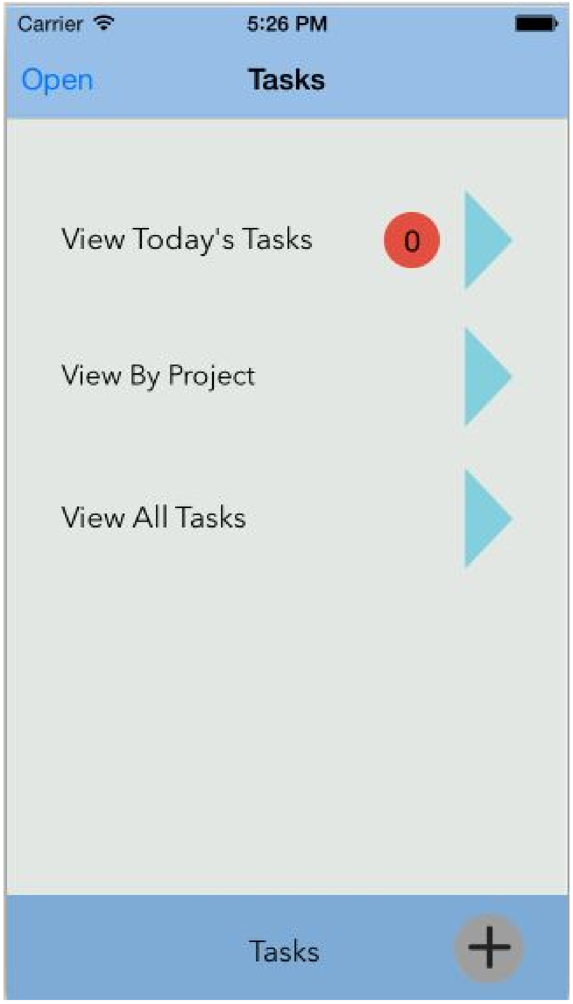
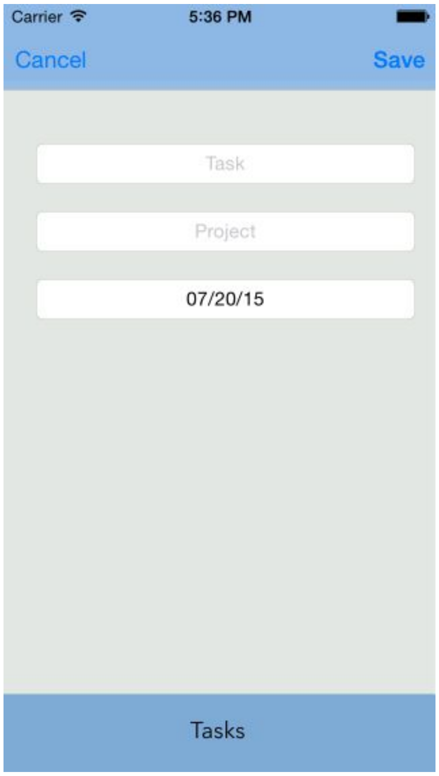
These three screenshots depict the projects part of TMS. Here, you can see that all projects are displayed on a table view and a new project can be added by using the "plus" button. There is also a functionality to edit a task when the task's detail disclosure button is tapped. The project can be deleted when the entry is swiped to the left.





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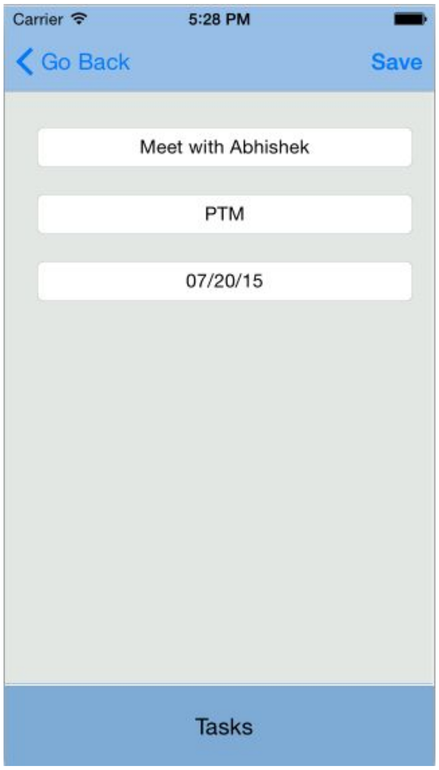
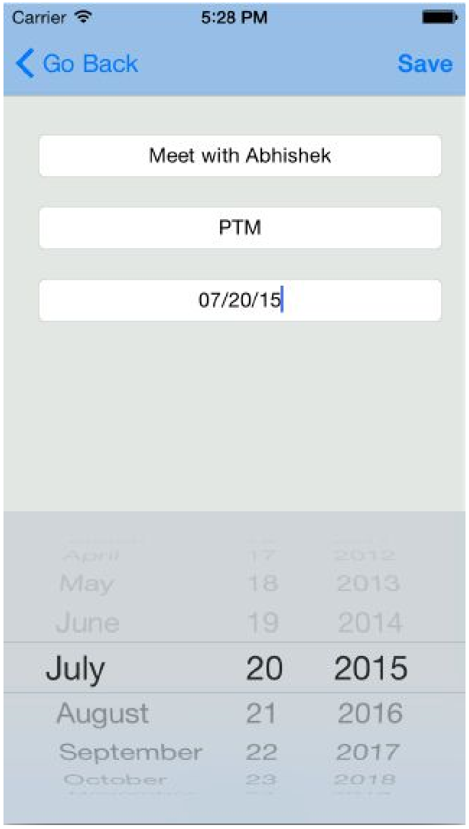


Meet with Abhishek

PTM

07/20/15



Meet with Abhishek

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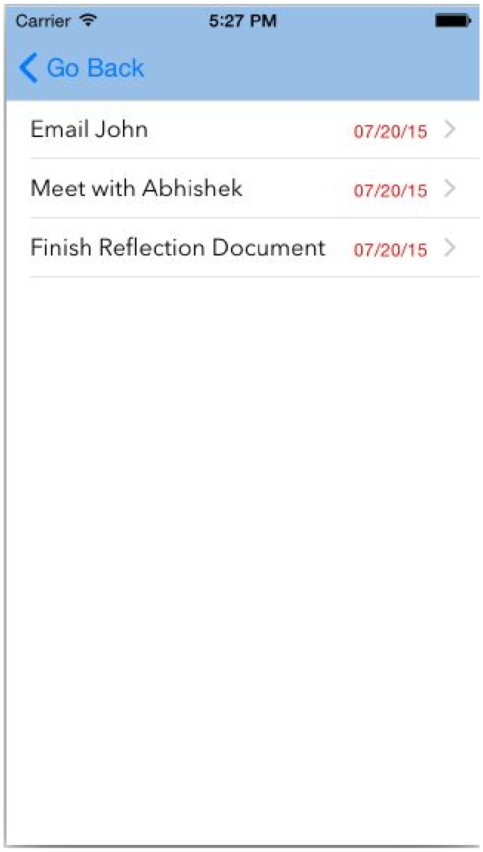
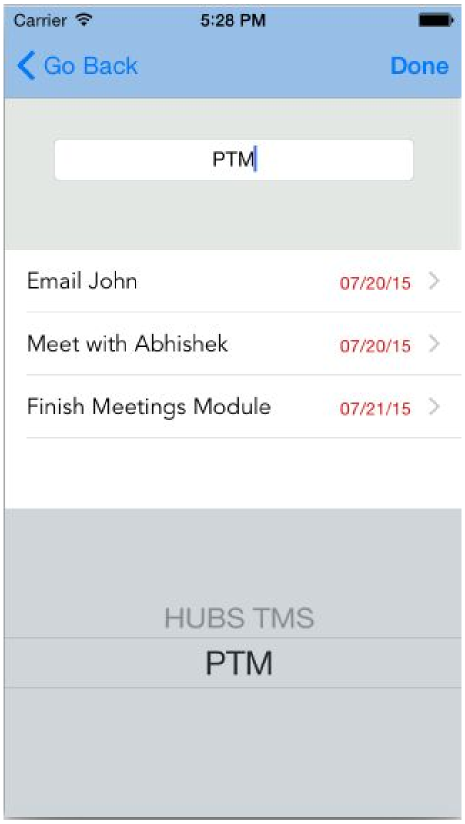
These four screenshots are part of the task module. The intro screen has three options to view tasks: due today, by project, and all. This allows flexibility for the user to understand what work needs to get done when. Additionally, tasks can be added with the tap of the plus button and edited by tapping the task similar to the projects. The final screenshot shows that when a user is picking a due date, a picker menu will be displayed to ensure the data entry is consistent and that there is no bogus entry. This is also used to select the project in the projects text field.



Email John 07/20/15

Meet with Abhishek 07/20/15

Finish Reflection Document 07/20/15



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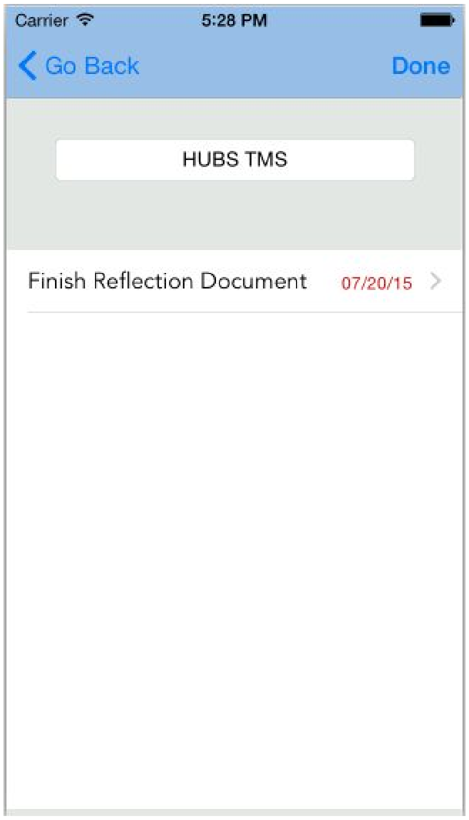
Finish Meetings Module 07/21/15

HUBS TMS

PTM

These four screenshots are the different ways the user can view his or her tasks. In view due today (top left) all tasks that are due the day the user is using the application is shown. In view by projects (top right and bottom left), a similar picker menu is displayed when the user wishes to select a project. The picker can disappear when the "done" button is tapped. Finally, the view all tasks views (bottom right) displays all the tasks added into the application. All tasks can be deleted when the entry is swiped left. Deleting a task from one view will delete the task from everywhere else.



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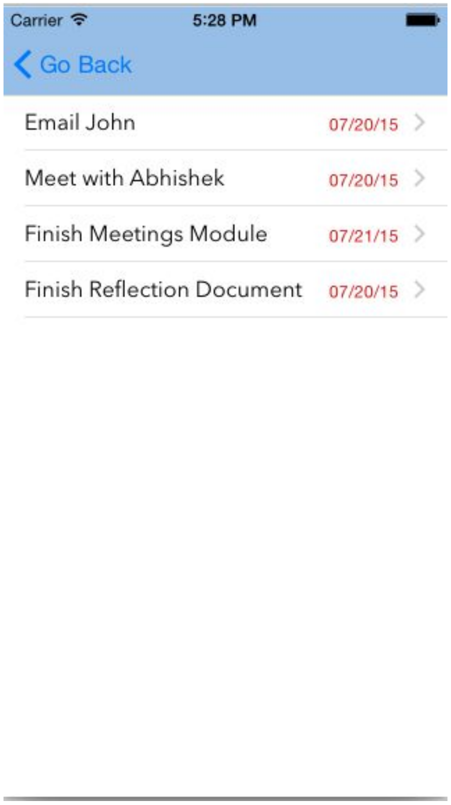
Finish Reflection Document 07/20/15



Email John 07/20/15

Meet with Abhishek 07/20/15

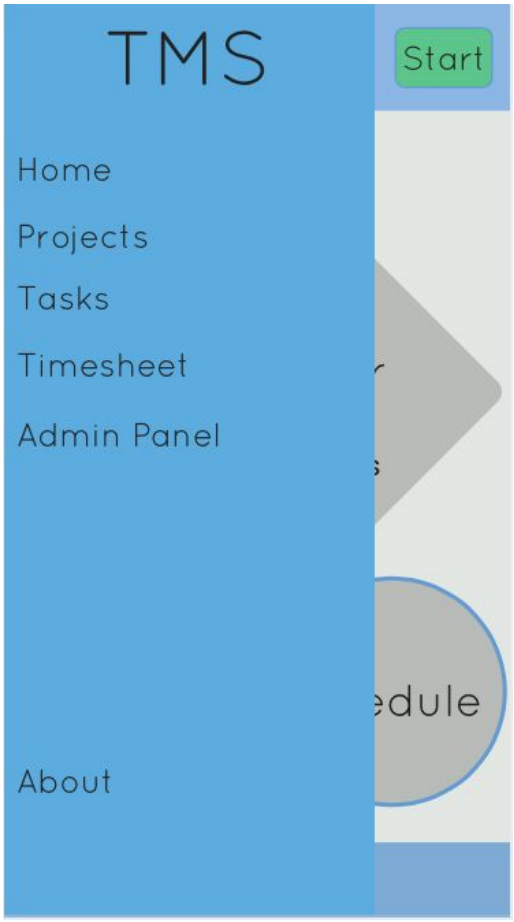
Finish Meetings Module 07/21/15

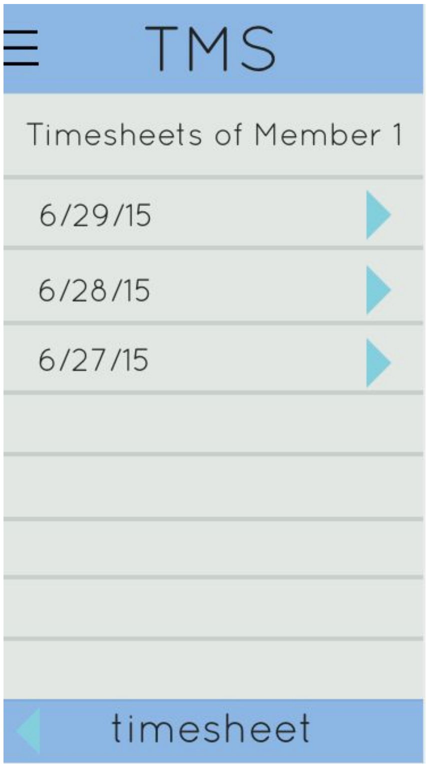
Finish Reflection Document 07/20/15

UI Concept

On top of building a basic functional application described above, since the end goal is to scale this application as a completely functional iOS version of HUBS, I also created a UI concept for what the application would look like in the final stage. Here are screenshots of additional features that can be added to this application:

These screenshots depict the new features that TMS can be scaled into. The first screenshot shows the two new features added to the application: timesheet and admin panel. The timesheet functionality (depicted below) allows the user to automatically fill out his or her timesheet based on the days work. It allows the user to effectively complete the timesheet for the days and is a powerful tool to maintain productivity.



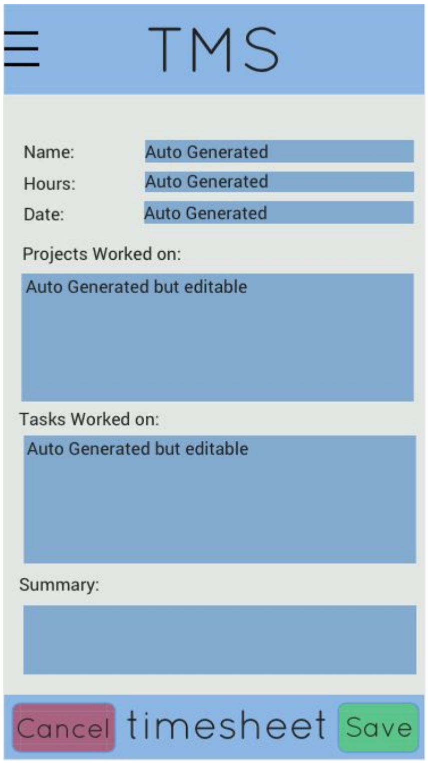


Timesheets of Member 1

6/29/15

6/28/15

6/27/15



Name: Auto Generated

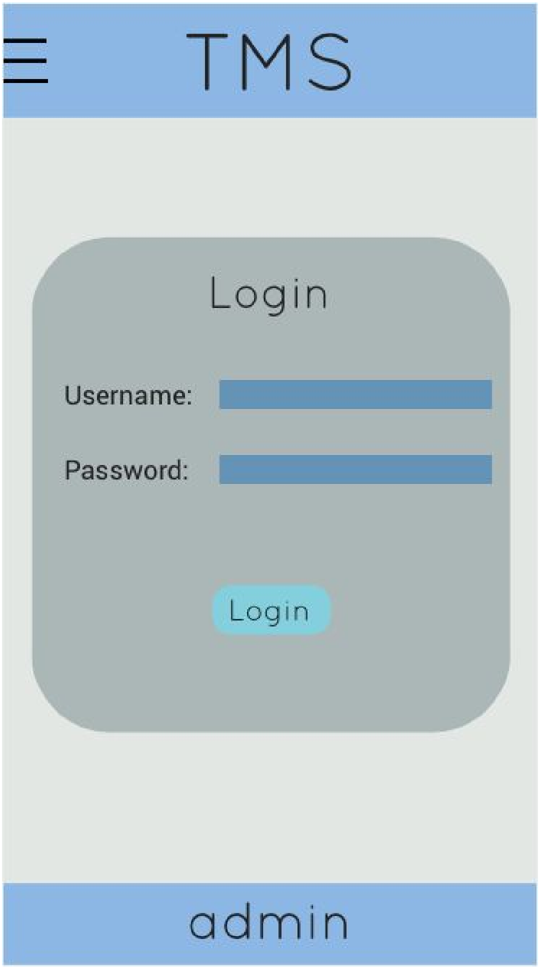
Hours: Auto Generated

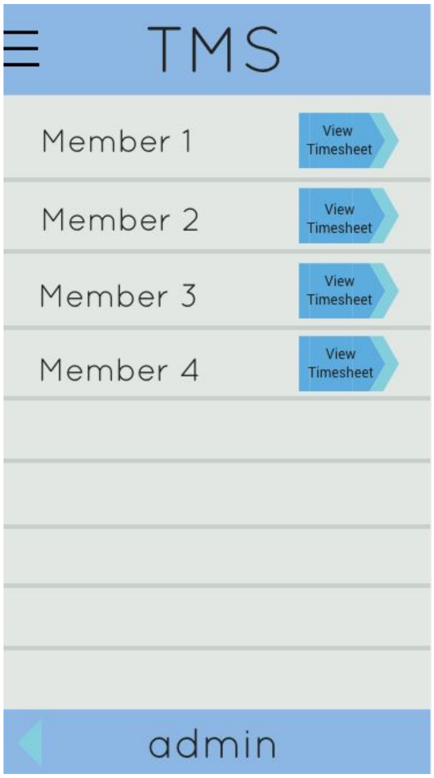
Date: Auto Generated

Projects Worked on: Auto Generated but editable

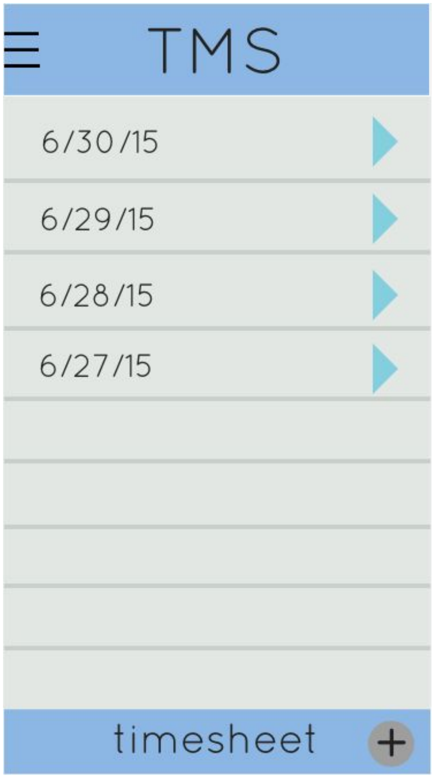
Tasks Worked on: Auto Generated but editable

Summary:





This is the other feature that can be implemented into TMS: the admin panel. The admin panel allows for login of the team admin and allows him or her to view timesheets of his or her workers and also enables the user to write news updates that can be viewed by all the workers.



Acknowledgements

I want to first and foremost thank Pranit sir, Vijay sir, Bachal sir, and Bimal sir for allowing me to work as an intern at Hi-Tech Outsourcing Services. I know this does not usually happen and I am grateful for the opportunity. I hope some day, TMS can be scaled and grown to be a functional and useful app for this company. I would also like to specifically thank Abhishek Karkar for the constant support and aide throughout the process. He has been a great desk mate and I am extremely thankful for his charisma and technical knowledge in mobile application development.