



# TEAM HUNGRYMEN

SMARTHAWKER IOS APPLICATION

MIDTERM PRESENTATION

# AGENDA

01

## Introduction

---

Introduction to team members, sponsors and supervisors

02

## Demo

---

Demo of our application

03

## Quality Assurance

---

Key findings from Expert Testing I & II and UAT 1

04

## Technology Overview

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Details of the technologies we used, the system architecture and technical complexity

05

## Project Management

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Project timeline, project scope, metrics, risks and xfactor

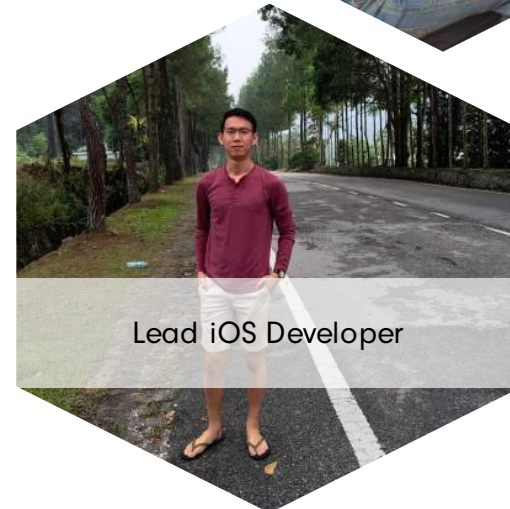
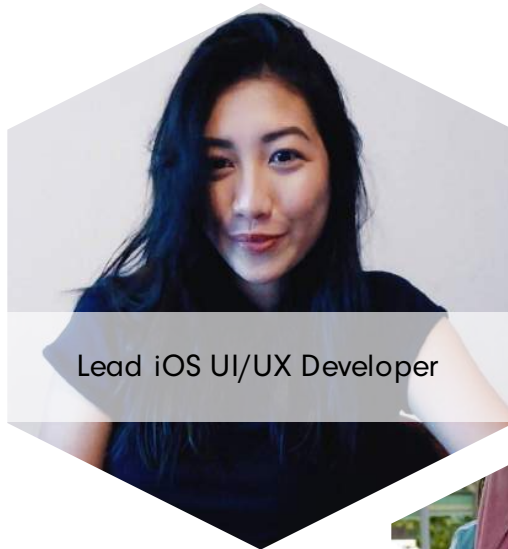
**01**



**INTRODUCTION**

# INTRODUCTION

## Our Team





# INTRODUCTION

## Our Clients



SMARTHAWKER

'Helping Hawkers Everyday'



(From Left to Right): Mr Tan Boon Teck, Mr Edmund Foo, Mr Marcus Lee

# INTRODUCTION

## Our Supervisor



Mr Prakash Chandra  
Sukhwai

# INTRODUCTION

## Problem



Manual or Semi-Manual Bookkeeping

Tedious Tax Reporting

# INTRODUCTION

Solution



## SMARTHAWKER iOS Mobile Application

- ☐ Free and Easy-to-Use Financial Planning tool
- ☐ Monitor their Business Finances

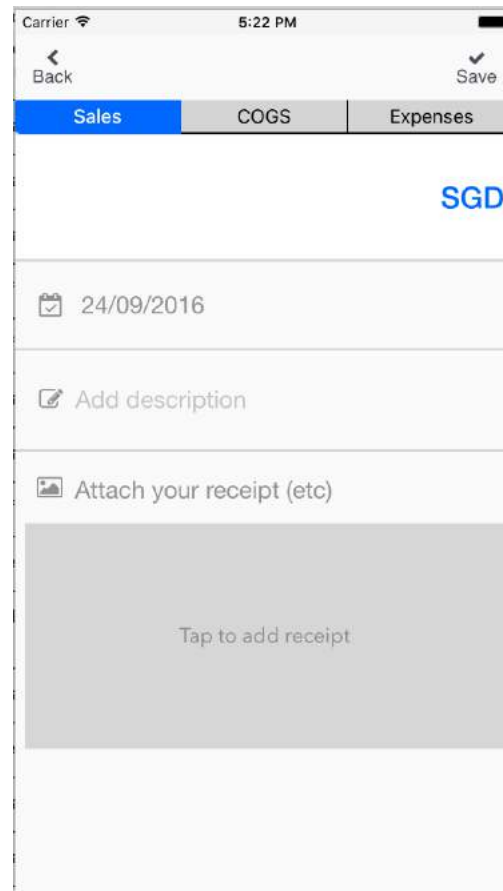
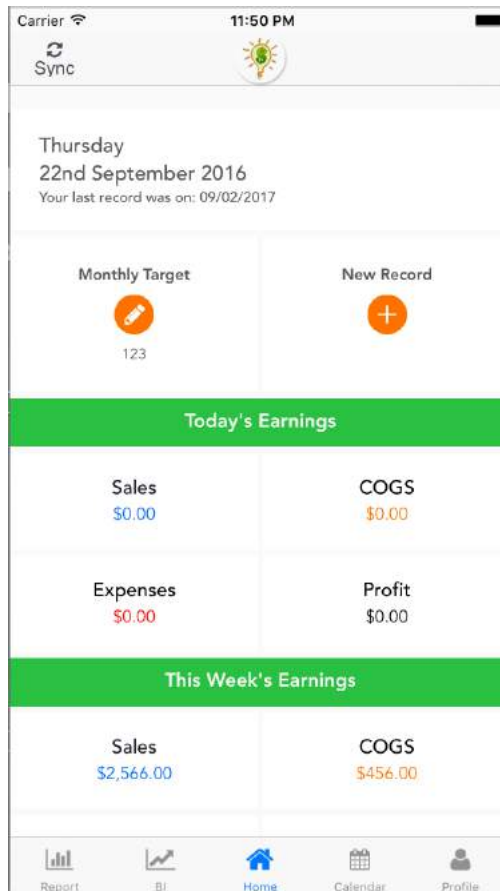
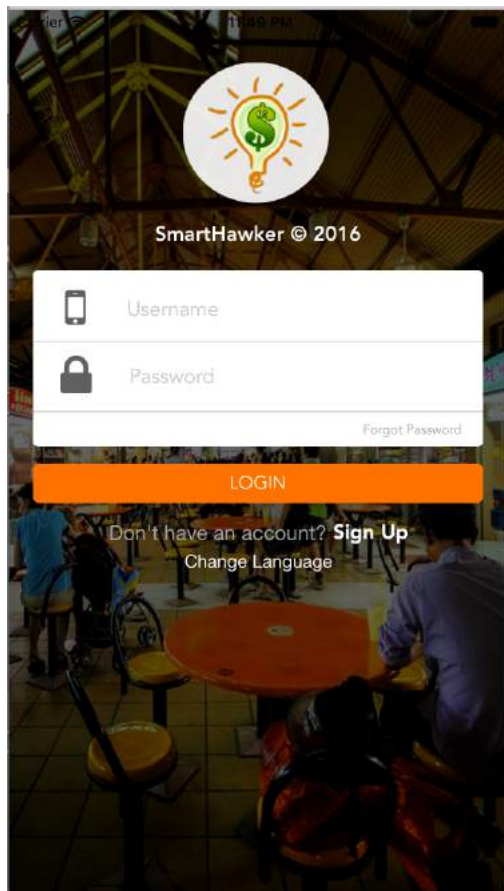


# 02

DEMO



# DEMO



**03**

**QUALITY ASSURANCE**



# QUALITY ASSURANCE

Expert Testing (I) and (II)



"WHY?" YOU ASK...

## QUALITY ASSURANCE

Expert Testing (I) and (II)

Based on our market research and sponsors' experience with hawkers, we learnt that when hawkers come into contact with a mobile application that is not user-friendly, they will usually turn away and stop using it



## QUALITY ASSURANCE

Expert Testing (I) and (II)

### Expert Testing (I)

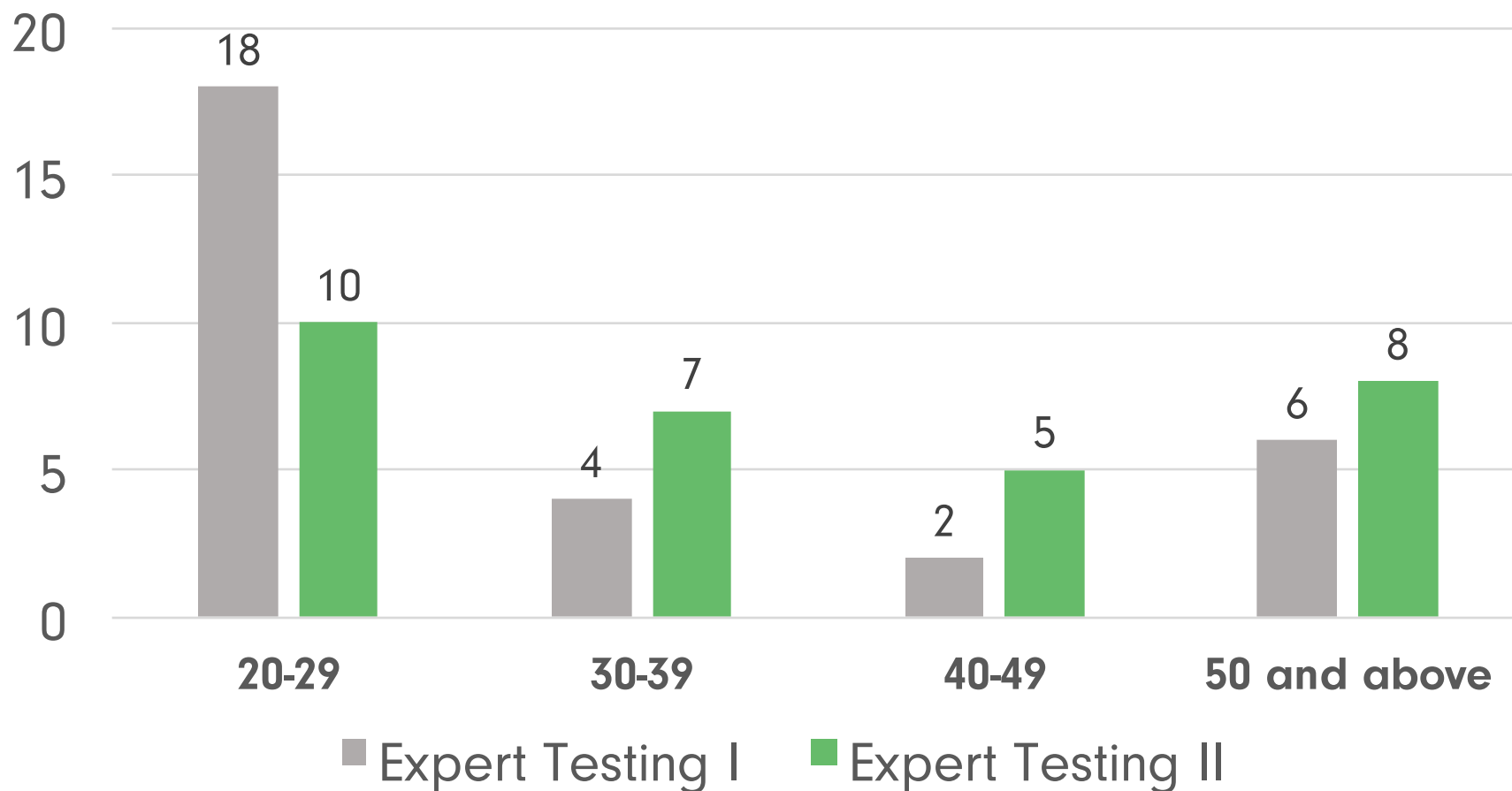
5<sup>th</sup> Aug 2016 – 7<sup>th</sup> Aug 2016  
30 users

### Expert Testing (II)

9<sup>th</sup> Sep 2016 – 11<sup>th</sup> Sep 2016  
30 users

## QUALITY ASSURANCE

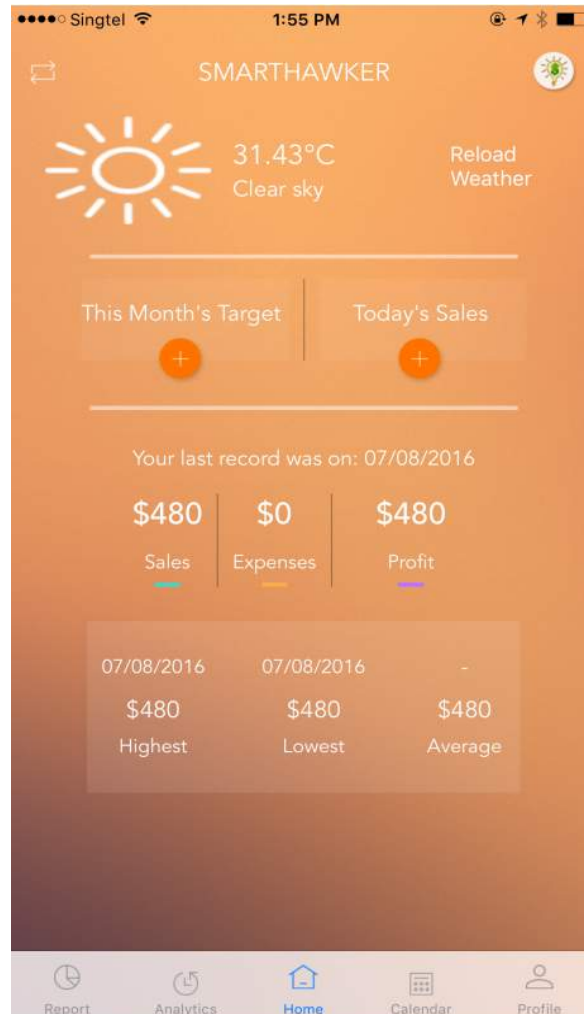
Age Group Comparison of Expert Testing (I) with Expert Testing (II)



# QUALITY ASSURANCE

## Key Finding Made from Expert Testing I

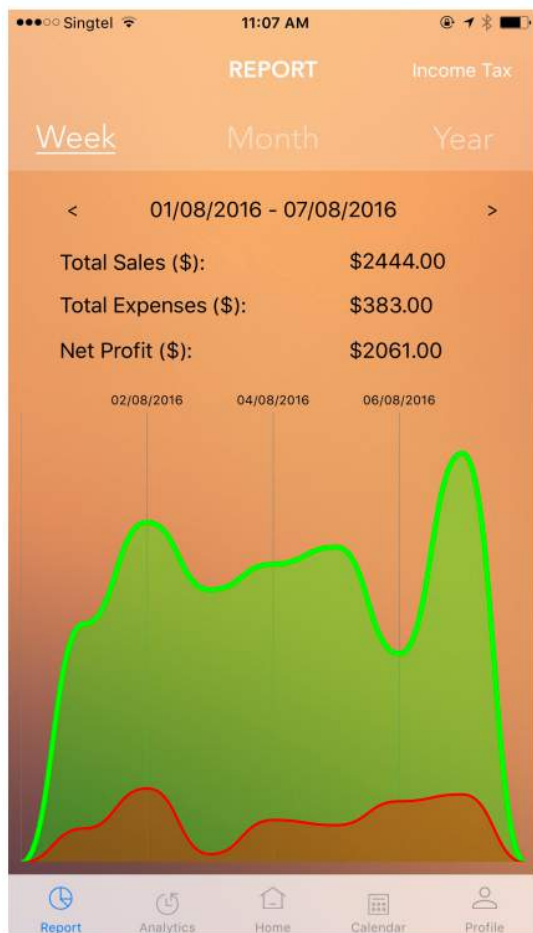
There is no distinct differences between header and content



Color scheme of app is straining for the eyes

# QUALITY ASSURANCE

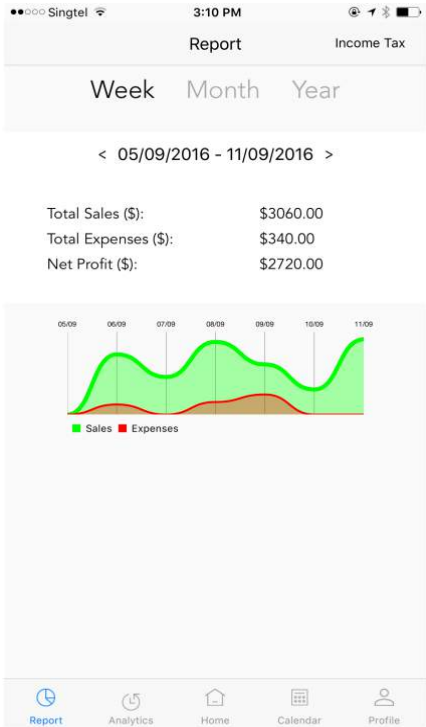
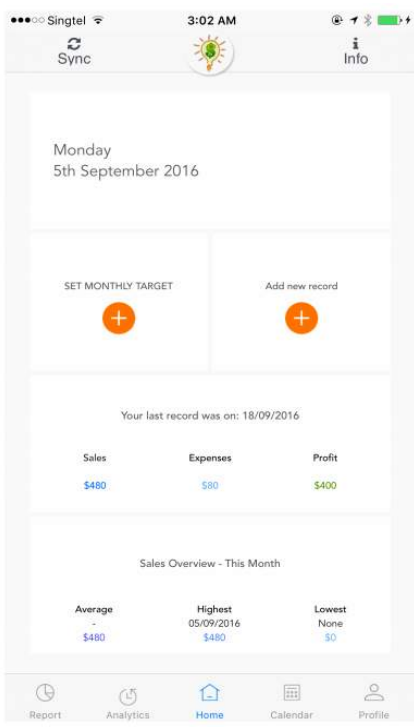
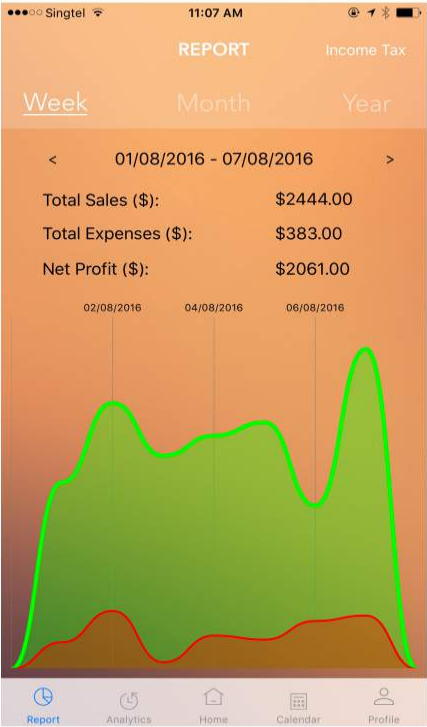
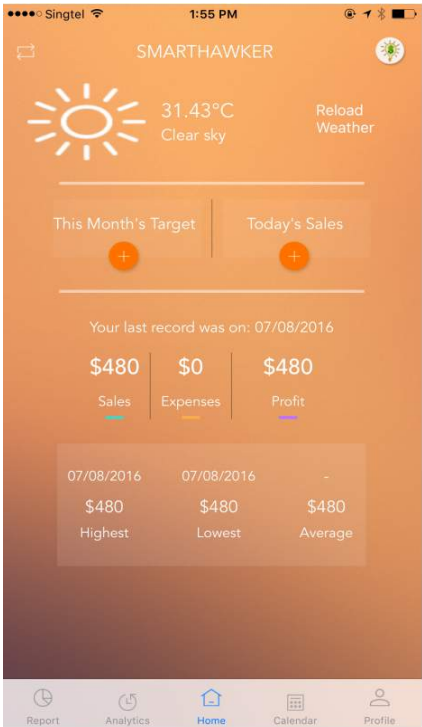
## Key Finding Made from Expert Testing I



Graphing is not  
professional  
looking

# QUALITY ASSURANCE

Interface Changed from Expert Testing (I) to (II)

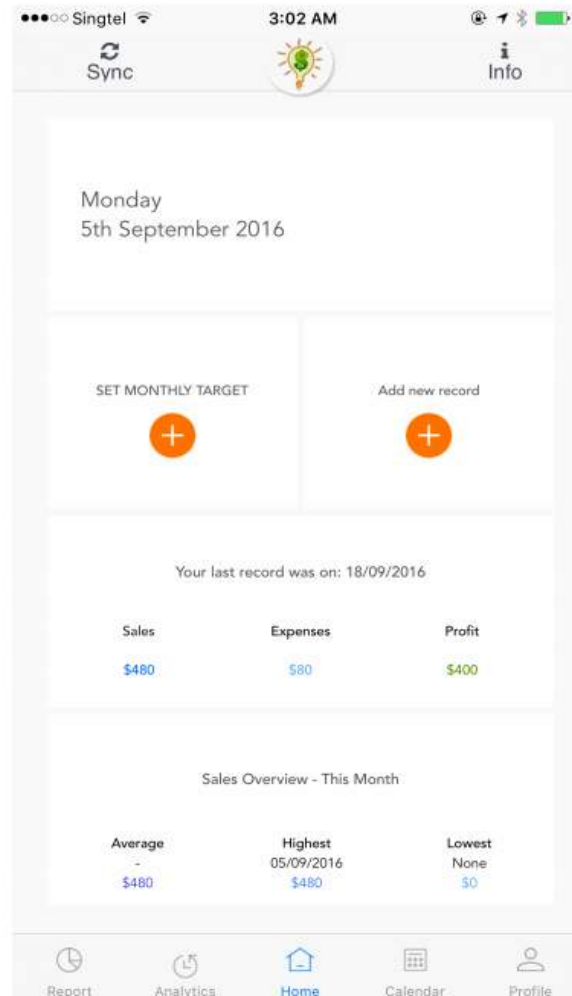




# QUALITY ASSURANCE

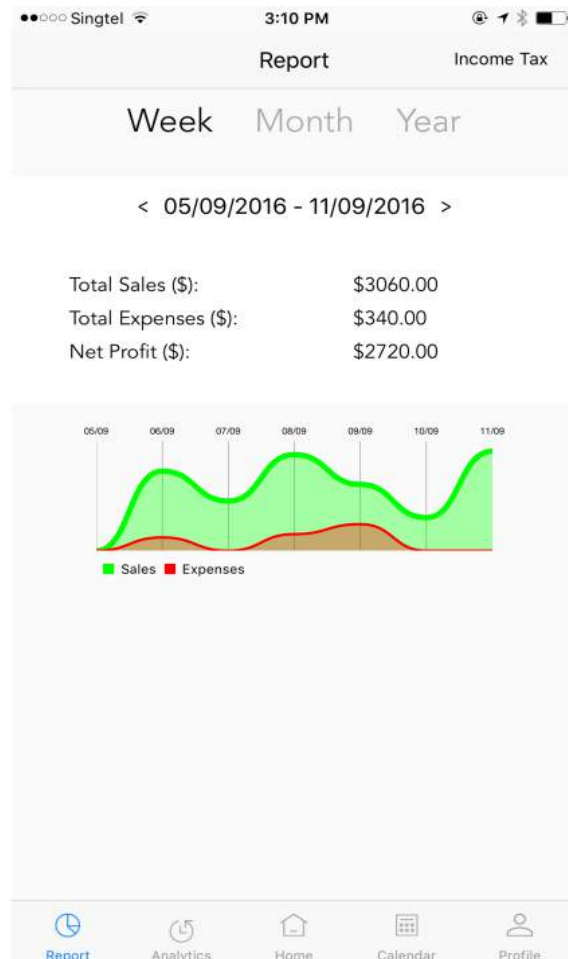
## Key Finding Made from Expert Testing II

Font sizes are  
difficult to read



# QUALITY ASSURANCE

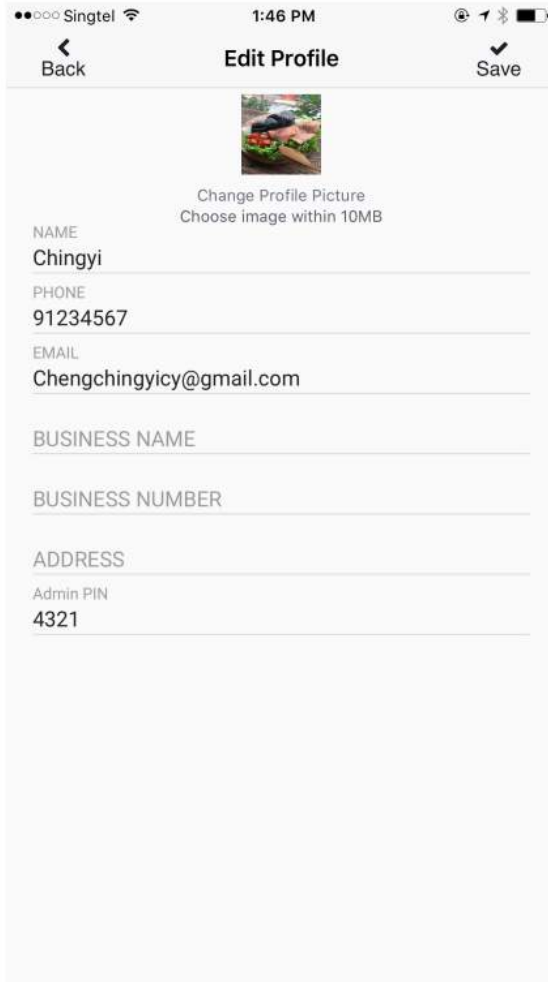
## Key Finding Made from Expert Testing II



There is too much white space which can be better served by either displaying a larger graph or to provide more detailed cost breakdown


# QUALITY ASSURANCE

## Key Finding Made from Expert Testing II



●●○○ Singtel 1:46 PM

Back Edit Profile Save

  
Change Profile Picture  
Choose image within 10MB

NAME  
Chingyi

PHONE  
91234567

EMAIL  
Chengchingyicy@gmail.com

BUSINESS NAME

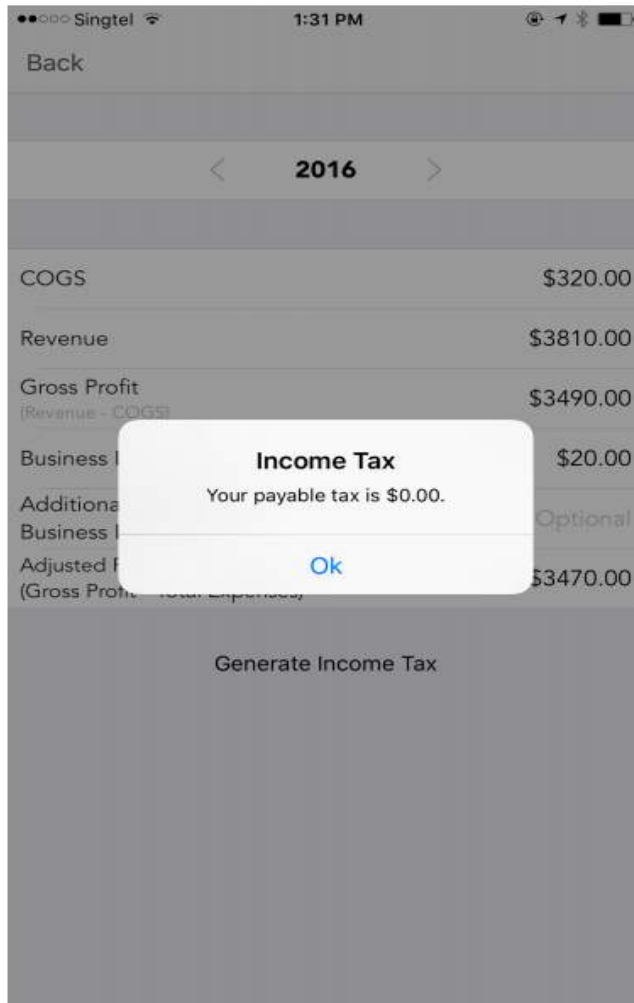
BUSINESS NUMBER

ADDRESS  
Admin PIN  
4321

Image should link to  
profile picture and  
'Change Profile Picture'  
button should be of a  
contrast color

# QUALITY ASSURANCE

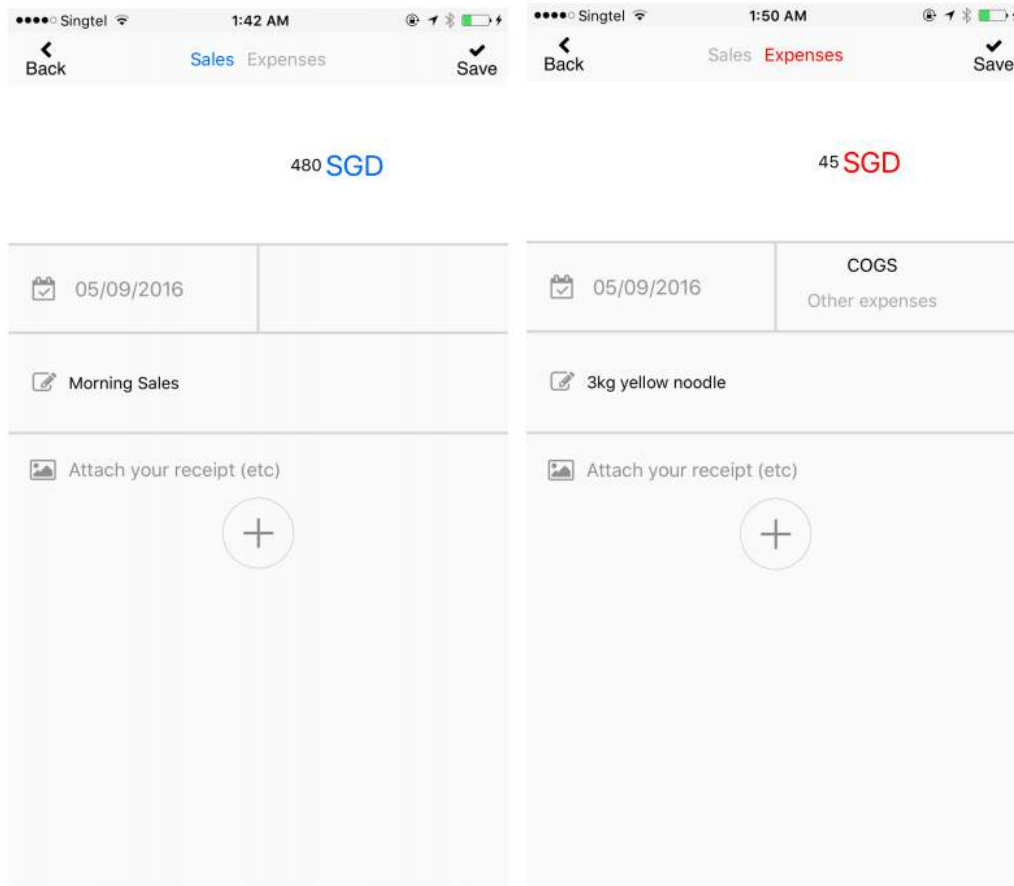
## Key Finding Made from Expert Testing II



Income tax view should follow exactly IRAS nomenclature sequence

# QUALITY ASSURANCE

## Key Finding Made from Expert Testing II

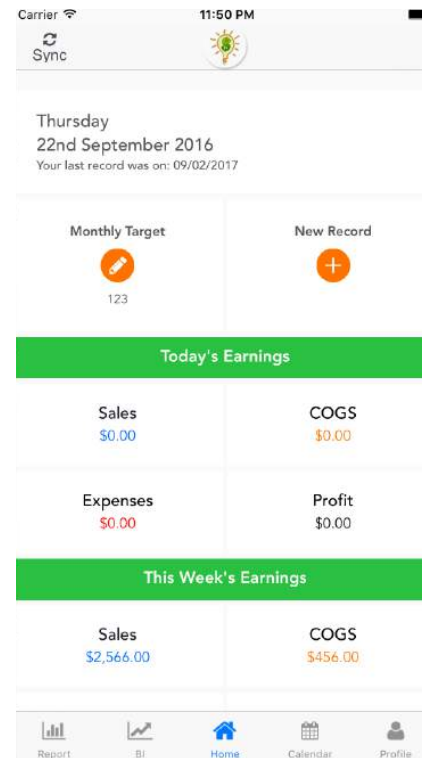
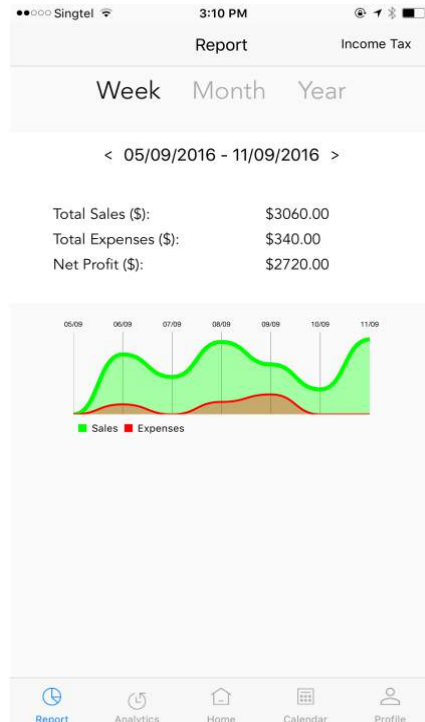
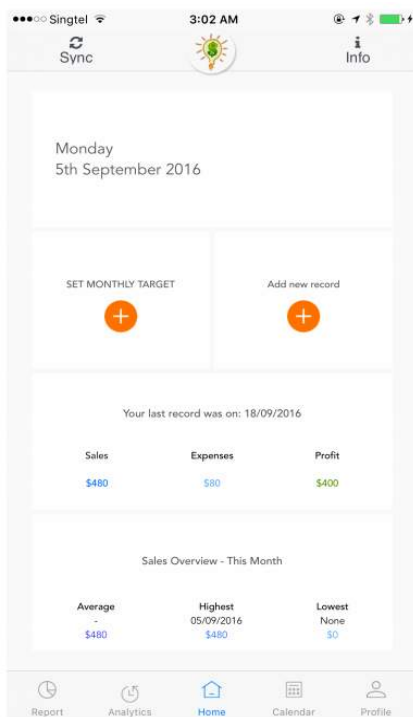


Inconsistency in font  
size and family



# QUALITY ASSURANCE

Interface Changed from Expert Testing (II) to current



# QUALITY ASSURANCE

Interface Changed from Expert Testing (II) to current

Carrier Singtel 1:46 PM

Back Edit Profile Save

Change Profile Picture  
Choose image within 10MB

NAME  
Chingyi

PHONE  
91234567

EMAIL  
Chengchingyicy@gmail.com

BUSINESS NAME

BUSINESS NUMBER

ADDRESS  
Admin PIN  
4321

Carrier Singtel 1:31 PM

Back

< 2016 >

COGS	\$320.00
Revenue	\$3810.00
Gross Profit (Revenue - COGS)	\$3490.00
Business Income	\$20.00
Additional Business Expenses	Optional
Adjusted Profit/Loss (Gross Profit - Business Expenses)	\$3470.00

**Income Tax**  
Your payable tax is \$0.00.

Ok

Generate Income Tax

Carrier 11:52 PM

Back Edit Profile Save

Change Profile Picture  
Choose image within 10MB

NAME  
Wen di

PHONE  
90900909

EMAIL  
Wendy@smarthawker.com

BUSINESS NAME

BUSINESS NUMBER

ADDRESS  
Admin PIN  
1234

Carrier 11:53 PM

Back

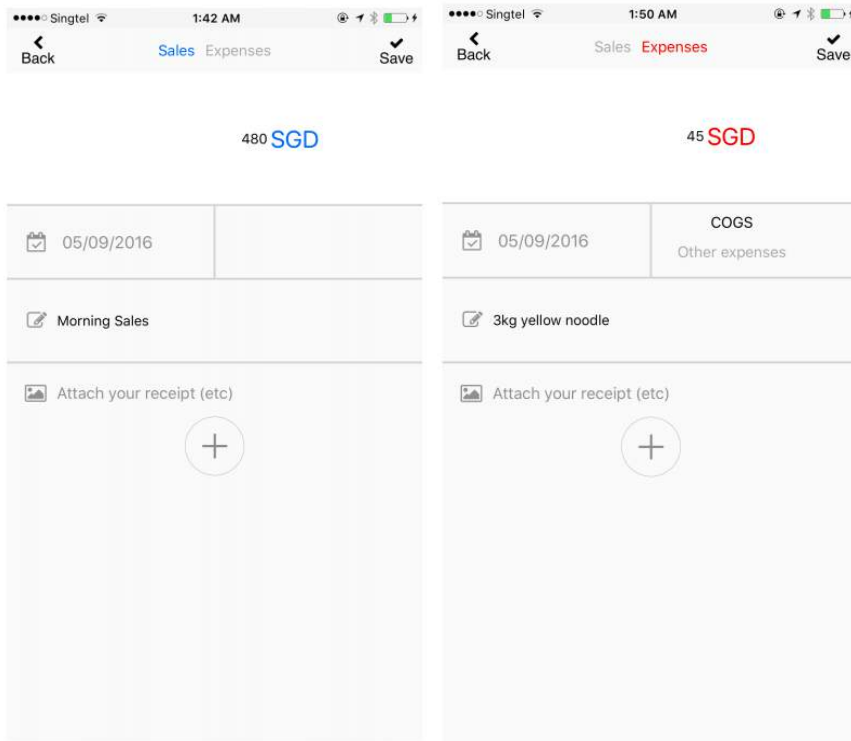
< 2016 >

Revenue (Total Sales)	\$287,873.52
Gross Profit (Total Sales - Total COGS)	\$271,615.52
Allowable Business Expenses Please assess your Total Expenses and enter allowable amount. Check IRAS website if unsure.	\$7,878.00
Last updated: 22/09/2016, 08.49 PM	
Adjusted Profit/Loss Gross Profit - Allowable Business Expenses	\$271,615.52
<b>Your estimated tax payable is:</b>	-

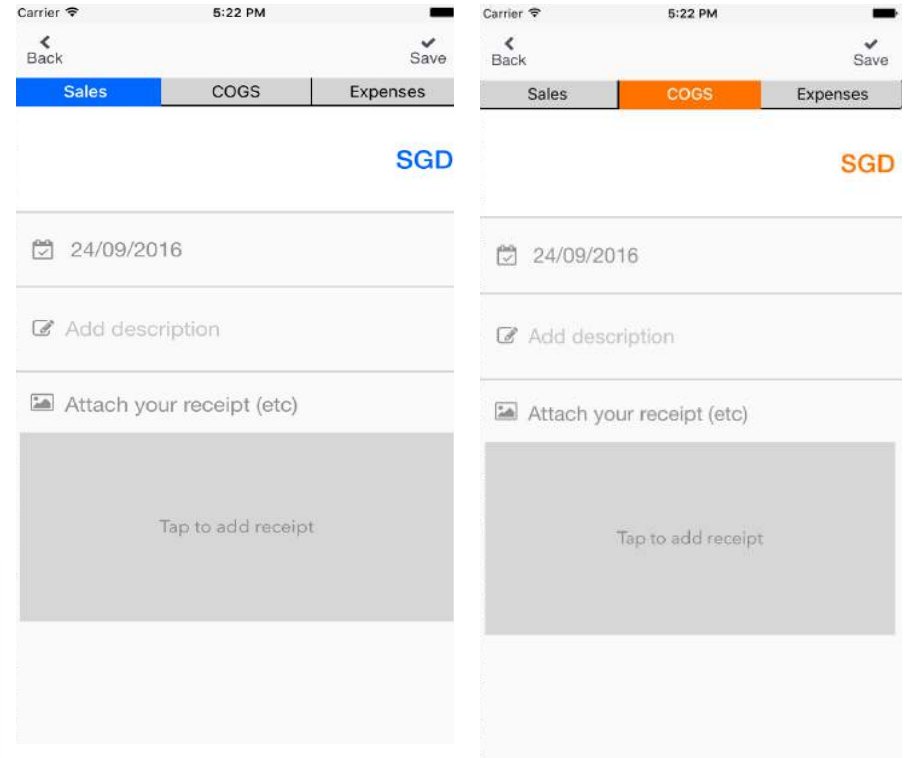
Calculate Income Tax

# QUALITY ASSURANCE

Interface Changed from Expert Testing (II) to current



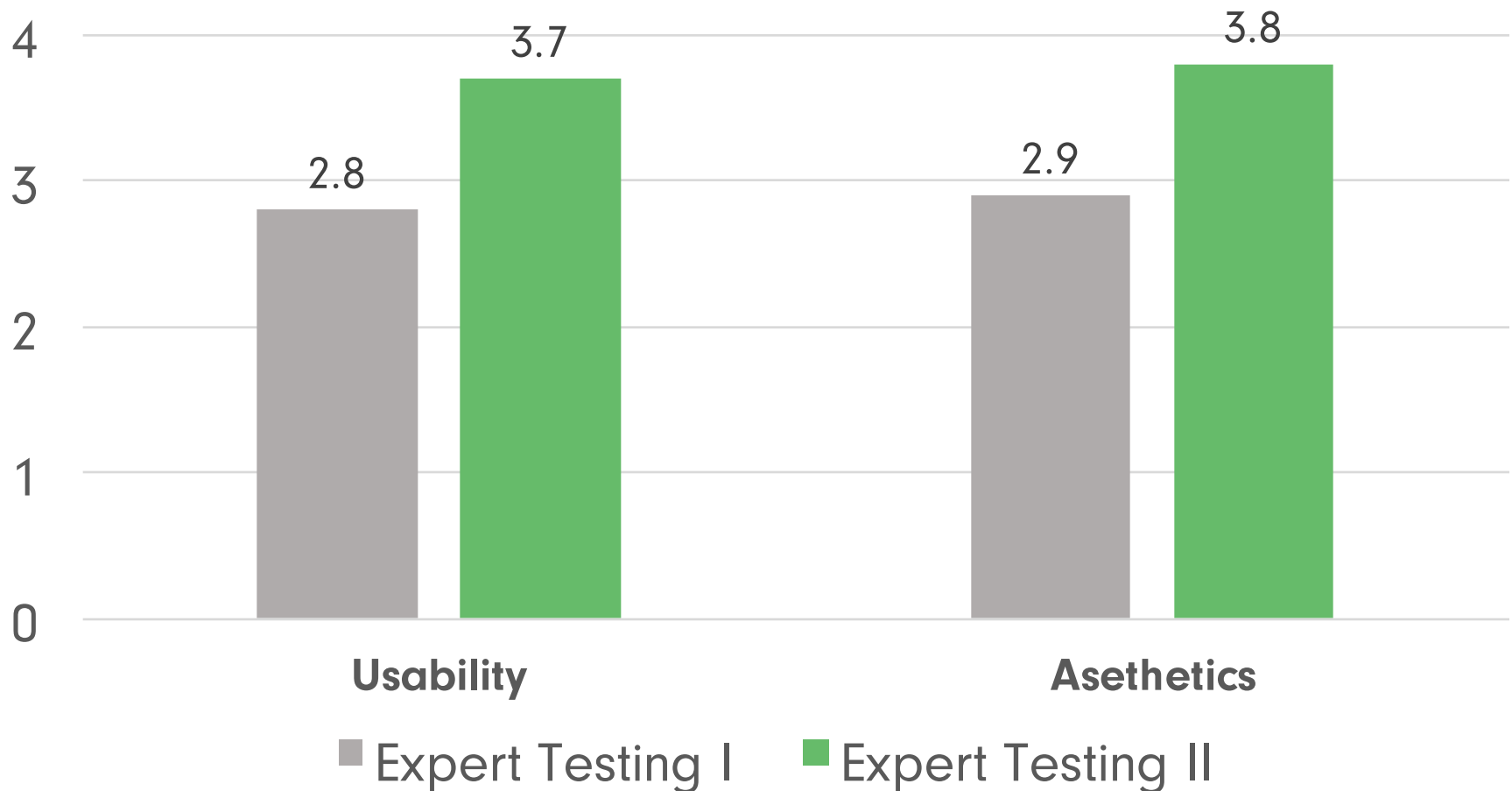
Two side-by-side mobile app screenshots showing the 'Sales' and 'Expenses' screens. The 'Sales' screen shows a total of 480 SGD and a date of 05/09/2016. The 'Expenses' screen shows a total of 45 SGD and a date of 05/09/2016. Both screens have a 'Back' button, a 'Save' button, and a 'Attach your receipt (etc)' section with a plus icon.



Two side-by-side mobile app screenshots showing the 'COGS' screen. The 'COGS' screen shows a total of SGD and a date of 24/09/2016. Both screens have a 'Back' button, a 'Save' button, and a 'Attach your receipt (etc)' section with a plus icon.

## QUALITY ASSURANCE

Comparison of Expert Testing (I) with Expert Testing (II)



# QUALITY ASSURANCE

User Acceptance Testing



**30 USERS**

24<sup>th</sup> Sep 2016 – 28<sup>th</sup> Sep 2016



# QUALITY ASSURANCE

## User Acceptance Testing

Pictures/videos

## QUALITY ASSURANCE

Key Finding Made User Acceptance Testing

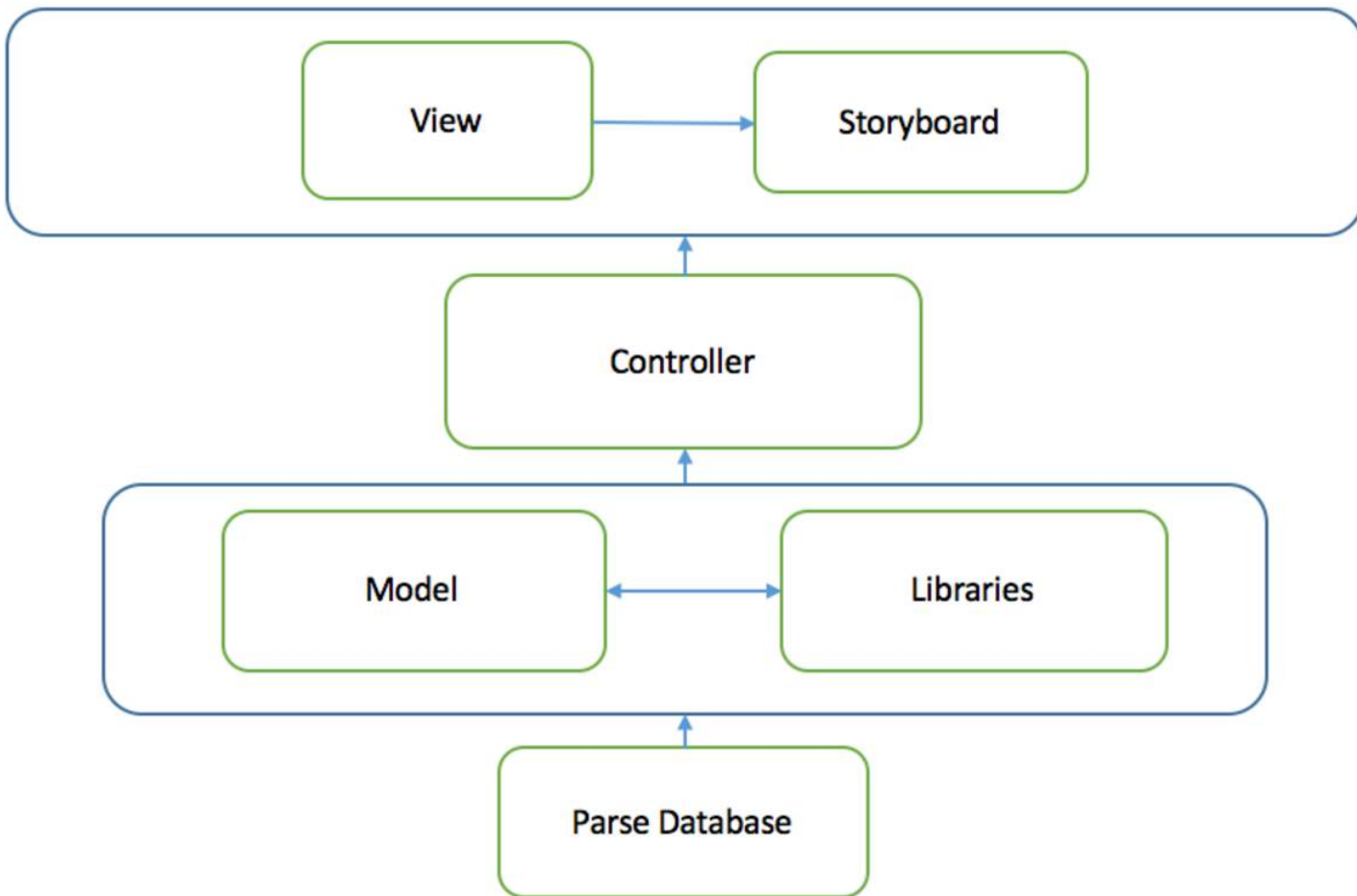
# 04

## TECHNOLOGY OVERVIEW



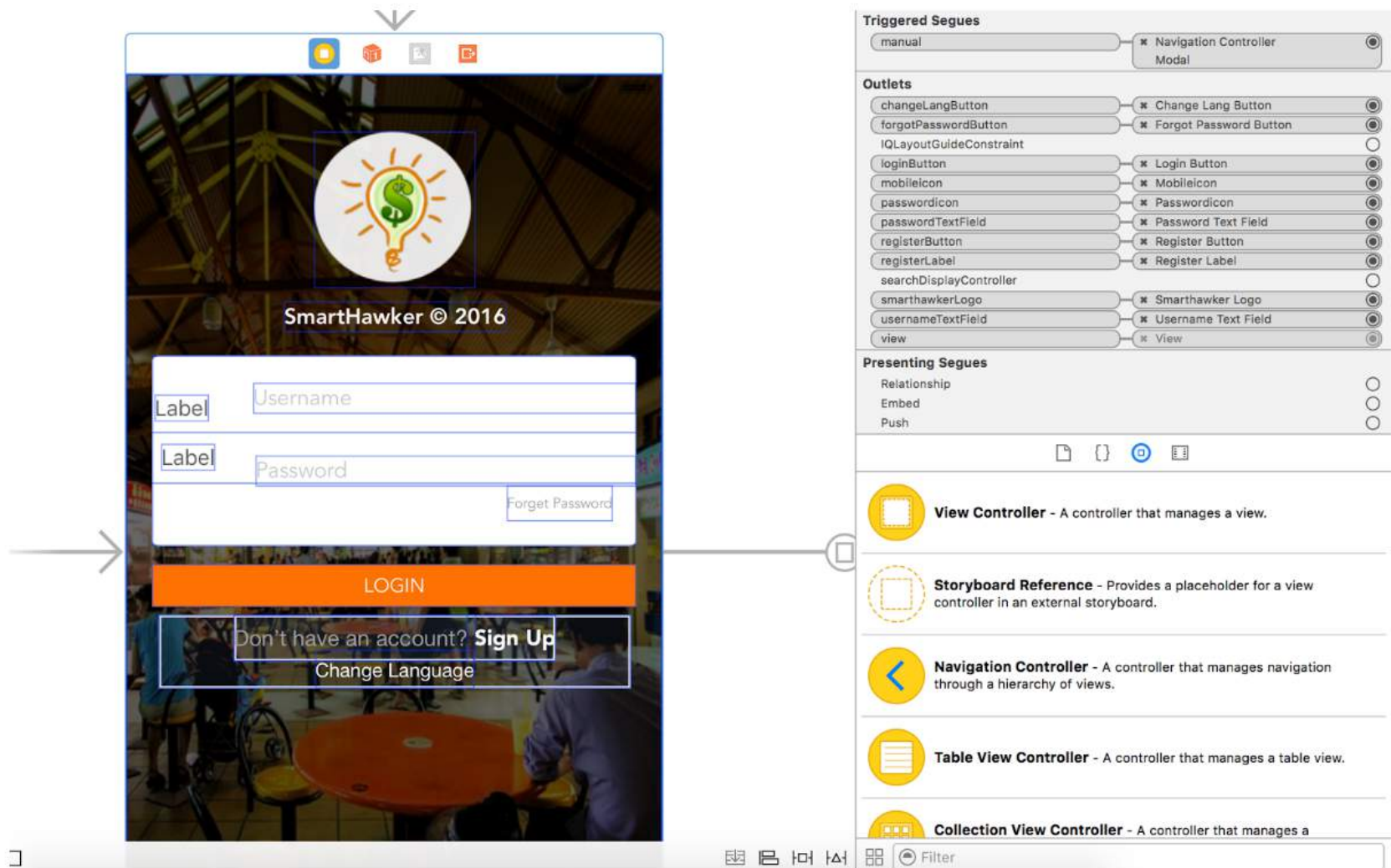
# TECHNOLOGY OVERVIEW

## 1. Architecture – MVC



# TECHNOLOGY OVERVIEW

## Storyboard and View in XCode



The screenshot displays the Xcode environment. On the left, a storyboard is shown with a login form. The form includes a logo at the top, a copyright notice "Smarthawker © 2016", two text input fields labeled "Username" and "Password", a "Forgot Password" link, a "LOGIN" button, and a "Sign Up" link with a "Change Language" link below it. On the right, the "Interface Inspector" is visible, showing the "Triggered Segues" and "Presenting Segues" sections. The "Triggered Segues" section lists various outlets and their corresponding segue types. The "Presenting Segues" section shows the relationship type for the segue. Below the inspector, a list of view controller types is provided with their descriptions.

**Triggered Segues**

Segue Name	Segue Type
manual	Navigation Controller Modal
changeLangButton	Change Lang Button
forgotPasswordButton	Forgot Password Button
ILogLayoutGuideConstraint	
loginButton	Login Button
mobileicon	Mobileicon
passwordicon	Passwordicon
passwordTextField	Password Text Field
registerButton	Register Button
registerLabel	Register Label
searchDisplayController	
smarthawkerLogo	Smarthawker Logo
usernameTextField	Username Text Field
view	View

**Presenting Segues**

Relationship	Presenting Segue
Relationship	
Embed	
Push	

**View Controller** - A controller that manages a view.

**Storyboard Reference** - Provides a placeholder for a view controller in an external storyboard.

**Navigation Controller** - A controller that manages navigation through a hierarchy of views.

**Table View Controller** - A controller that manages a table view.

**Collection View Controller** - A controller that manages a

# TECHNOLOGY OVERVIEW

## Storyboard and View in XCode

```
override func viewDidLoad() {
    super.viewDidLoad()
    let defaults = NSUserDefaults.standardUserDefaults()
    defaults.setBool(true, forKey: "firstLaunch")
    view.addGestureRecognizer(UITapGestureRecognizer(target: self, action: #selector(LoginViewController.handleTap(_))))
    usernameTextField.placeholder = "Username".localized()
    passwordTextField.placeholder = "Password".localized()
    smarthawkerLogo.text? = "SmartHawker © 2016".localized()
    loginButton.setTitle("LOGIN".localized(), forState: UIControlState.Normal)
    forgotPasswordButton.setTitle("Forgot Password".localized(), forState: UIControlState.Normal)
    registerLabel.text = "Don't have an account?".localized()
    registerButton.setTitle("Sign Up".localized(), forState: UIControlState.Normal)
    changeLangButton.setTitle("Change Language".localized(), forState: UIControlState.Normal)

    var faicon = [String: UniChar]()
    faicon["famobilephone"] = 0xf10b
    faicon["fapassword"] = 0xf023

    mobileicon.font = UIFont(name: "FontAwesome", size: 40)

    mobileicon.text = String(format: "%C", faicon["famobilephone"]!)

    passwordicon.font = UIFont(name: "FontAwesome", size: 40)

    passwordicon.text = String(format: "%C", faicon["fapassword"]!)
}

override func viewWillAppear(animated: Bool) {
    super.viewWillAppear(animated)
    usernameTextField.placeholder = "Username".localized()
    passwordTextField.placeholder = "Password".localized()
    //usernameTextField.placeholder = "Username".localized()
    //passwordTextField.placeholder = "Password".localized()
}
```

# TECHNOLOGY OVERVIEW

## 2. Parse API

```
// Load Records of the logged in user and return as an array.
func loadRecords() -> [PFObject]{

    // Query from Record table
    let query = PFQuery(className: "Record")

    // Get all records that belong to the current logged in user.
    query.whereKey("user", equalTo: PFUser.currentUser()!)

    // Retrieve records that are stored in the local datastore.
    query.fromLocalDatastore()

    // Create an array of PFObject to hold the records that are retrieved.
    var records = [PFObject]()

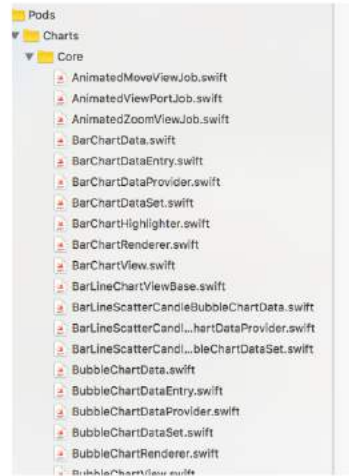
    do{
        records = try query.findObjects()
    } catch {

        // Handle any error faced when retrieving records.
    }

    // Return the records to the controller that called this method.
    return records
}
```

# TECHNOLOGY OVERVIEW

## 3. Cocoapod Open Source Libraries



```
if fourTrue{
    dataSets.append(LineChartDataSet4)
}
//4 - pass our months in for our x-axis label value along
let data: LineChartData = LineChartData(xVals: dataPoints)

data.setValueTextColor(UIColor.magentaColor())
data.setValueFont(UIFont.systemFont(ofSize:14))

//5 - finally set our data
self.chart.data = data

chart.backgroundColor = UIColor.clearColor()
chart.drawGridBackgroundEnabled = false
chart.xAxis.drawGridLinesEnabled = true
chart.rightAxis.drawGridLinesEnabled = false
chart.leftAxis.drawGridLinesEnabled = true

chart.xAxis.drawAxisLineEnabled = true
chart.rightAxis.drawAxisLineEnabled = false
chart.leftAxis.drawAxisLineEnabled = false

chart.xAxis.drawLabelsEnabled = true
chart.rightAxis.drawLabelsEnabled = false
chart.leftAxis.drawLabelsEnabled = true

chart.leftAxis.valueFormatter = formatter

chart.leftAxis.drawLimitLinesBehindDataEnabled = false
chart.xAxis.drawLimitLinesBehindDataEnabled = true
chart.rightAxis.drawLimitLinesBehindDataEnabled = false
chart.leftAxis.axisMinValue = 0
chart.descriptionText = ""
chart.legend.enabled = true
```





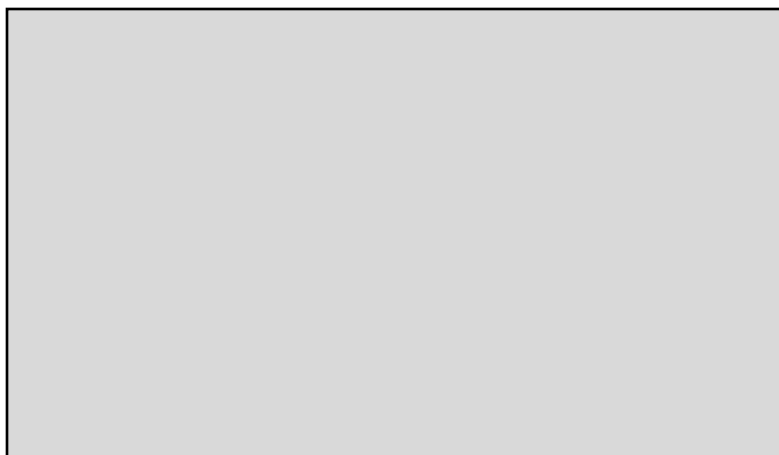
**05**

**PROJECT MANAGEMENT**

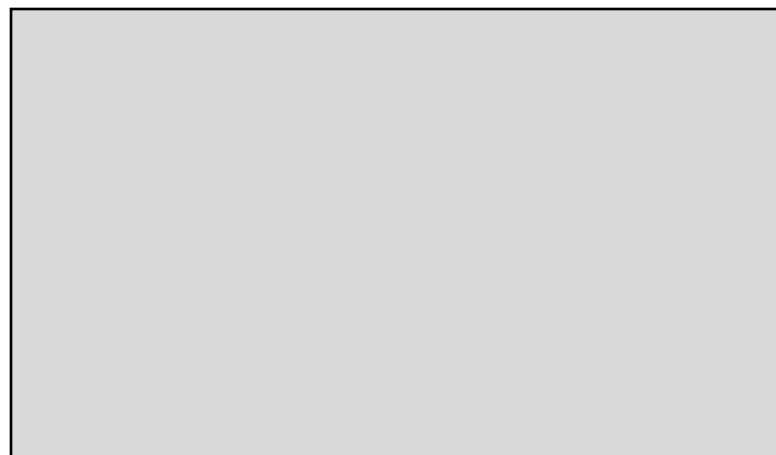


# PROJECT MANAGEMENT

Client and Supervisor Meetings



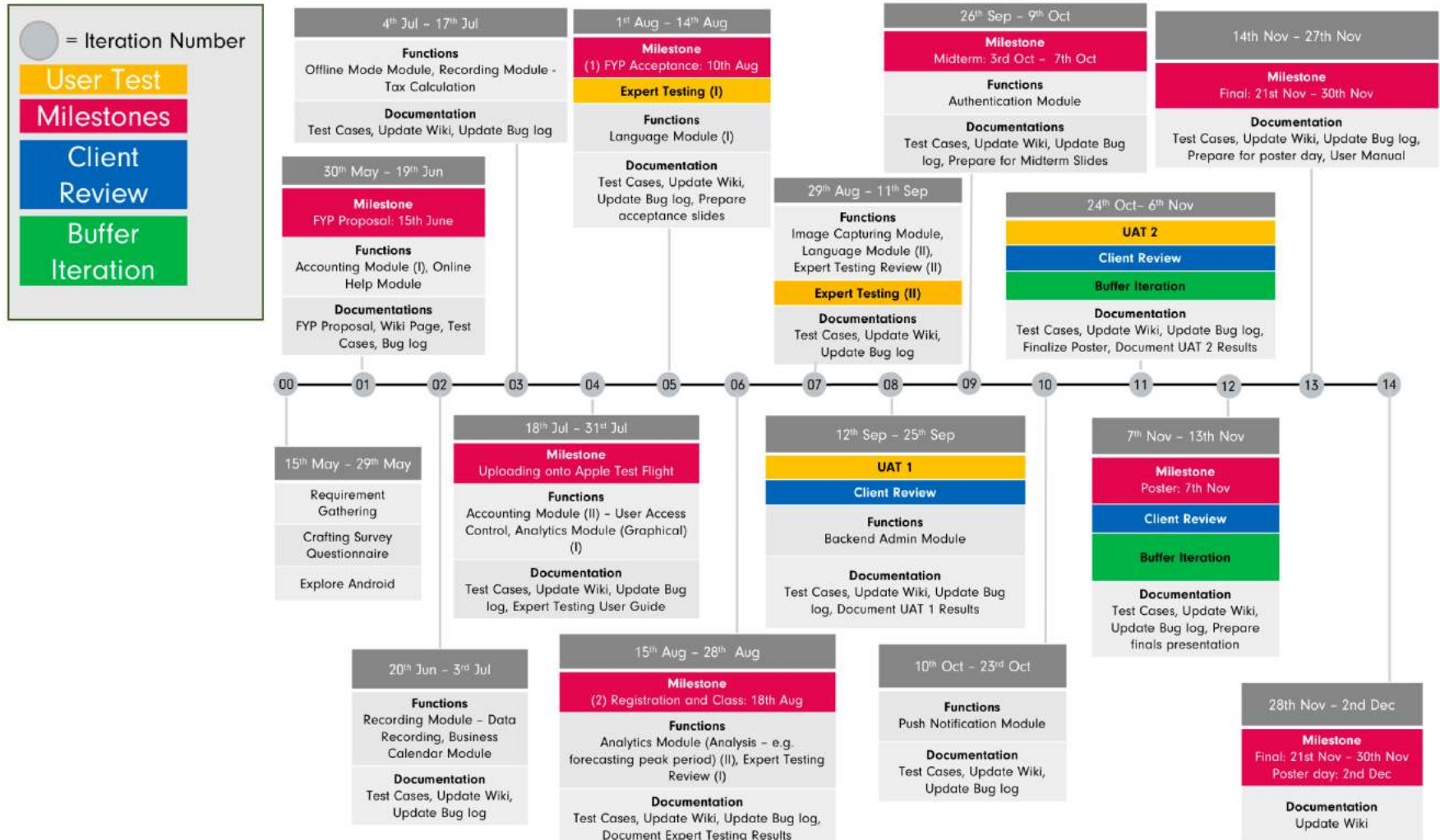
11 Clients Meetings



7 Supervisor Meetings

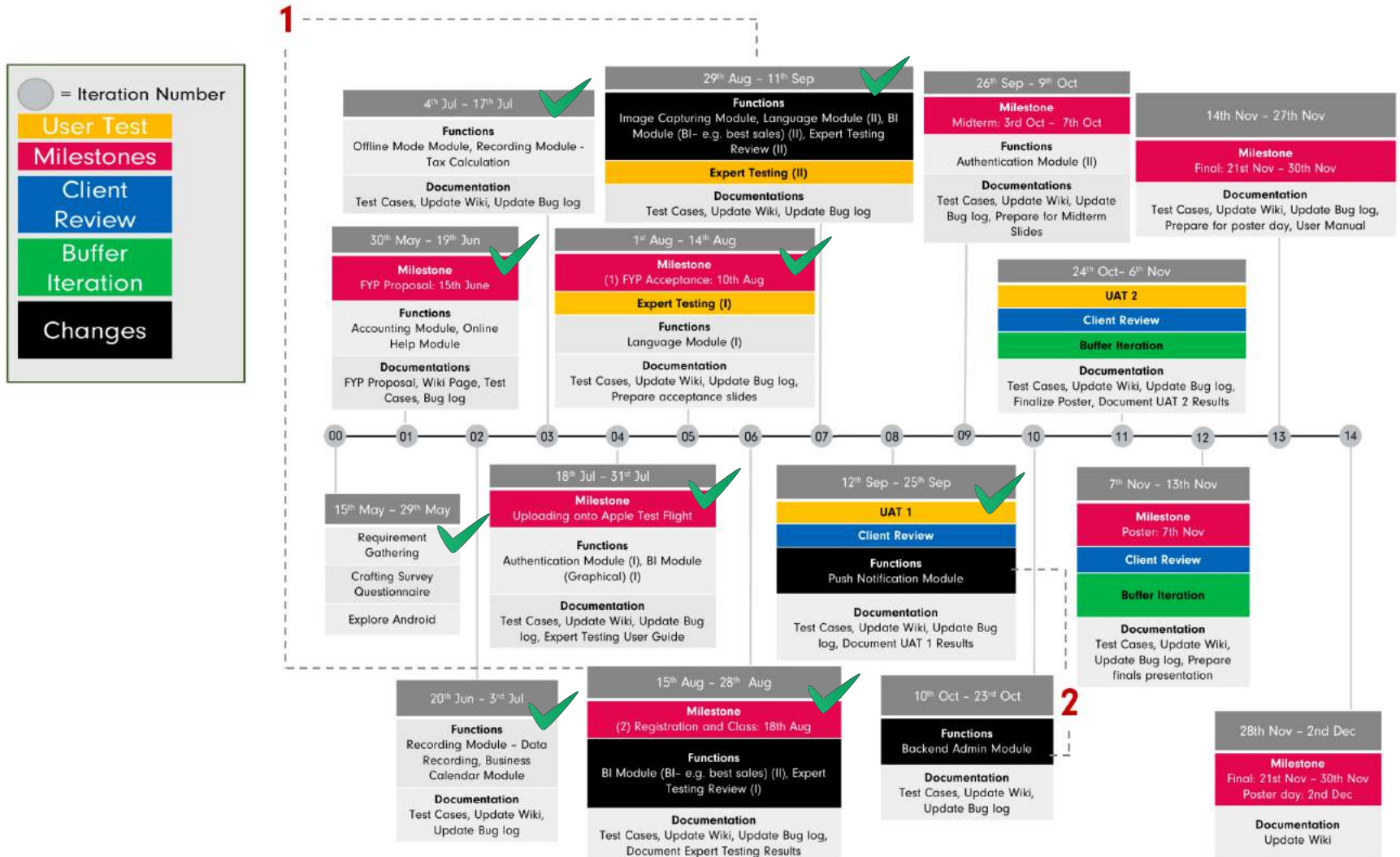
# PROJECT MANAGEMENT

## Old Project Schedule



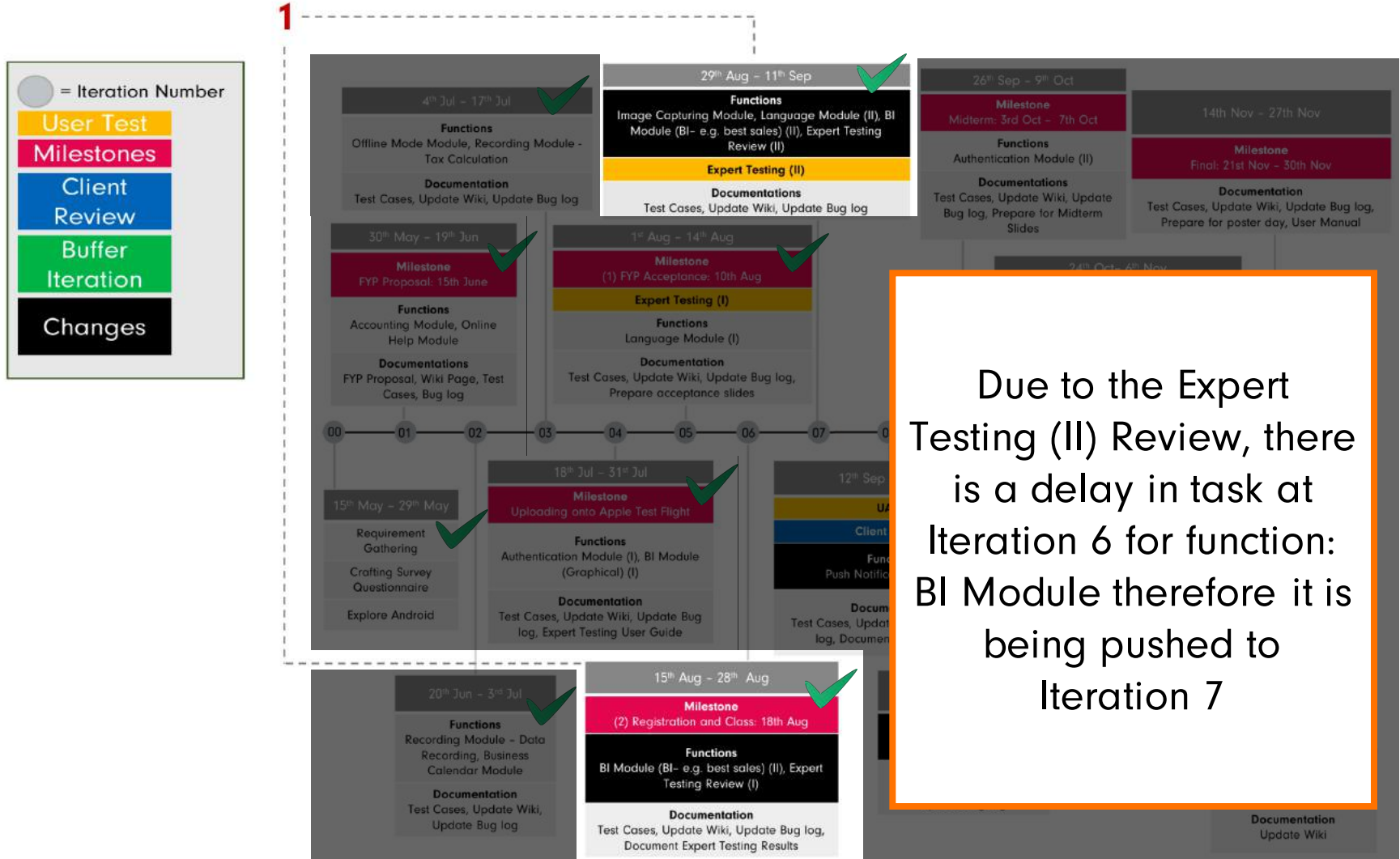
# PROJECT MANAGEMENT

## Project Schedule Changes



# PROJECT MANAGEMENT

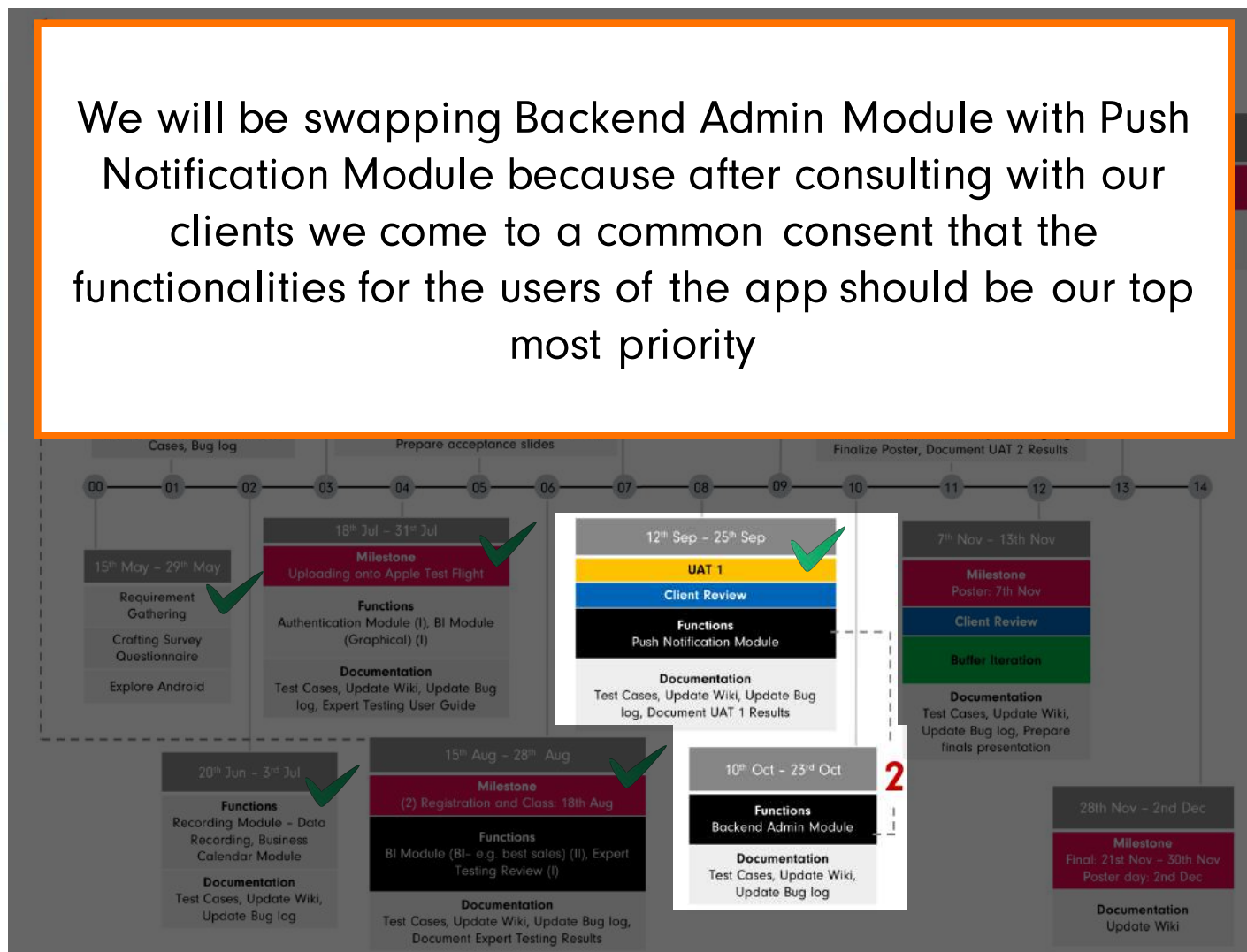
## Project Schedule Changes



# PROJECT MANAGEMENT

## Project Schedule Changes

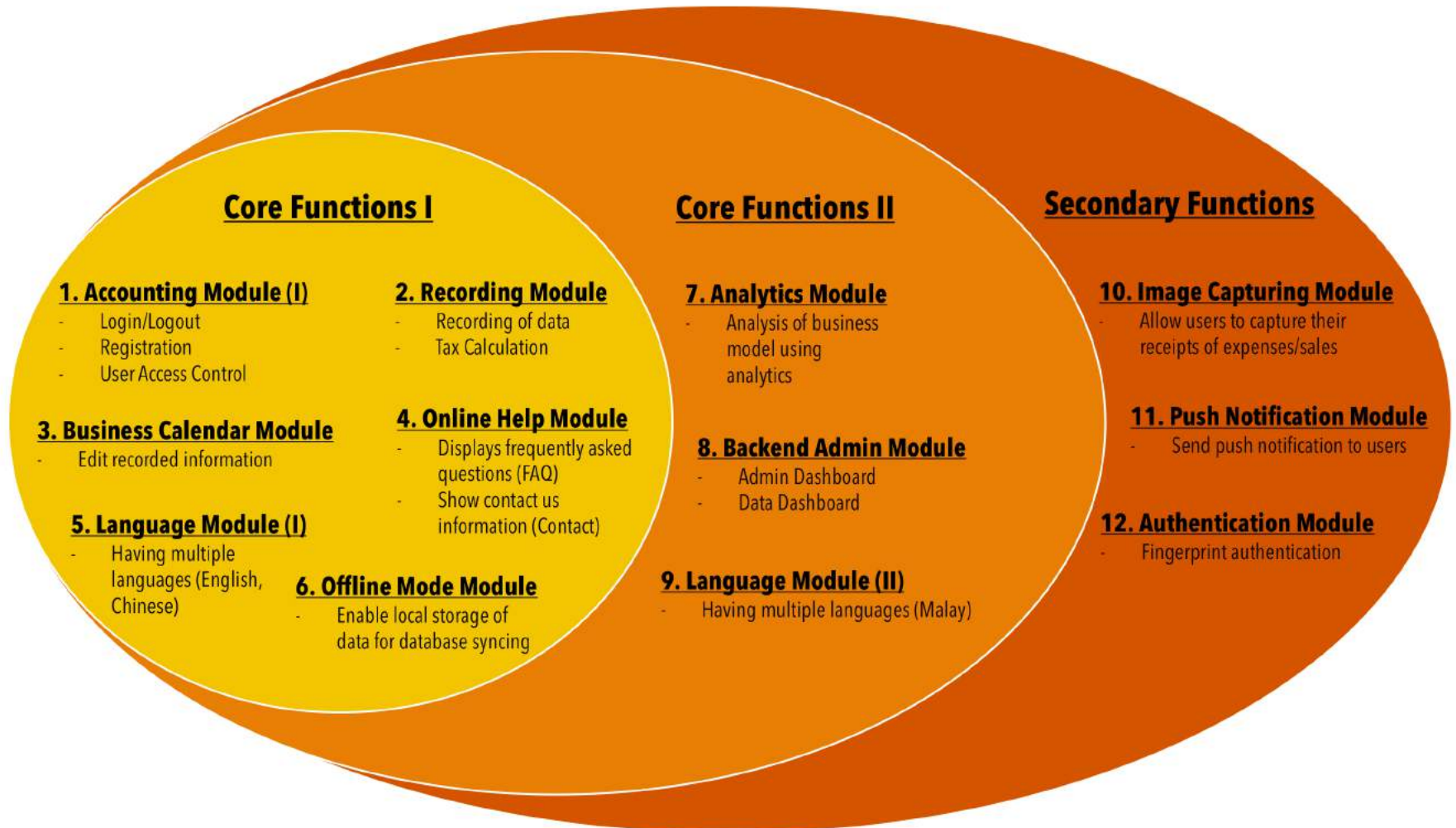
We will be swapping Backend Admin Module with Push Notification Module because after consulting with our clients we come to a common consent that the functionalities for the users of the app should be our top most priority





# PROJECT MANAGEMENT

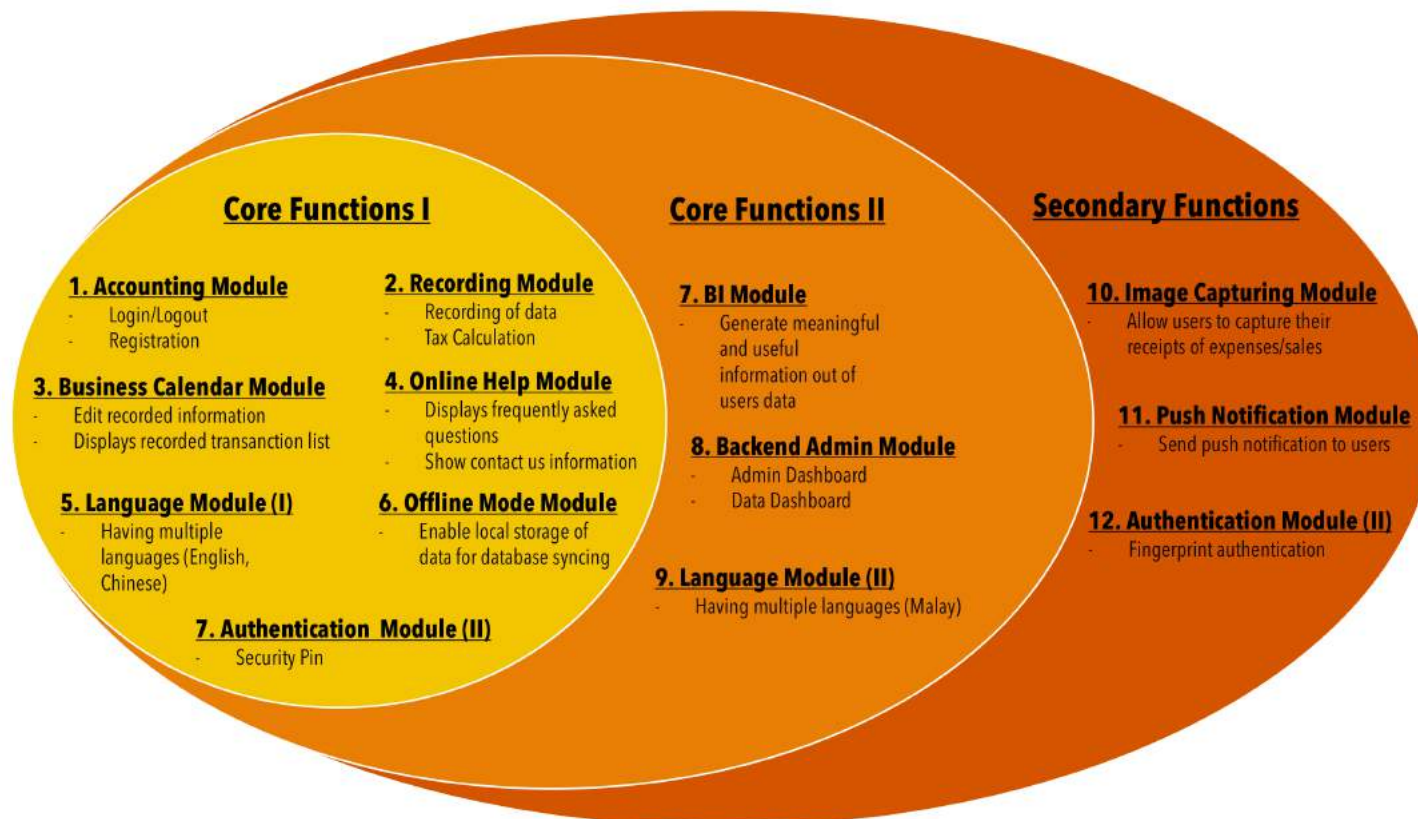
## Old Project Scope



# PROJECT MANAGEMENT

## Changed Project Scope

1. Added displays recorded transaction list as it would be a useful function
2. Change Analytics Module to BI Module





# PROJECT MANAGEMENT

## Task Metrics

Formula
No. of Task Completed / No. of Task Planned

Score(%)	Action Plan
<b>SM <math>\leq</math> 50</b>	<ul style="list-style-type: none"><li>• The team is behind the schedule, as there was a gross under-estimation of the effort required</li><li>• Team to consider dropping task</li><li>• Re-estimate tasks for future iteration and decide on critical functionality to focus on in following iteration, team might want to consider dropping functionalities</li></ul>
<b>50 &lt; SM <math>\leq</math> 90</b>	<ul style="list-style-type: none"><li>• The team is slightly behind the schedule</li><li>• Re-estimate tasks for future iteration and decide on critical functionality to focus on in following iteration</li></ul>
<b>90 &lt; SM <math>\leq</math> 110</b>	<ul style="list-style-type: none"><li>• Estimates are generally accurate and on track</li></ul>
<b>110 &lt; SM <math>\leq</math> 150</b>	<ul style="list-style-type: none"><li>• The team is ahead of the schedule</li><li>• Re-estimate tasks for future iteration</li></ul>
<b>SM &gt; 150</b>	<ul style="list-style-type: none"><li>• The team is ahead of schedule, as there was an over-estimation of the effort required</li><li>• Re-estimate tasks for future iteration</li></ul>

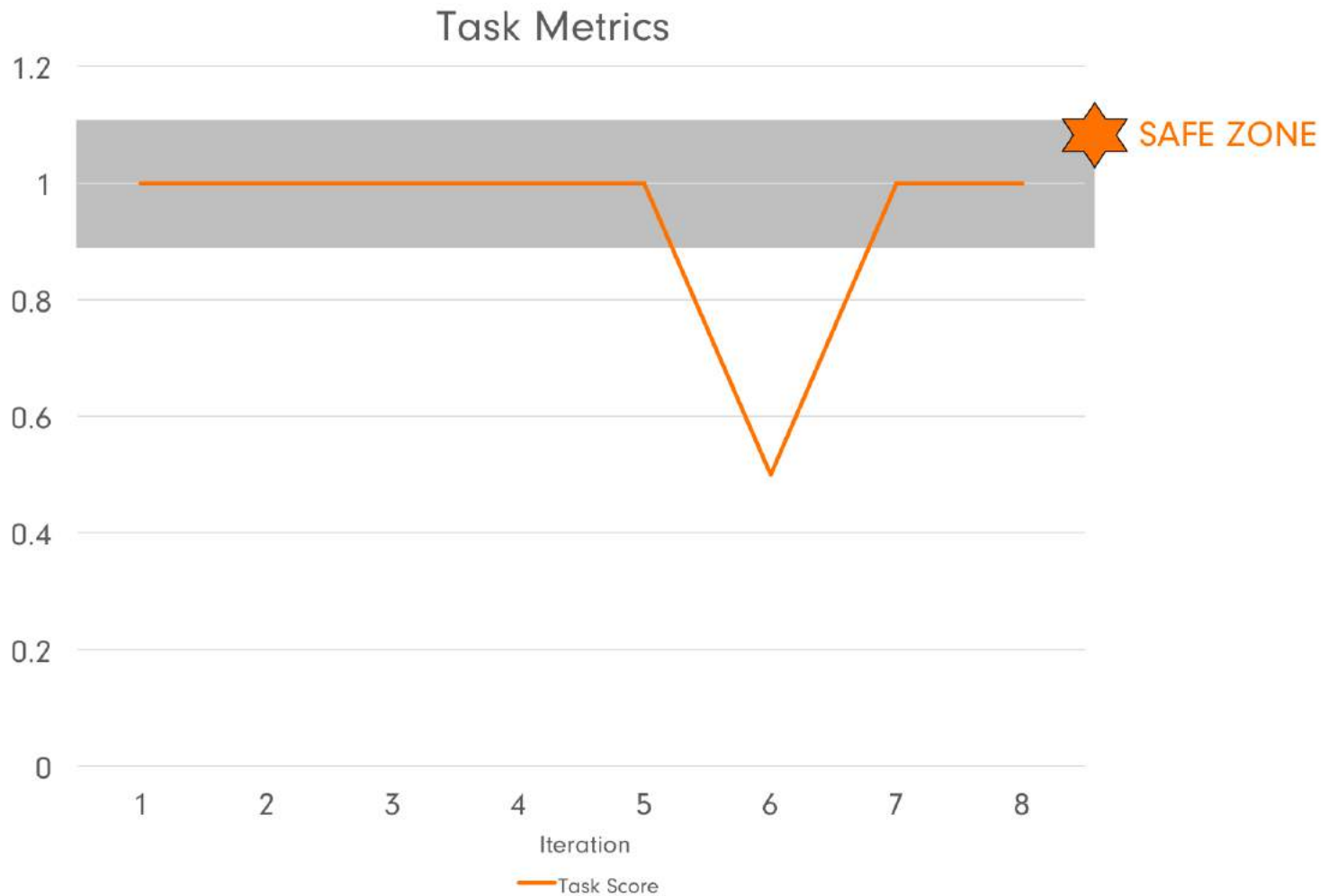
# PROJECT MANAGEMENT

## Task Metrics

Iteration	Planned Task (No. of Task)	Actual Task (No. of Task)	Task Metric Score	Action	Status
01	2	2	100%	Estimates are generally accurate and on track. Proceed as per normal.	Completed
02	2	2	100%	Estimates are generally accurate and on track. Proceed as per normal.	Completed
03	2	2	100%	Estimates are generally accurate and on track. Proceed as per normal.	Completed
04	3	3	100%	Estimates are generally accurate and on track. Proceed as per normal.	Completed
05	2	2	100%	Estimates are generally accurate and on track. Proceed as per normal.	Completed
06	2	1	50%	<ul style="list-style-type: none"> <li>The team is behind the schedule, as there was a gross under-estimation of the effort required</li> <li>Team to consider dropping task</li> <li>Re-estimate tasks for future iteration and decide on critical functionality to focus on in following iteration, team might want to consider dropping functionalities</li> </ul>	Completed
07	4	4	100%	Estimates are generally accurate and on track. Proceed as per normal.	Completed
08	1	1	100%	Estimates are generally accurate and on track. Proceed as per normal.	Completed

# PROJECT MANAGEMENT

## Task Metrics



# PROJECT MANAGEMENT

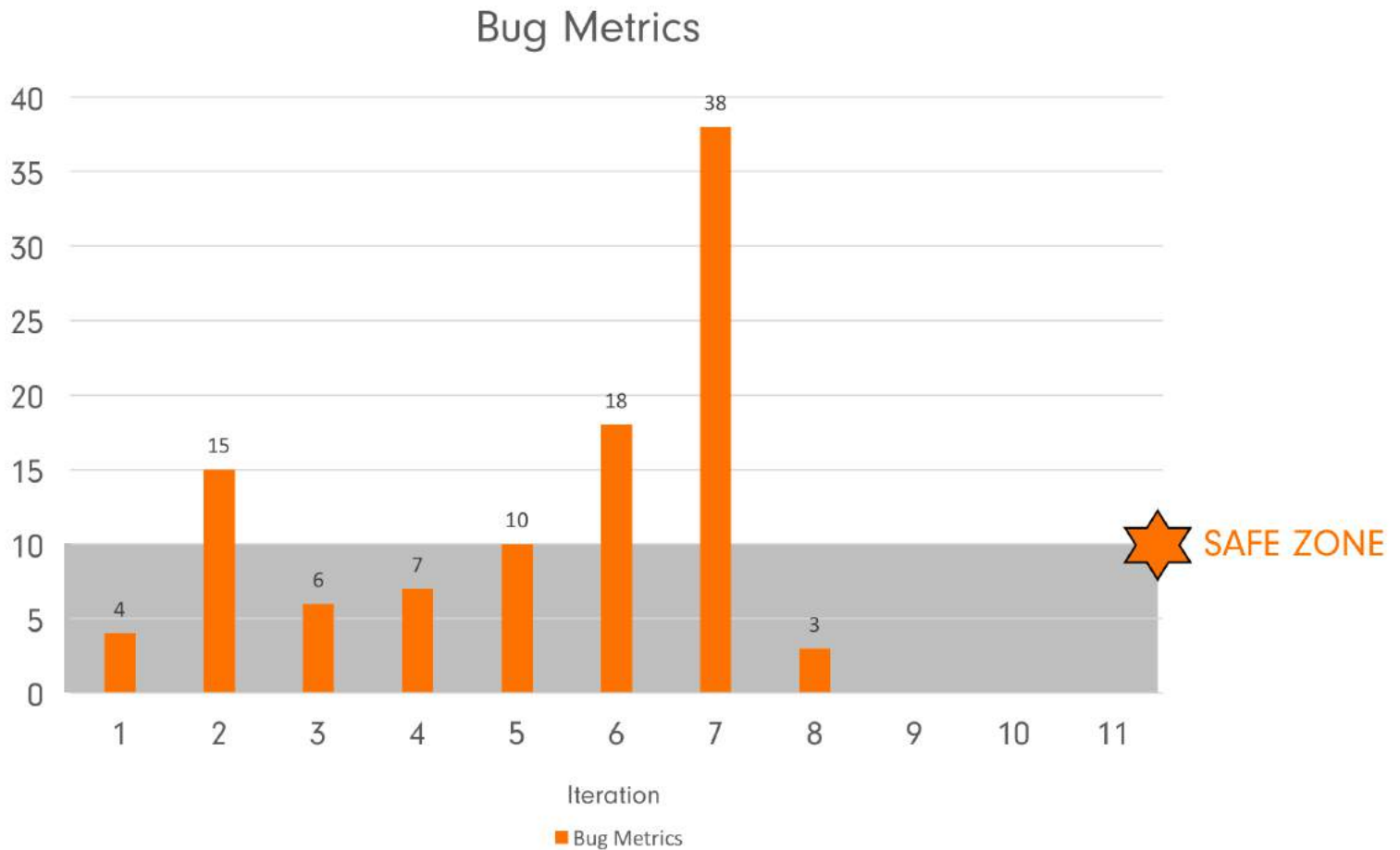
## Bugs Metrics

Severity	Description
<b>Low Impact (1 points)</b>	Unimportant. Typo error or small user interface alignment issues
<b>High Impact (5 points)</b>	The system runs. However, some non-critical functionalities are not working
<b>Critical Impact (10 points)</b>	The system is down or is unusable after a short period of time. We have to fix the bugs to continue

Points in Iteration	Action
<b>Points <math>\leq 5</math></b>	Fix during buffer time only
<b><math>5 &lt; \text{Points} \leq 10</math></b>	Use the planned debugging time
<b>Points <math>&gt; 10</math></b>	Stop current development and resolve the bug immediately. Project Manager reschedules the project and inform supervisor or sponsors

# PROJECT MANAGEMENT

## Bugs Metrics



# PROJECT MANAGEMENT

## Mitigation Plan

# PROJECT MANAGEMENT

## Risks Management

# #1

**Consistent usage of app from users**

Mitigation: Implement the push notification function and constantly remind users

# PROJECT MANAGEMENT

## Risks Management

# #2

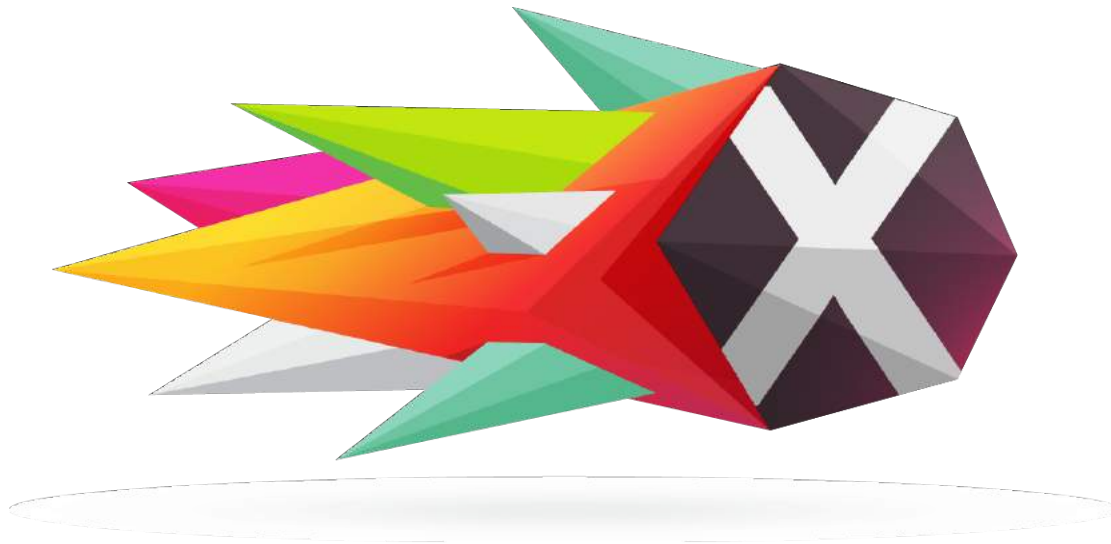
**Insufficient practice and lack of experience with  
LAMP stack**

Mitigation: Early research and learning of LAMP stack and practice  
with team



# PROJECT MANAGEMENT

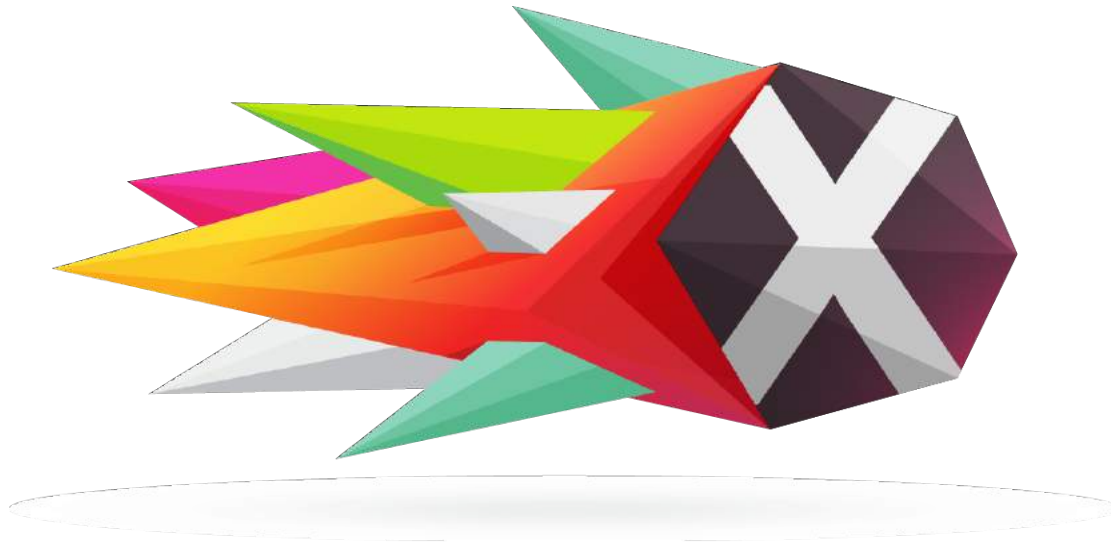
## X-Factor



- ✓ Have 50 numbers of hawkers sign-ups
- ✓ Have more than 30 users with 1-Month consistent usage

# PROJECT MANAGEMENT

How far we have attain for our X-Factor?



- ✓ Have 30 numbers of hawkers sign-ups
- ✓ Have 15 consistent usage users

# PROJECT MANAGEMENT

## Looking Forward

---

Benefits clients through backend admin module (analyze of app usage)

Constantly looking out for new users

Remind existing users to make daily recording

# LEARNING REFLECTIONS

Goh Gui Xiang Wendy



"Change is inevitable.  
Communication is key.  
Constantly looking out for issues."

# LEARNING REFLECTIONS

Gao Min (Mell)



"Considerations needed when it comes to UI/UX design.

Importance of team communication between Front and Back end."

# LEARNING REFLECTIONS

Cheng Chingyi



"Good communication with UI & back end team is vital so as to ensure that everyone is on the same page amidst all the changes."

# LEARNING REFLECTIONS

Chua Weilun (Ben)



"Making mistakes are the first step to knowing you are wrong."

# LEARNING REFLECTIONS

Kay Zong Wei



"I learnt that having good basics is very important to succeed in what we do. Swift is a new language that we are never exposed prior to this project, and having good java/ruby basics from various courses in school ensure that I pick up the language fast to keep in pace with the tight schedule."



**THANK YOU.**

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