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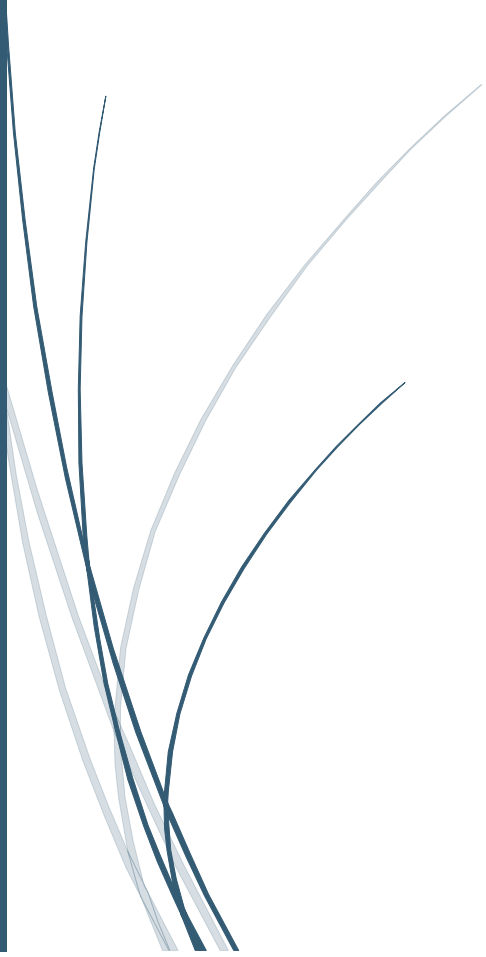
Milestone 4

QuickSheets

Anthony Afonin



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Overview

Problem/Opportunity Statement

A small construction company has recently started expanding in the workforce. The owners of the company have been struggling to effectively communicate with their employees as the company grows. The owners currently do not have an efficient system to log and receive the hours worked by their employees. They currently use text messaging to share the dates and times. Using this system, it is possible that employee's worked hours can be lost or forgotten. With the company growing, it will be impossible to keep track of each employee's hours on a daily basis. The proposed solution is to create a new system to properly manage each employee's clocked worked hours without the use of text messages.

The newly created system will be a mobile phone application named QuickSheets.
This application will be supported on Android and iOS operating systems. The application will allow users to create, manage, and share timesheets with either their employer or accountant. The application will store information on a local database and will also have the option to backup information to the user's email address. Each employee will be able to create a user account that will store their personal information. Once an employee has logged in, they can create *timesheets* with start and end dates matching the payroll period. Inside an individual time sheet, the employee can then create a *timesheet log*. The timesheet log will contain the date, job number, job description, and clocked work hours. The application will calculate and display the total hours of each timesheet. Near the end date of a created timesheet, the application will send the employee a reminder to complete and send that particular timesheet to their employer before the payroll period ends. This system will allow employees to manage their own worked hours and also to allow the employer to review each employee's timesheet before finalizing and submitting them to the accountant.

Overview (cont.)

System Context

Affordable Painting and Drywall is a small construction company. They primarily focus on painting old/new houses and buildings. The company started with a workforce of just two brothers, Mark and Fred, and has been growing into multiple work crews since. Mark is in charge of bidding new jobs and Fred is in charge of assembling unique crews and sending each crew to a job. They currently communicate with their employees through text messages in regards of work progress and clocked hours.

At the end of the day, each crew leader sends the employees' worked hours to Fred. He then writes down the hours of each employee. Near the end of the payroll, Fred calculates the total hours of each employee and sends the results to the accountant that produces their checks. Replacing this method with the new system will be more efficient and will prevent losing employee worked hours.

Use Cases

User Story 1

Working for Affordable Painting and Drywall, one of the larger issues was remembering to send one of the bosses a text including our name and clock in/out times. Sometimes I would forget to do it at the end of the day. When I forget to send them a text, the bosses won't know that I forgot and I would have to remember to resend it or risk losing a day worth of work. It's a hassle on both the employee's and employer's end. Creating the system to manage timesheets will help manage clocked hours and prevent hours being lost. This product will help both the employees and the employers.

User Story 2 (Interview)
How would you like to improve communication with your employees regarding work hours?

I would like to receive the hours of each employee through one system. Text messaging worked for a while, however the more employees we gain, the more text messages I need to sort through. Receiving all the clocked hours in one area will greatly reduce stress on my part and make things easier for my employees. (Reutov, F).

If I were to make an application, what features would you like included?

Having each employee log hours on their own would be very helpful. Receiving each employee's total logged hours before the payroll period is up will help save me time. I would like to be emailed a detailed PDF document at the end of the payroll period of each employee's worked hours and where they worked on each date. (Reutov, F).

Structured Use Case

Use Case ID **(UC - 1)**		Use Case Name	*Name: User Story 1*
Created by	Anthony Afonin	Last Updated by	Anthony Afonin
Date Created	4/15/2017	Date Last Updated	4/30/2017
Actors		Anthony Afonin	
Description		Describes the use of the QuickSheets application.	
Preconditions		Employed	
Post conditions		Compensated	
Priority: (low/medium/high)		High	
Frequency of Use		Daily	
Normal Course		*UC-1: Case*	
		Actor Actions 1. Each employee meets at shop every morning. 2. Employers decide which employees will work at which job sites. 3. Employee works certain days with different work crews. 6. The employer writes down the received information.	*System Responses* 4. Each day, the employer texts each employee asking for their worked hours. 5. The employee texts back with their name, hours worked and which jobsite they worked at.

	7. At the end of the payroll, the employers take the written information and types it up into an Excel sheet which is then sent to the payroll person.	
Alternative Course		
	Actor Actions: 1. Each employee works certain days with different work crews. 2. The employer does not worry to text each employee at the end of the work day. 4. The employer sends reminders to employees to stay on top of their timesheet logs and when to submit their timesheets. 5. The employees finalizes and emails their completed timesheets to the employer. 6. The employer double checks each submitted timesheet and emails them to the payroll person.	*System Responses* 3. Each employee opens the QuickSheets app and logs the details and hours of each work day.
Exceptions		
Computer System down? Application down? What to do?	*Actor Actions* 1. Employees inform the employer the application has crashed. 2. Employees will restart the application and their cell phones. 4. If problem persists, employees will reinstall the application.	*System Responses* 3. Application will reboot once restarted. 5. Once reinstalled, the application will automatically restore stored information using the employee's email address.

Includes (another use case id)		
Special requirements	Each employee have a smartphone.	
Assumptions	Employees know how to use smartphones.	
Notes and issues		

Specifications

Benefits

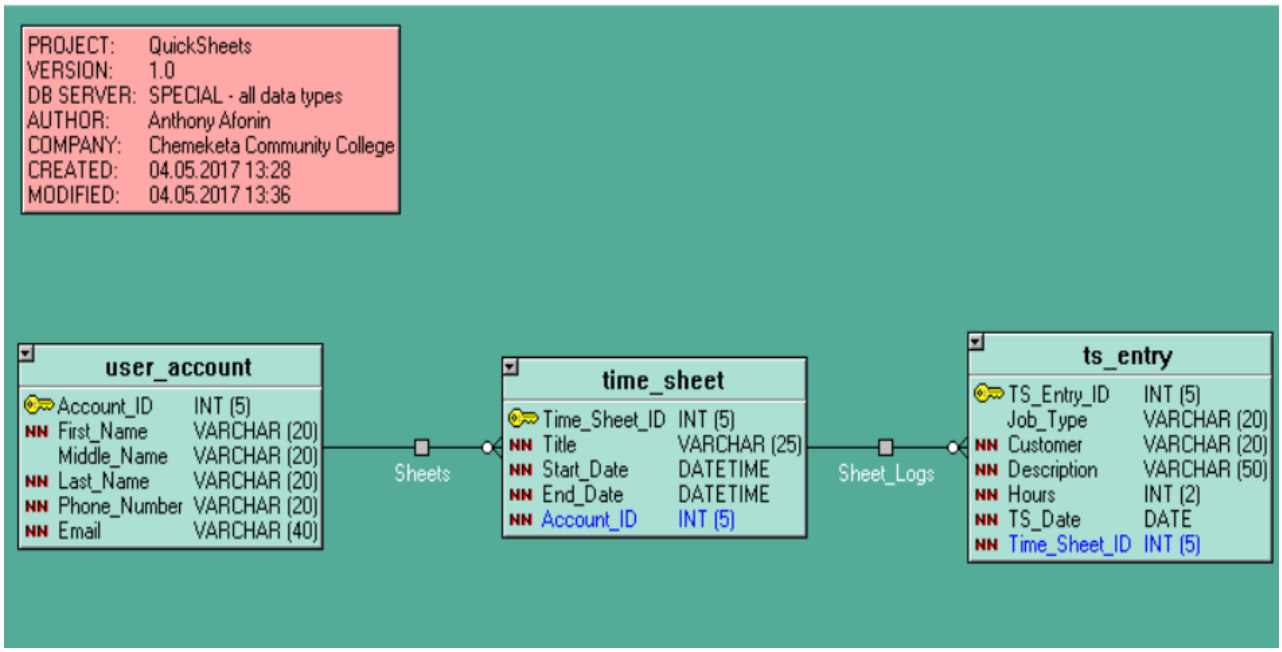
- Each employee has application, android and iPhone, and own user account.
- Create and manage several timesheets.
- Create several logs for each timesheet, containing at least the date and hours.
- Share completed timesheets through emails as PDF files.
- Ability to clock-in/clock-out for work and lunch.
- Able to log Job PO, Job Type, and worked with which crew.
- Backup user information and timesheet logs to user email address.
- Create an admin account that can view each user's current saved logs.

System Constraints

- Database information must be stored locally on each employee's phone.
- Unable to log in to account using a different device.
- Only way to backup/restore information is through the user's email address.

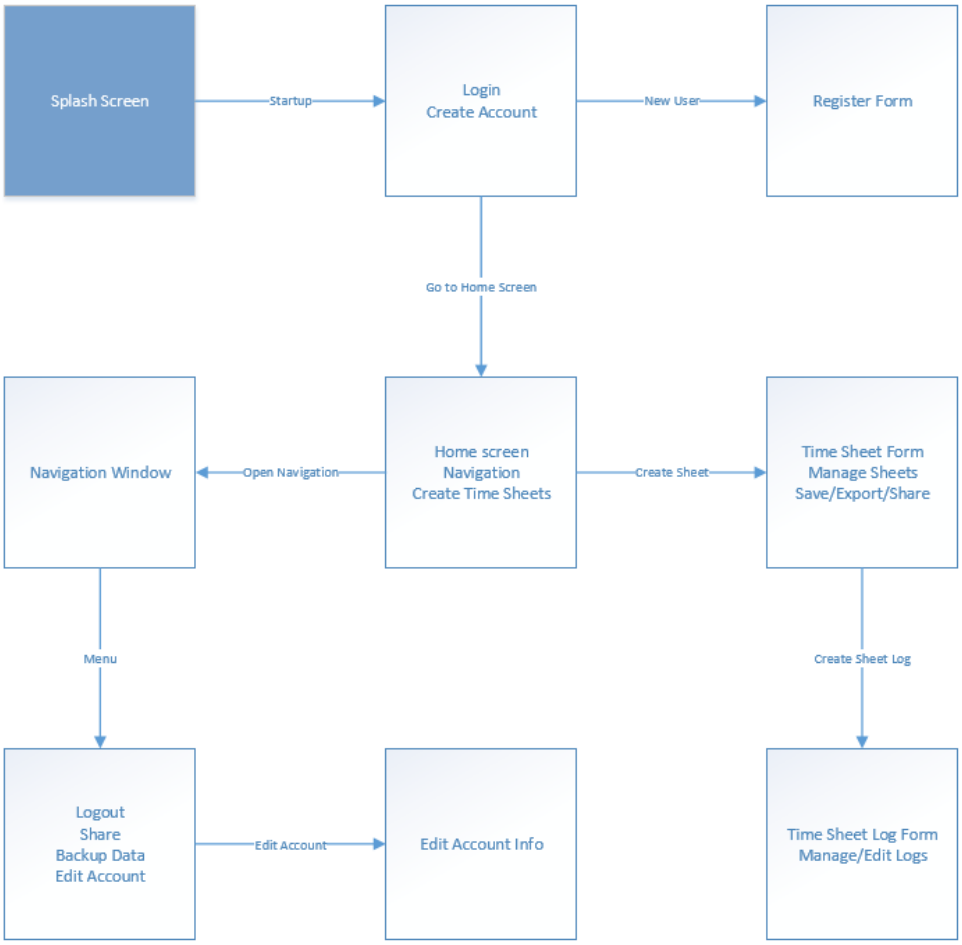
Object Model

XTG Database Model



The above diagram is an illustration of the application database. The database consists of three tables; a 'user_account,' 'time_sheet' and 'ts_entry.' The database is normalized, meaning each relation is one-to-many. Each 'user_account' can have many 'time_sheet' and each 'time_sheet' can have many 'ts_entry.' The attributes for 'user_account' include simple personal information of an employee. The 'time_sheet' table includes a title, a start date and end date for the sheet. The 'ts_entry' includes a job type, customer, description, worked hours and entry date.

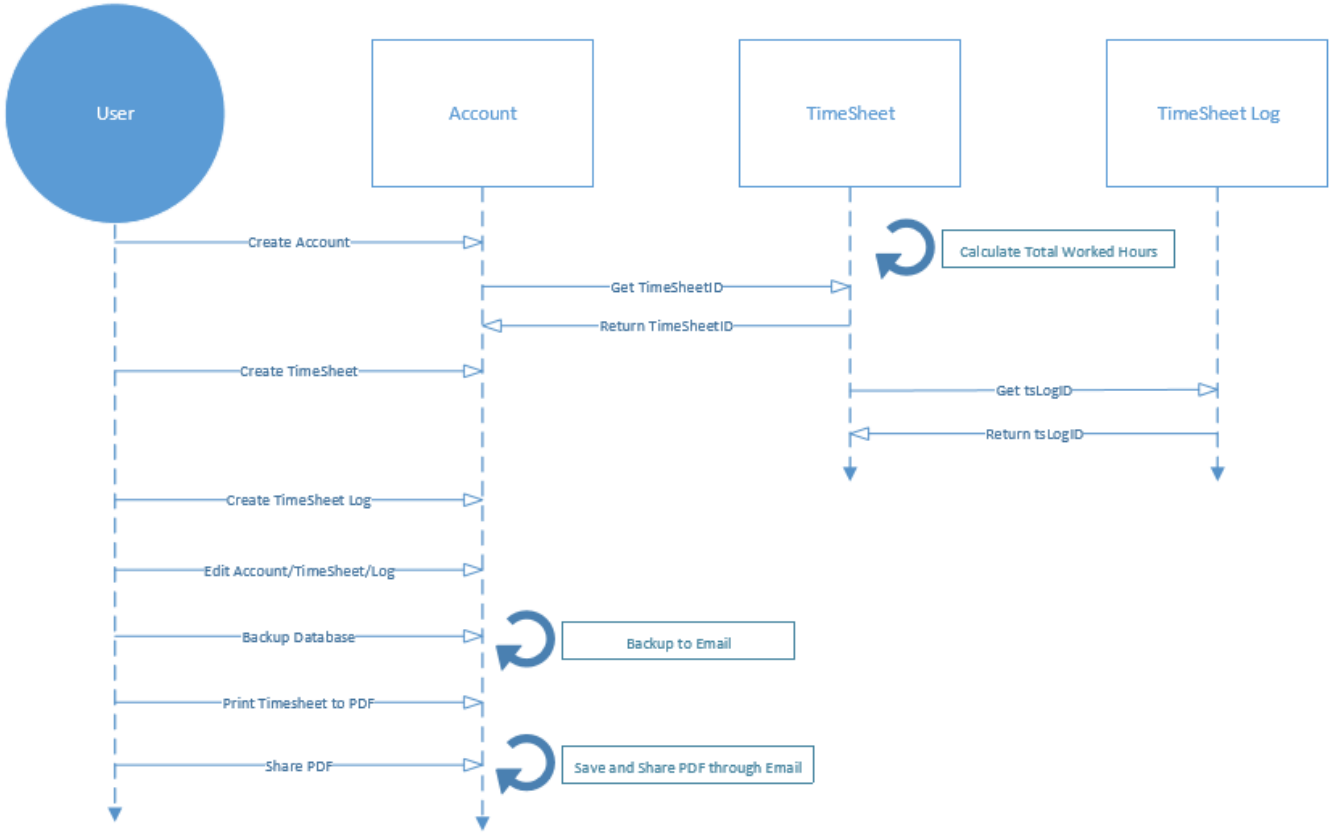
Visio Dataflow



This dataflow diagram illustrates the layout of the application. The application begins with the splash screen, changing to the login screen. The user will either login with an existing account or register a new account. Once logged in, the user will be able to access the navigation menu and also create new timesheets. The navigation will have options to edit account information, backup information and share timesheets. The timesheet form will be shown when creating a new sheet. Once created, the user can then create multiple timesheet logs, depending on which timesheet is selected. The user will be able to edit each timesheet and timesheet log.

Object Model (cont.)

Sequence Diagram



Each user will be able to create an account, new timesheets and timesheets logs. Once the user has created new timesheets, logging into an existing account will return the information of each timesheet that was created. Selecting a timesheet will return each timesheet log that was created for that specific timesheet. A timesheet will be able to calculate total worked hours and display the hours and cycle date of that timesheet. The user will also be able to edit their account, each timesheet and timesheet log. They will also be able to backup data to their email address, print information to PDF and share the saved PDF.

Works Cited

Reutov, Fred. Personal Interview. 15 April 2017.