ACCEPTANCE PRESENTATION

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Agenda

1. PROJECT OVERVIEW
2. SCOPE
3. DEVELOPMENT
4. DEMO
5. QUALITY ASSURANCE
6. PROJECT MANAGEMENT
7. THE TEAM

PROJECT OVERVIEW

SIGHT

OUR SPONSOR

clearvision
EYE CLINIC & LASIK CENTRE

- Established in 2001 by founder and main ophthalmologist Dr. Tony Ho
- First dedicated Lasik centers in Singapore
- Services include Lasik surgery and eye consultation

AS-IS PROCESS ISSUES

Manual activities

Unable to track performance of clinic

AS-IS PROCESS ISSUES

Manual activities

- Checking of available appointment time slots
- Search for suitable time slots to suggest to patients
- Counting the number of patients in the time slot to determine if its full
- Memorizing available time slots for respective doctor's appointment types

AS-IS PROCESS ISSUES

Manual activities

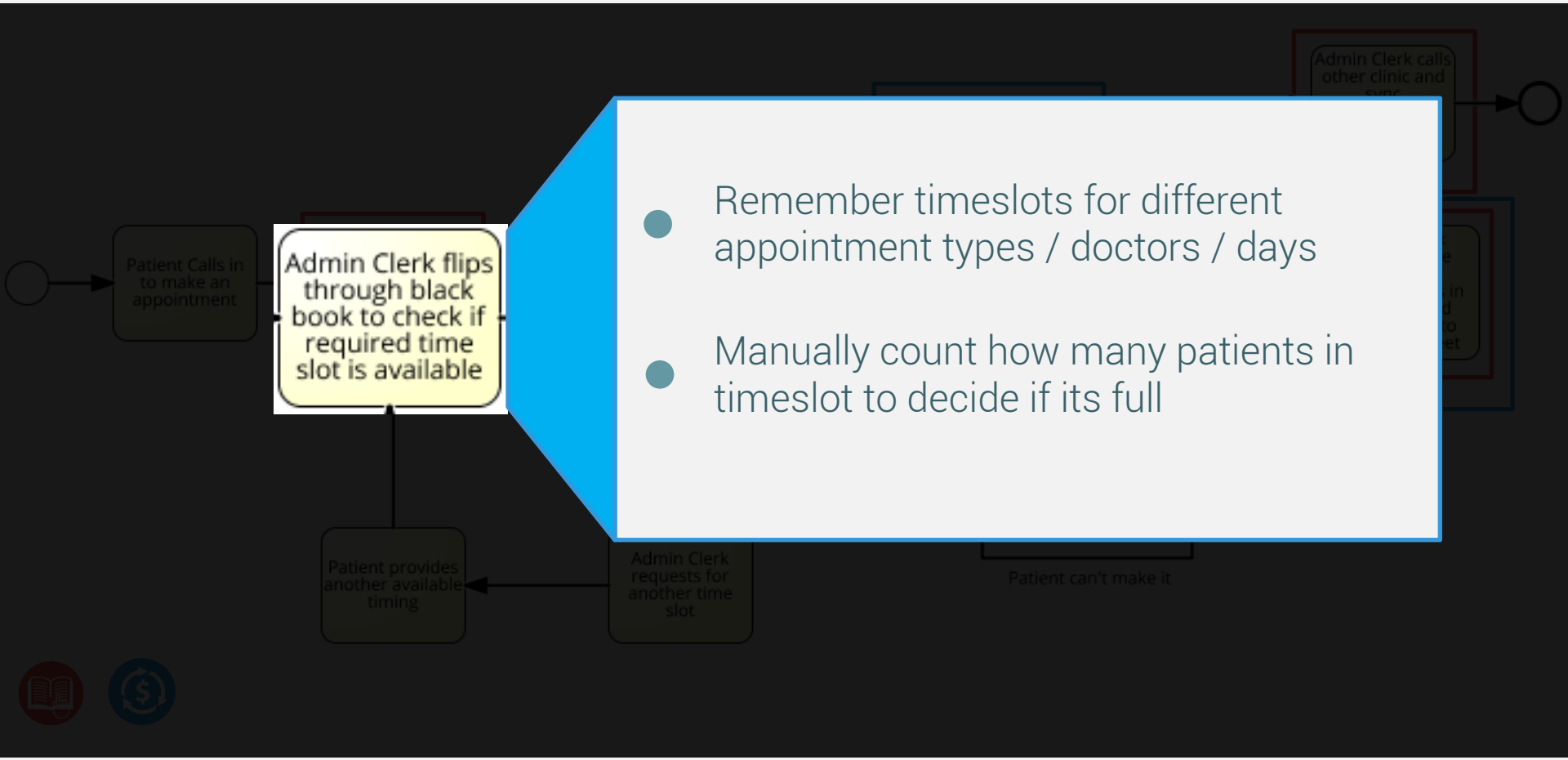
- Calling of patients to remind them of appointment
- Calling of other clinic to sync the appointment book
- Keying in duplicated data into marketing Google spreadsheet
- Search for an existing appointment
- Consolidating and confirming patient no show list

AS-IS PROCESS ISSUES

Unable to track performance of clinic

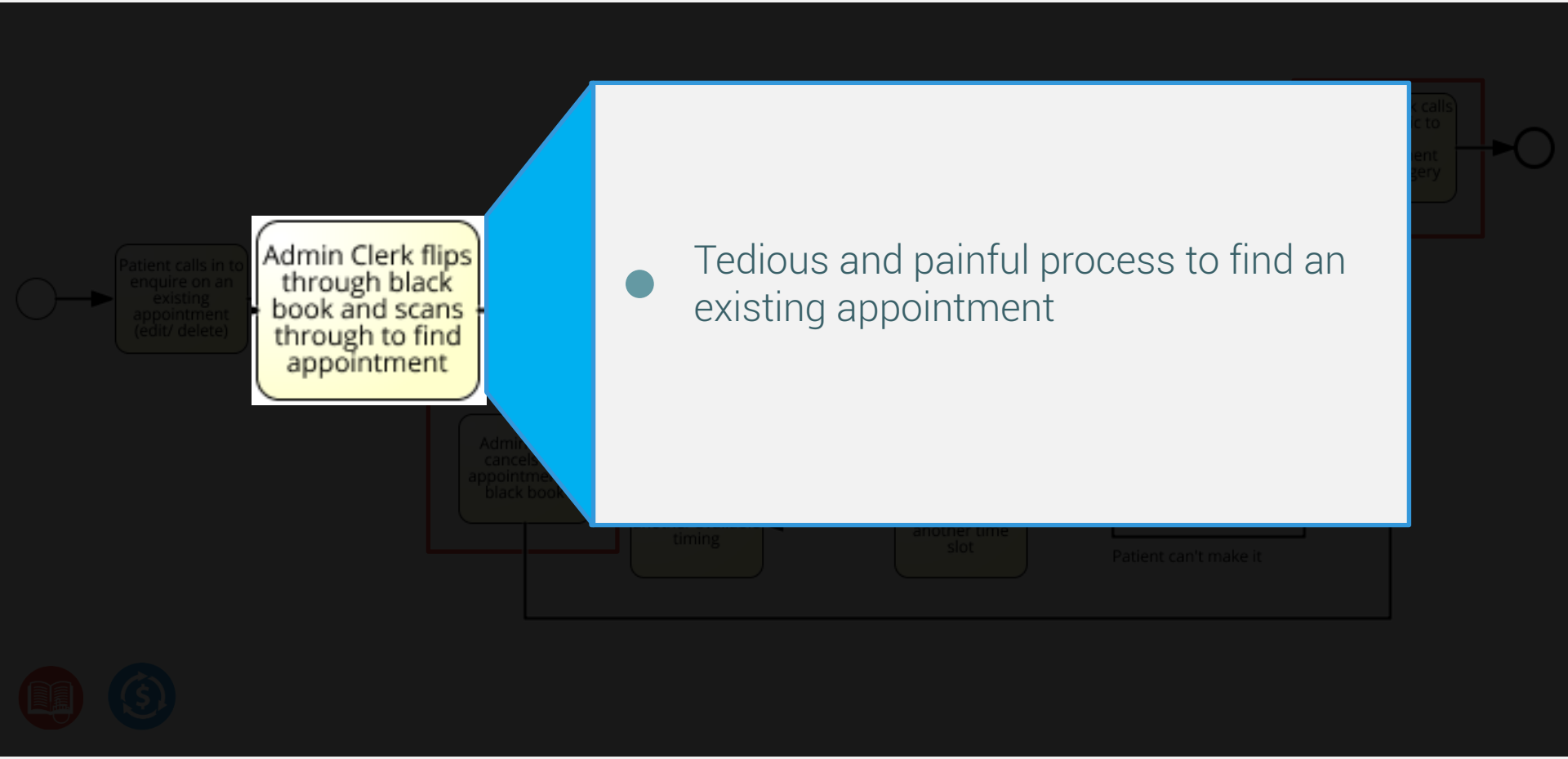
- Conversion rates of different marketing channels are difficult to trace
- Return of investment on marketing campaigns is difficult to calculate

AS-IS PROCESS
Appointment Booking



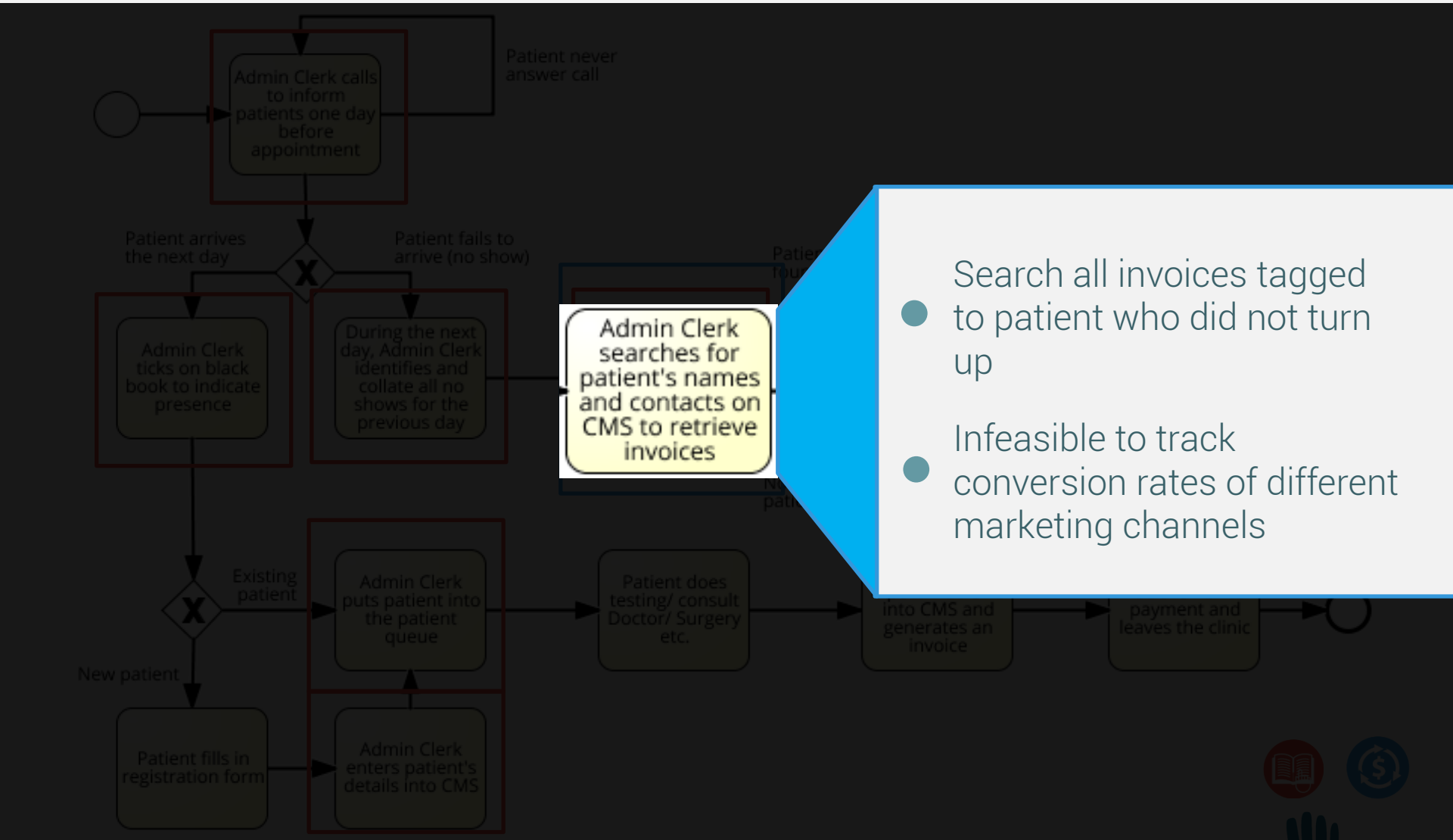
- Remember timeslots for different appointment types / doctors / days
- Manually count how many patients in timeslot to decide if its full

AS-IS PROCESS
Appointment Updates & Deletion



- Tedious and painful process to find an existing appointment

AS-IS PROCESS
Queue Management



- Search all invoices tagged to patient who did not turn up
- Infeasible to track conversion rates of different marketing channels

SOLUTION

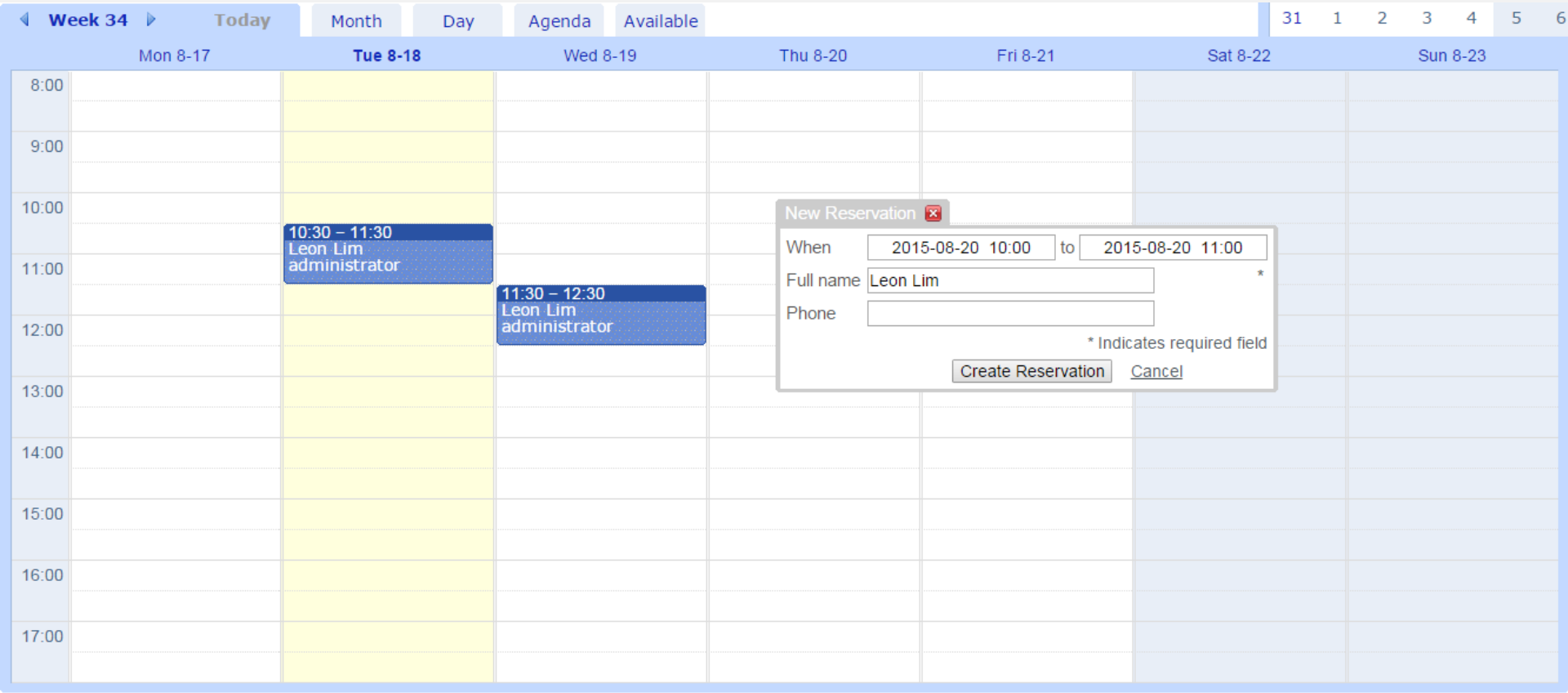
- Appointment Scheduling Web Application
- Eradicate Manual Activities with Integrated Features
- Customizable & Scales with Ease

MARKET RESEARCH

	Setmore	SimplyBook.me	Acuity Scheduling	Genbook	SuperSaaS	SIGHT
SMS/ Email Configurations	✓	✓		✓	✓	✓
Analytics Dashboard		✓		✓	✓	✓
Notification	✓					✓
Scheduling	✓	✓	✓	✓	✓	✓
Google Calendar Sync	✓	✓	✓	✓	✓	✓
Mobile Ready	✓	✓	✓	✓	✓	✓
Customization	✓	✓	✓	✓	✓	✓
Search / Filter			✓	✓		✓
Heat Map						✓
Suggest Time Slots						✓
Waiting List						✓

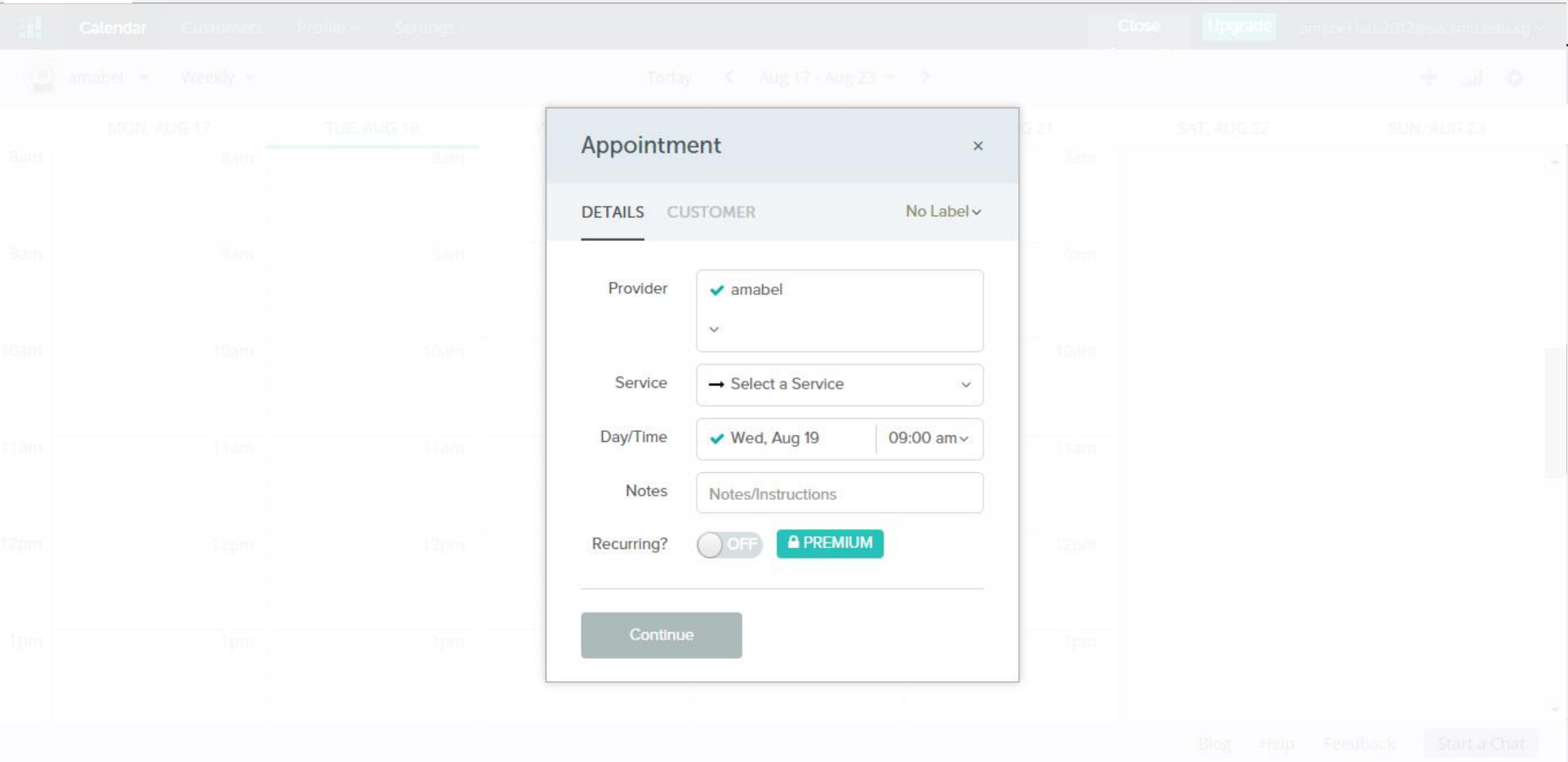
MARKET RESEARCH

SuperSaaS



MARKET RESEARCH

Setmore



X FACTOR

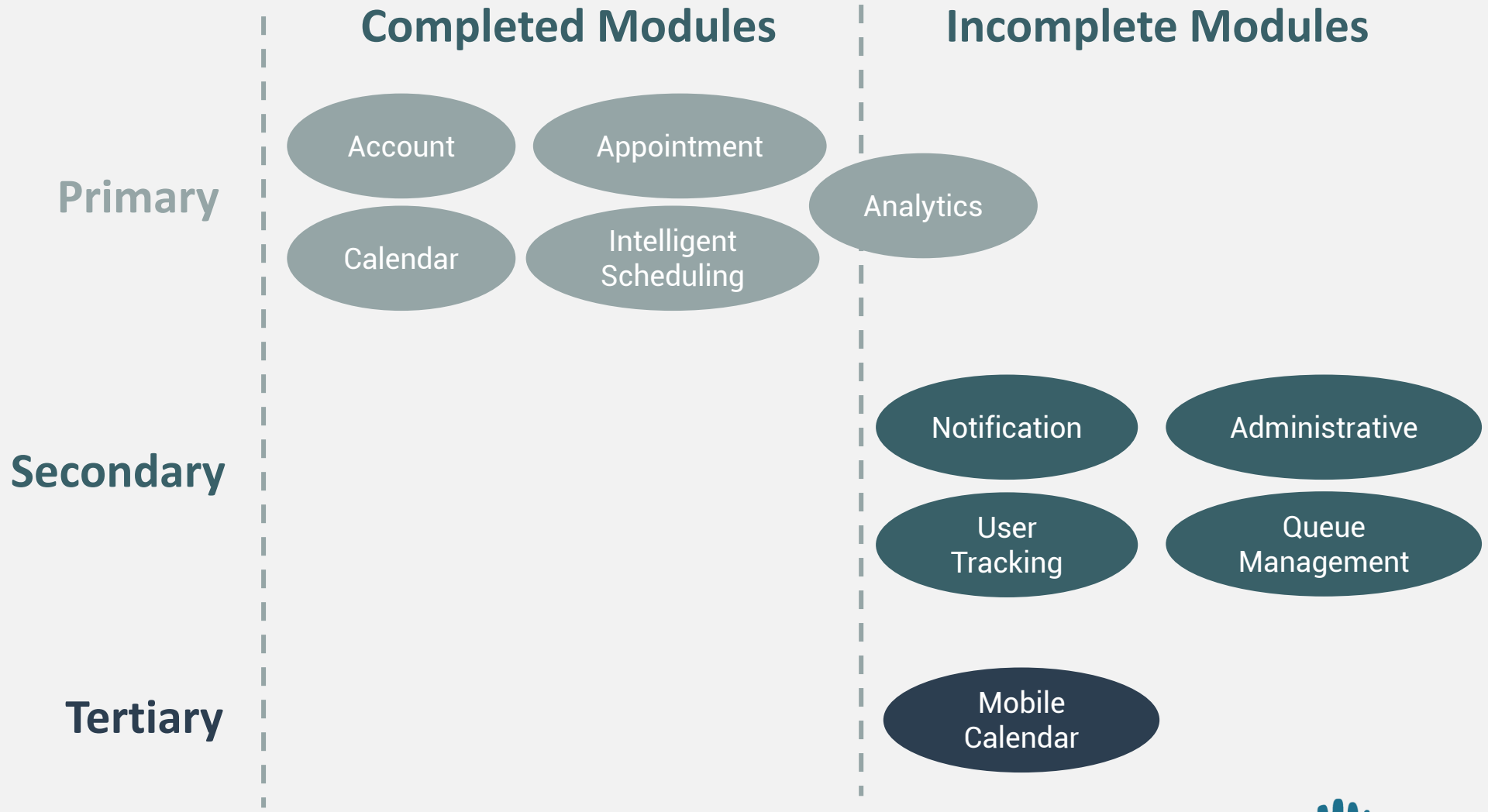
Self Proposed one-of-a-kind **intelligent scheduling** aimed at reducing the time taken for creating, editing and deleting an appointment booking by at least **50%**

Early Deployment to track and collect at least **100 schedule records** before mid-term presentation, so as to generate an assessment analysis used to improve the productiveness of our application

SCOPE

SIGHT

ALL FUNCTIONS



PRIMARY FUNCTIONS

Primary Function

Secondary Function

Tertiary Function

Account Module

- Login / Logout ☑
- Update Settings ☑

PRIMARY FUNCTIONS

Primary Function

Secondary Function

Tertiary Function

Appointment Module

- Create Appointment
- Update Appointment
- Delete Appointment

PRIMARY FUNCTIONS

Primary Function

Secondary Function

Tertiary Function

Calendar Module

- Display Calendar ✓
- Navigate Calendar ✓
- Search for Appointments ✓
- Filter for Appointments ✓

PRIMARY FUNCTIONS

Primary Function

Secondary Function

Tertiary Function

Intelligent Scheduling Module

- Heat Map of Clinic Schedule
- Suggest Appointment Time Slots
- Manage Appointment Waiting List

PRIMARY FUNCTIONS

Primary Function

Secondary Function

Tertiary Function

Analytics Module

- Dashboard Summary and Trending
- Appointment Scheduling Analysis
- Return of Investment Analysis
- Survey Results Analysis

SECONDARY FUNCTIONS

Primary Function

Secondary Function

Tertiary Function

Administrative Module

- Manage Accounts
- Customization Settings
- Clinic Expansion Module
  - Create Customized Calendar
  - Define Roles and Assign Users
  - Configure Access Control

SECONDARY FUNCTIONS

Primary Function

Secondary Function

Tertiary Function

Notification Module

- Automated SMS Appointment Reminder
- Send SMS Appointment Cancellation
- Send SMS Swap Confirmation
- Receive SMS to Swap Appointment
- Survey Task Notification via Email

SECONDARY FUNCTIONS

Primary Function

Secondary Function

Tertiary Function

Queue Management Module

- Manage Patient Queue

User Tracking Module

- Record user action timings

TERTIARY FUNCTIONS

Primary Function

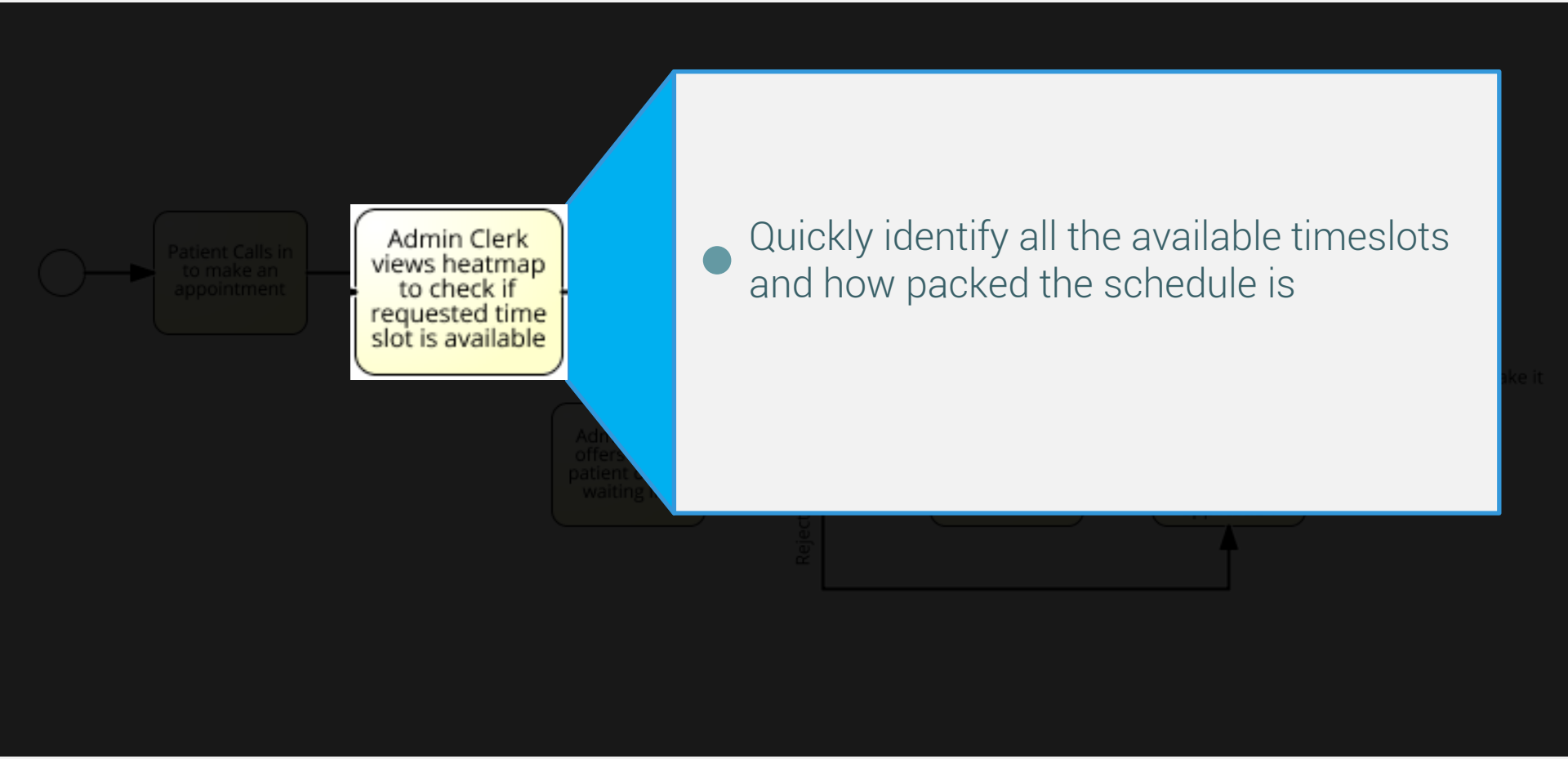
Secondary Function

Tertiary Function

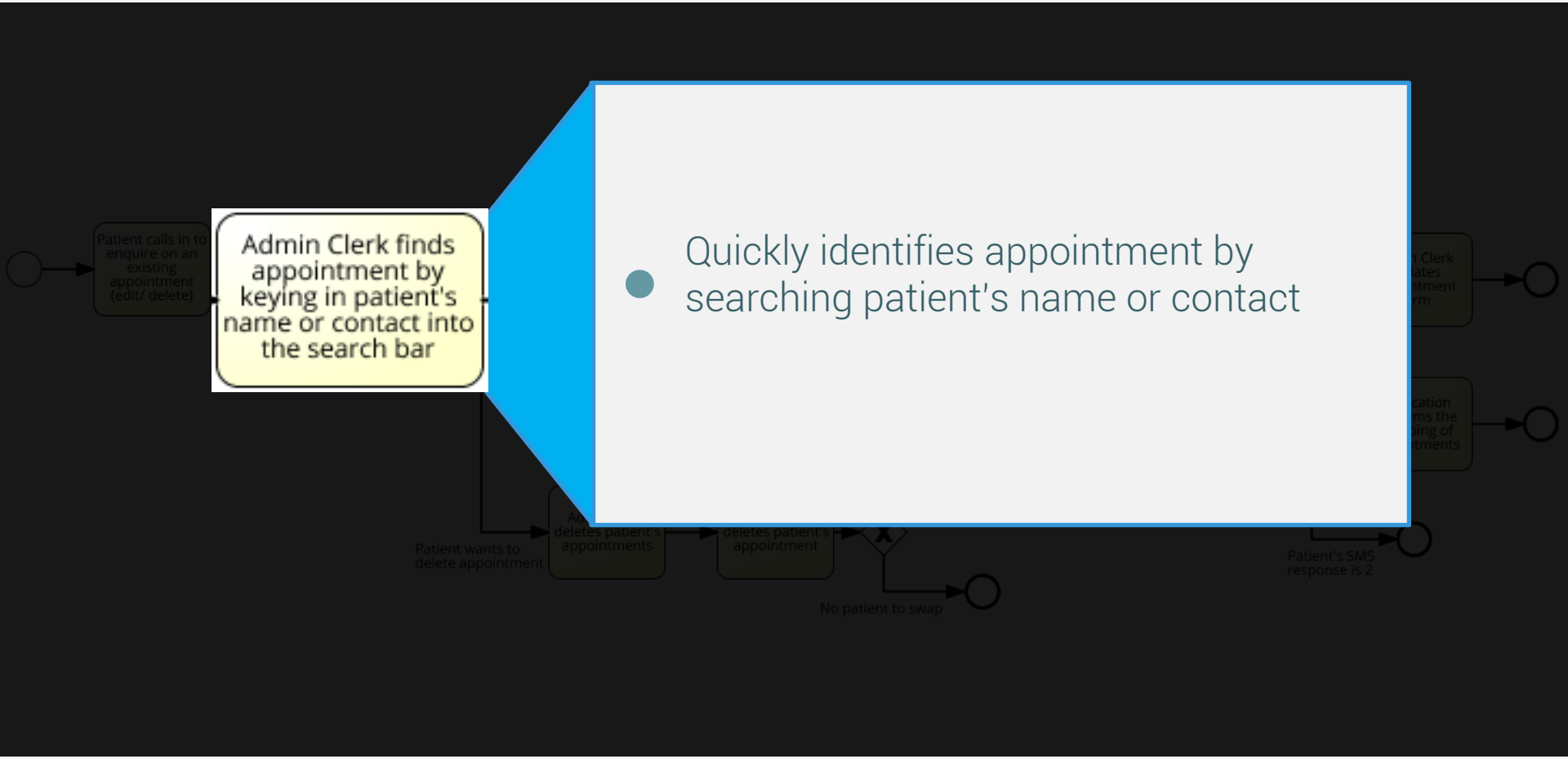
Mobile Calendar Module

- Sync Appointments to Native Calendar

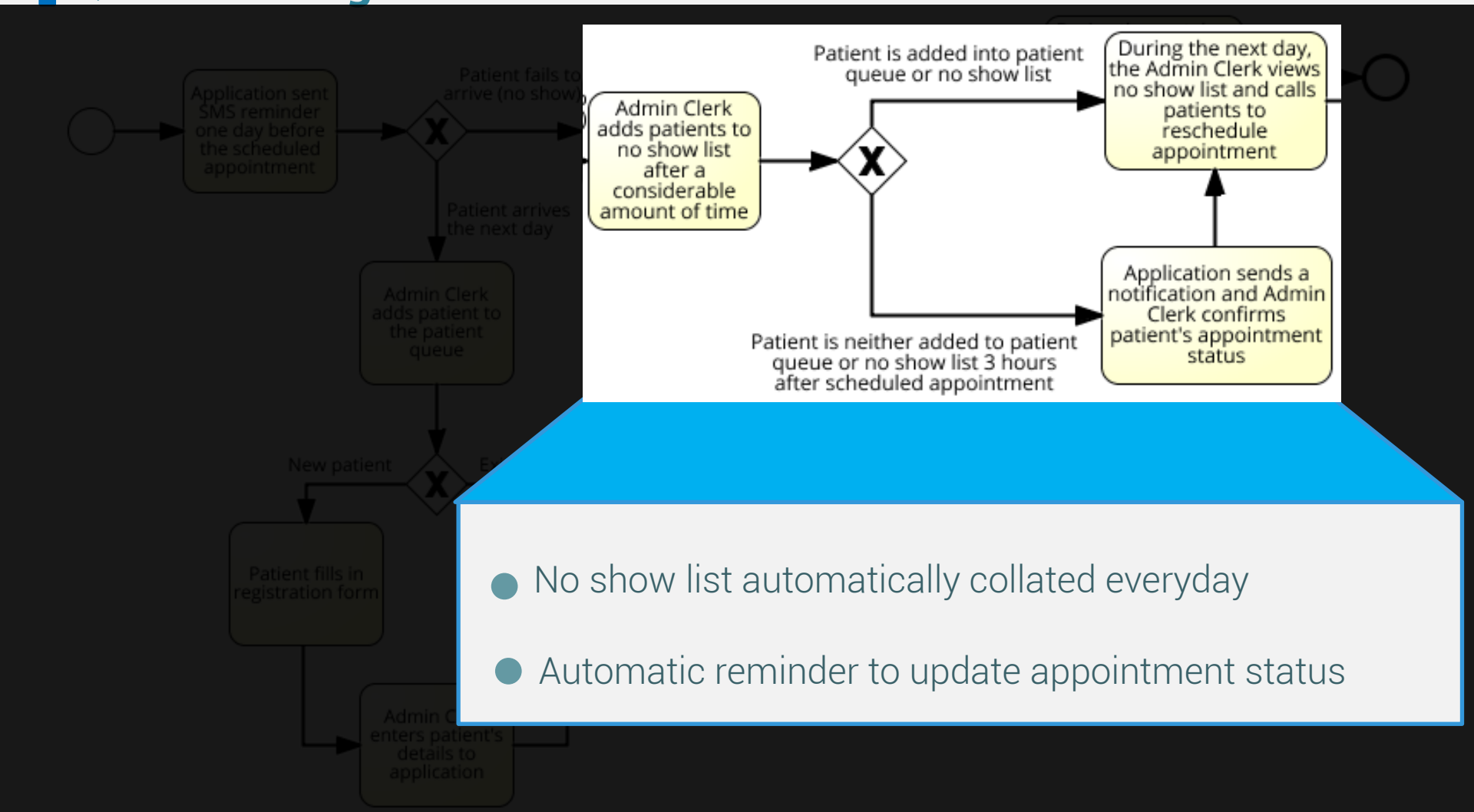
TO-BE PROCESS
Appointment Booking



TO-BE PROCESS
Appointment Updates & Deletion



TO-BE PROCESS
Queue Management

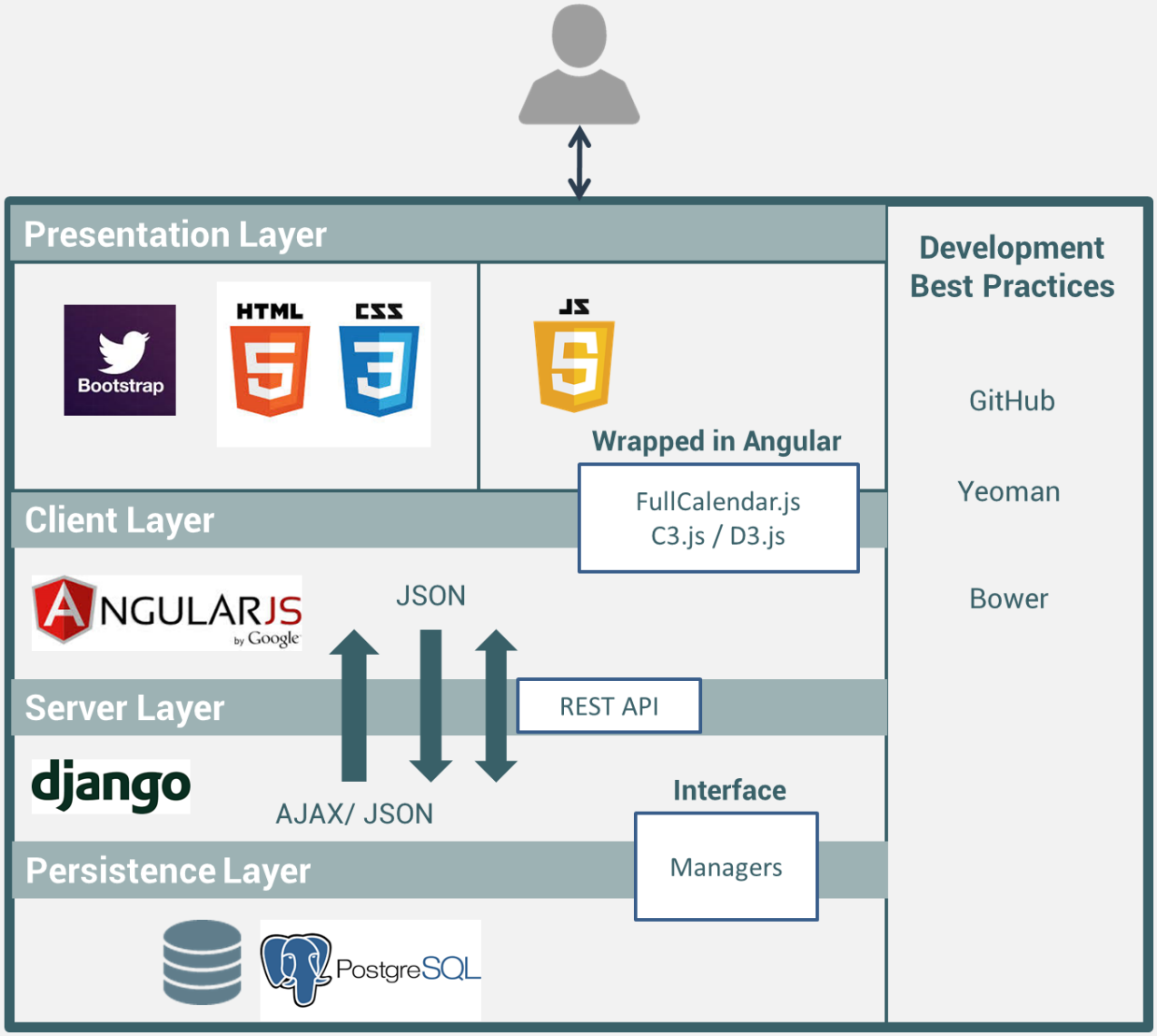


- No show list automatically collated everyday
- Automatic reminder to update appointment status

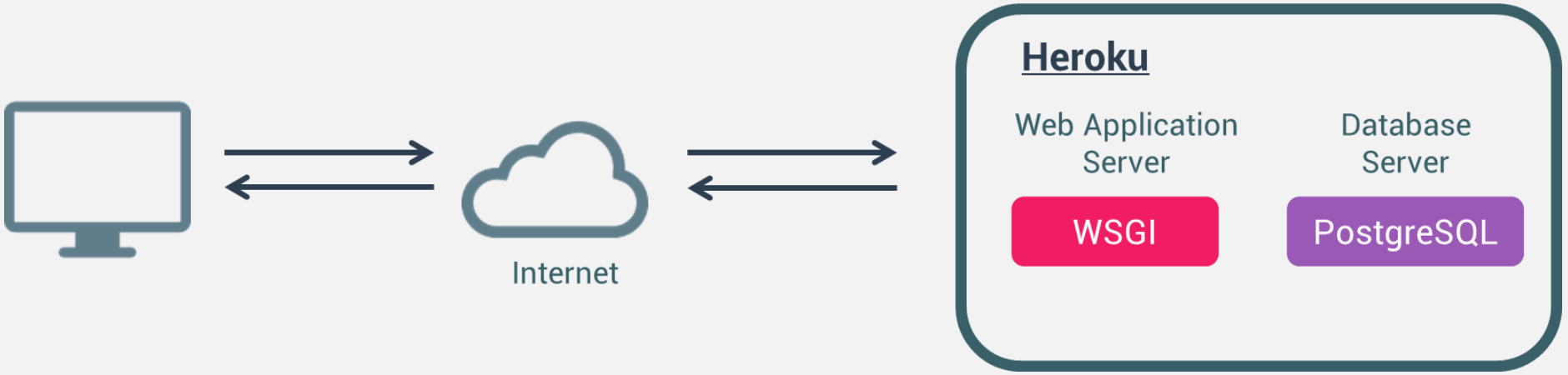
DEVELOPMENT

SIGHT

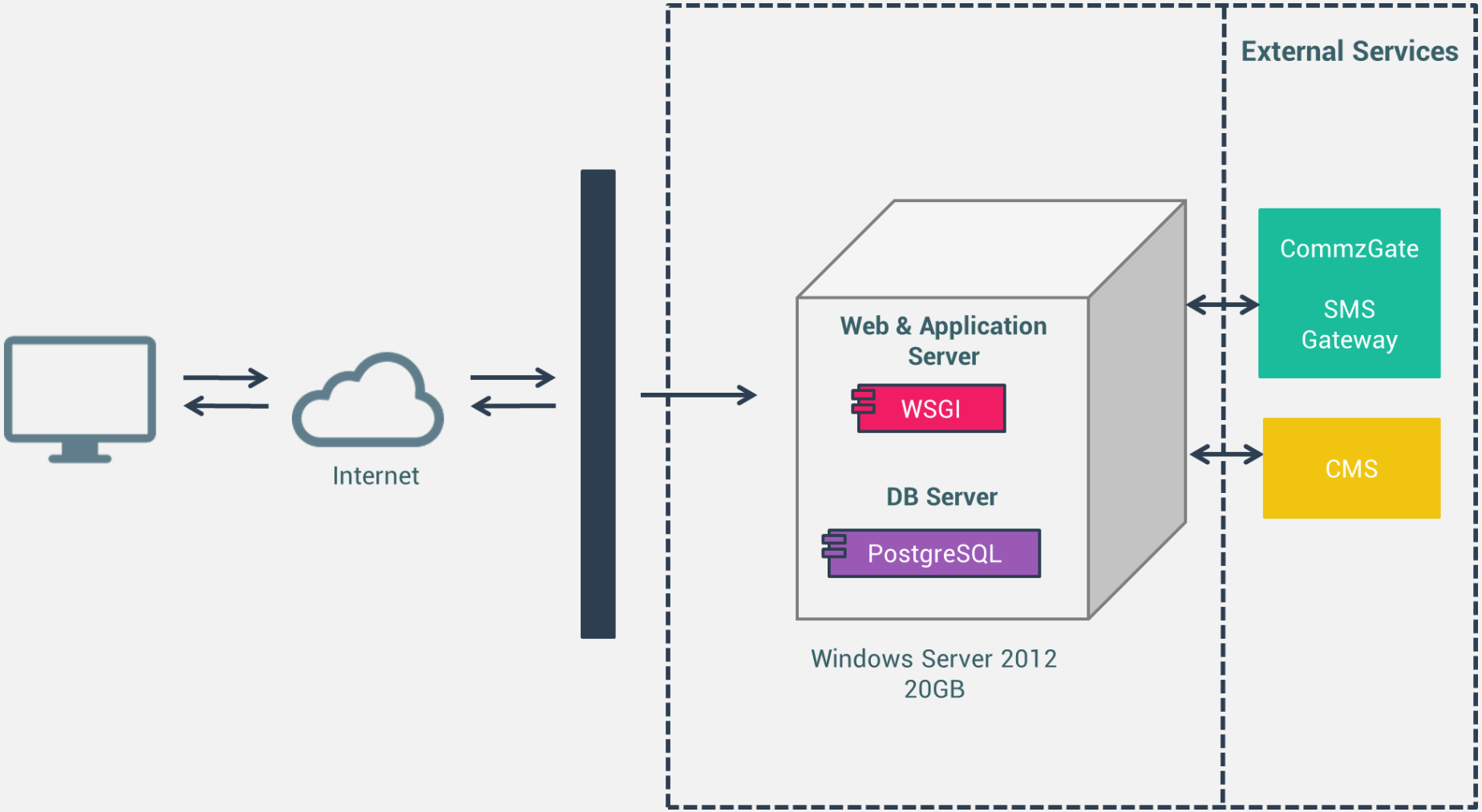
TECHNICAL DIAGRAM



ARCHITECTURE DIAGRAM
Development

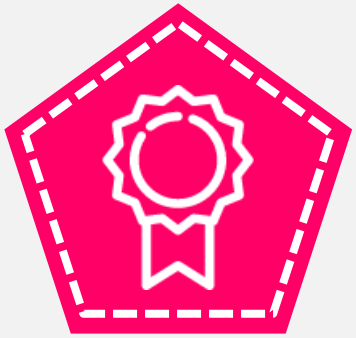


ARCHITECTURE DIAGRAM
Deployment



DEMO

SIGHT



QUALITY ASSURANCE

SIGHT

TESTING
Agile Environment

Testing is integrated throughout the sprint cycle

Developers and QA are both responsible for testing the application

TESTING
Agile Environment

SPRINT 5

QA Responsibility
Developer Responsibility
All

Understand Business Requirements

Test Cases Creation

Sprint Planning

Start

31 Jul

Task 1

Task 2

Complete Task
Display all available time slots based on appointment type

Unit Testing
Update bug log if any bug found

Daily Scrum Meeting Update QA on update of bug log

Complete User Story
Display heat map of appointment schedule

Function Testing Update bug log if any bug found

Daily Scrum Meeting
Update QA on update of bug log

User Story 1

User Story 2

Integration Test Update Test Cases & bug log

Test Cases Modification

Daily Scrum Meeting
Update developers on update of bug log

7 Aug

End

Sprint Release

TESTING
Outcome

- Allow developers to have quick response to bugs
- Shorter release time at the end of each sprint
- Able to focus on functionality improvements during sprint review, rather than fixing the bugs

BUG TRACKING

Bugs are logged by QA and developers during individual testing

QA keeps track of bug on a daily basis to ensure all bugs are properly logged

Sprint	Functionality	Bug Description	Category	Severity	Date Found	Assigned To	Priority	Estimated Duration to Solved	Date Solved	Status	Cause	Action Taken	Score
5	Create Appointment	If patient decided to be on waiting list, the temp appointment(waiting list appt) cannot be created	BE	HIgh	6/15/2015	Sherman	High	30mins	6/15/2015	Solved	tempAppt Id not referenced properly. Overlooked the foreign keys relations between the database and referenced the scheduled appt instead of the temp appt ID	Referenced the correct Temp appt ID. Patient can now be added into a scheduled appt and the temp appt properly	9

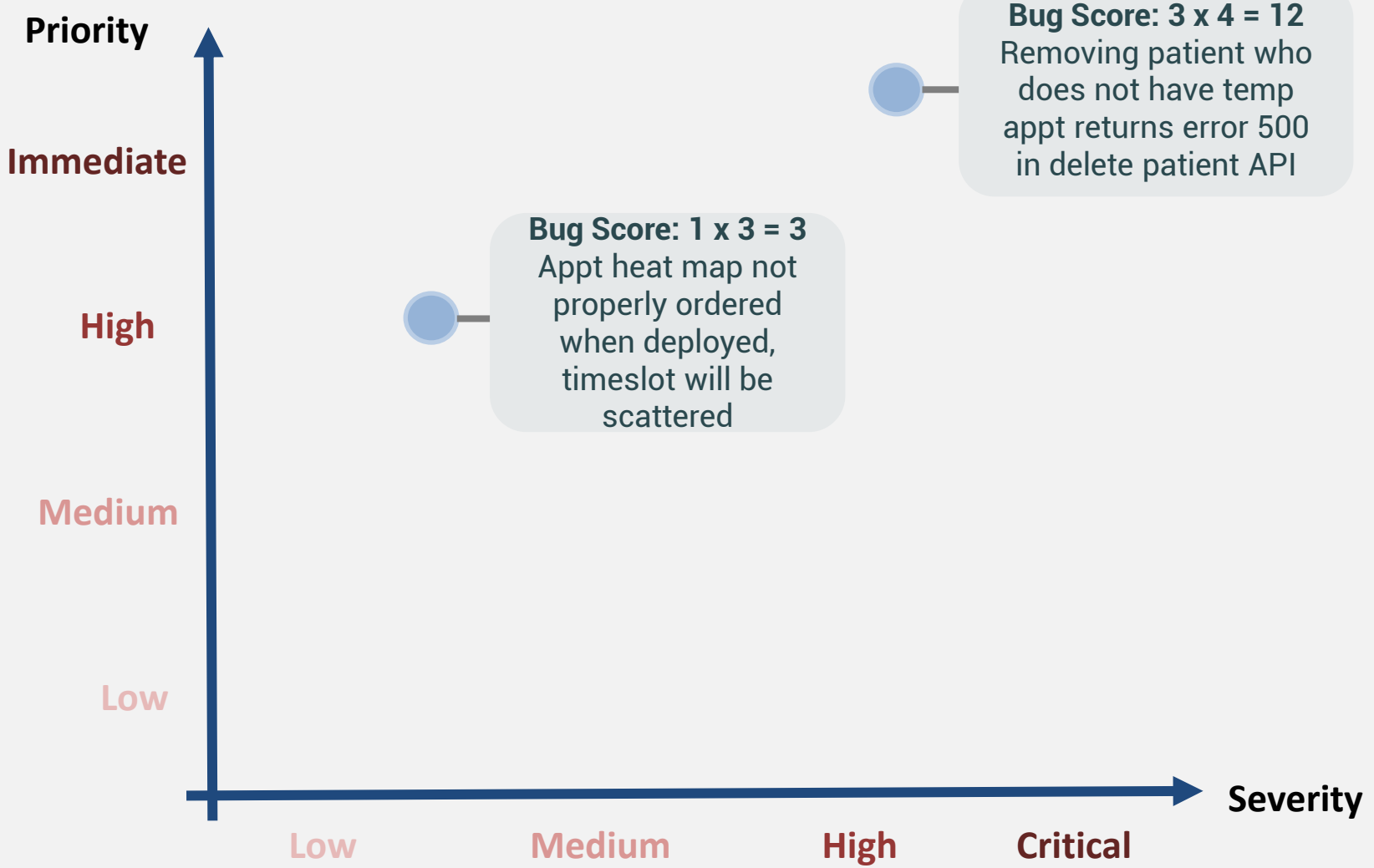
BUG TRACKING
Bug severity Metric

Bug Severity Metric	
Severity	**Description**
Low	No real impact on functionality Usually aesthetic error, enhancement or a result of non-conformance to a standard
Medium	Do not result in failure but cause system to show incorrect, incomplete, or inconsistent results Usability issues for non-critical functionalities (Tertiary functions)
High	Failure that prevents the application from meeting requirements or carrying out a feature Usability issues for critical functionalities (Primary and Secondary functions)
Critical	Failure that prevents the application from functioning, unable to carry out further testing Causes data loss, incomplete or inconsistent data stored on the database

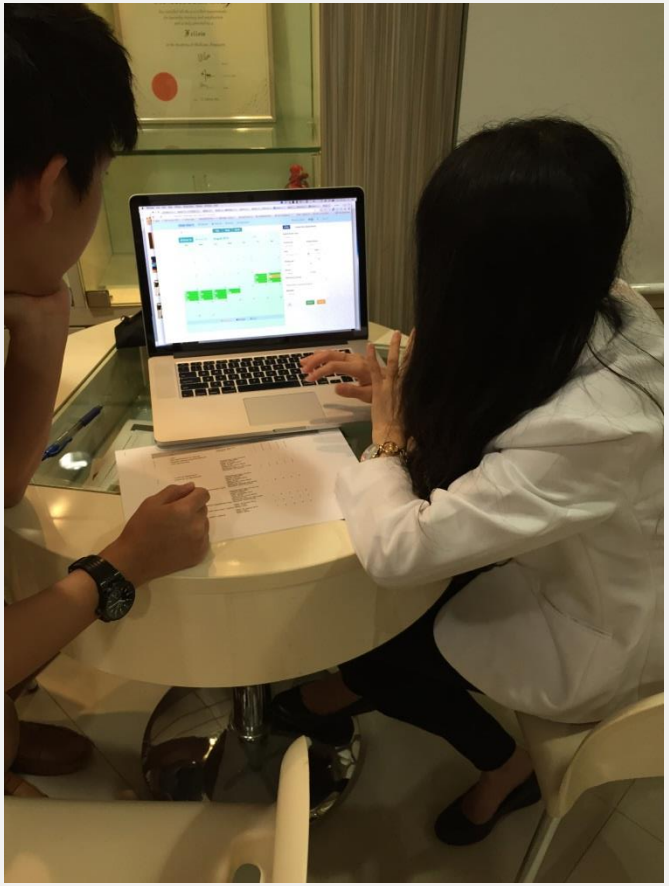
BUG TRACKING
Bug Priority Metric

Bug Priority Metric	
Priority	**Description**
Low	Fixing can be deferred until all other priority defects are fixed, either after release or in next release
Medium	Fixing has to be done after all major bugs have been repaired
High	Fixing should be done as soon as possible during the development process, before a sprint release
Immediate	Fixing should be done immediately while other development should be halted

BUG TRACKING



USER TESTING 1



USER TESTING 1

#	Task	Participant 1	Participant 2	Participant 3	Overall Mean	Remark
1	Login	5	5	5	**5**	
2	View appointments on calendar	5	5	5	**5**	
3	Navigate calendar (Day/Week/Month)	5	5	5	**5**	
4	Filter appointments	4	5	4	**4.33**	
5	Create an appointment	5	5	4	**4.67**	
6	Search for an appointment	5	5	4	**4.67**	
7	Edit an appointment (Same Appointment Type)	5	5	4	**4.67**	
8	Edit an appointment (Different Appointment Type)	5	5	4	**4.67**	
9	Delete an appointment (With more than 1 patient)	5	3	5	**4.33**	Add pop-up to confirm deletion
10	Delete an appointment (With 1 patient)	5	3	5	**4.33**	Add pop-up to confirm deletion
11	Add an appointment + on waiting list	4	5	3	**4**	
12	View waiting list	5	5	3	**4.33**	
13	Delete an appointment	5	5	4	**4.67**	
14	View waiting list and make the swap	5	4	3	**4**	

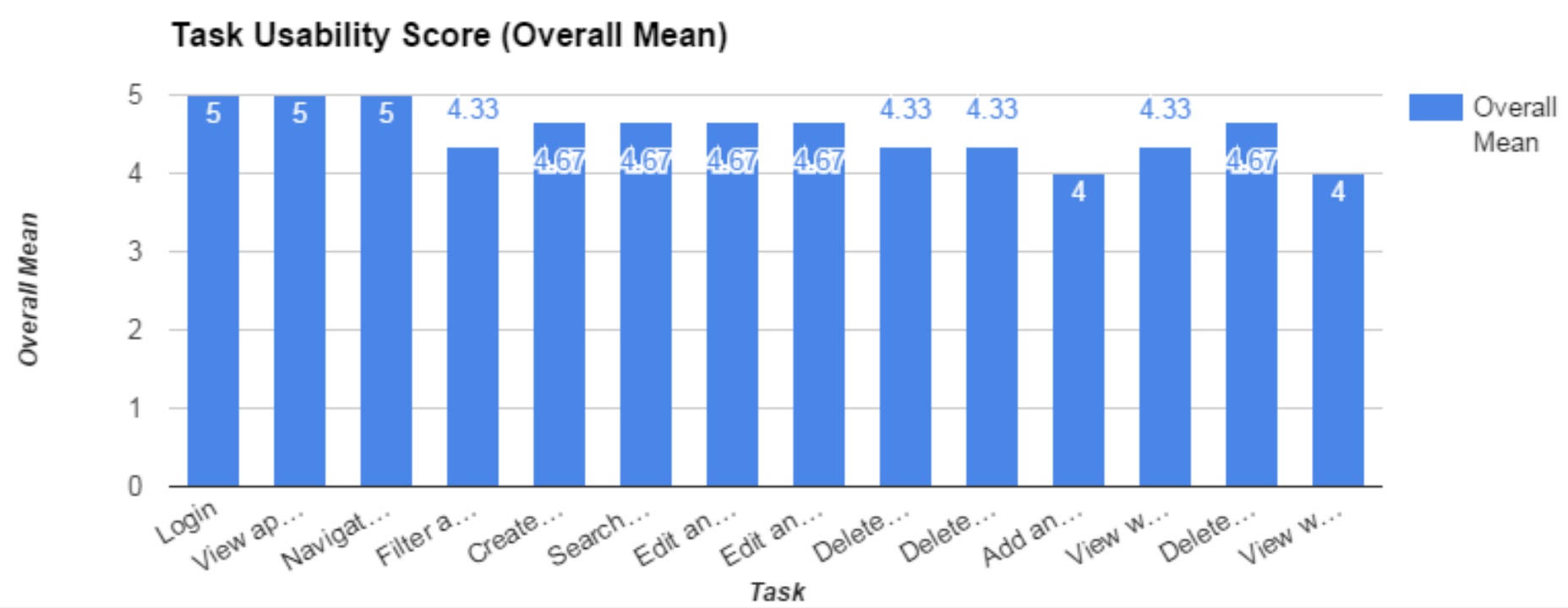
USER TESTING 1

User Testing Feedback Score					
#	Comments on the application	Participant 1	Participant 2	Participant 3	Overall Mean
1	The application is easy to use	5	5	4	**4.67**
2	The user interface is intuitive	4	5	4	**4.33**
3	The color scheme is appropriate	5	5	4	**4.67**

Open Ended Question		
#	Comments on features of application	Collated Feedback
1	Heatmap	color coding of heatmap is good. Prefer if timing is available. Current layout of application is good. Do not need to enable iSchedule on main calendar page
2	Suggested timings	Allow for customization of suggested timings
3	Swapping of appointments	Very simple to use This feature is very useful as they do KIV patient's preferred time slot now. However, there are often negligence on the front desk staff and patient's request is often not followed up with a reply on any possibilities of a swap.

USER TESTING 1

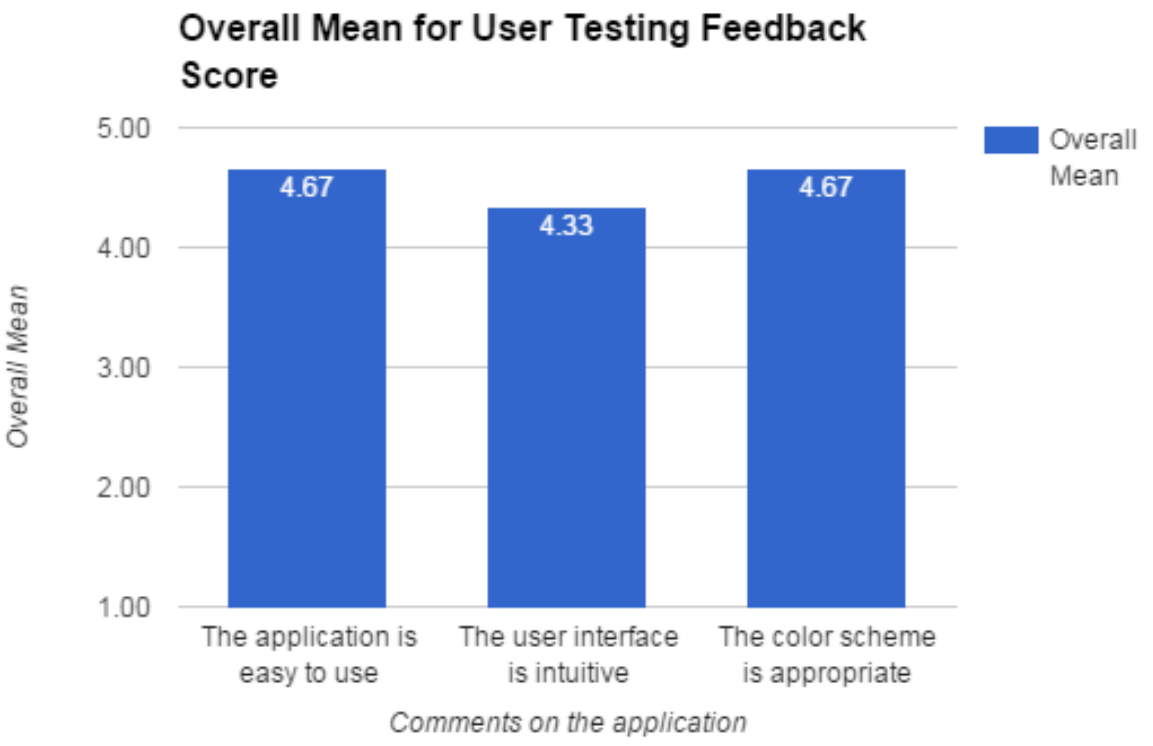
Easy to perform task? (1: Difficult - 5: Very Easy)



Consistency in usability scores for different functions

USER TESTING 1

On a scale of 1 to 5, please rate the following:
1 - Strongly Disagree
5 - Strongly Agree

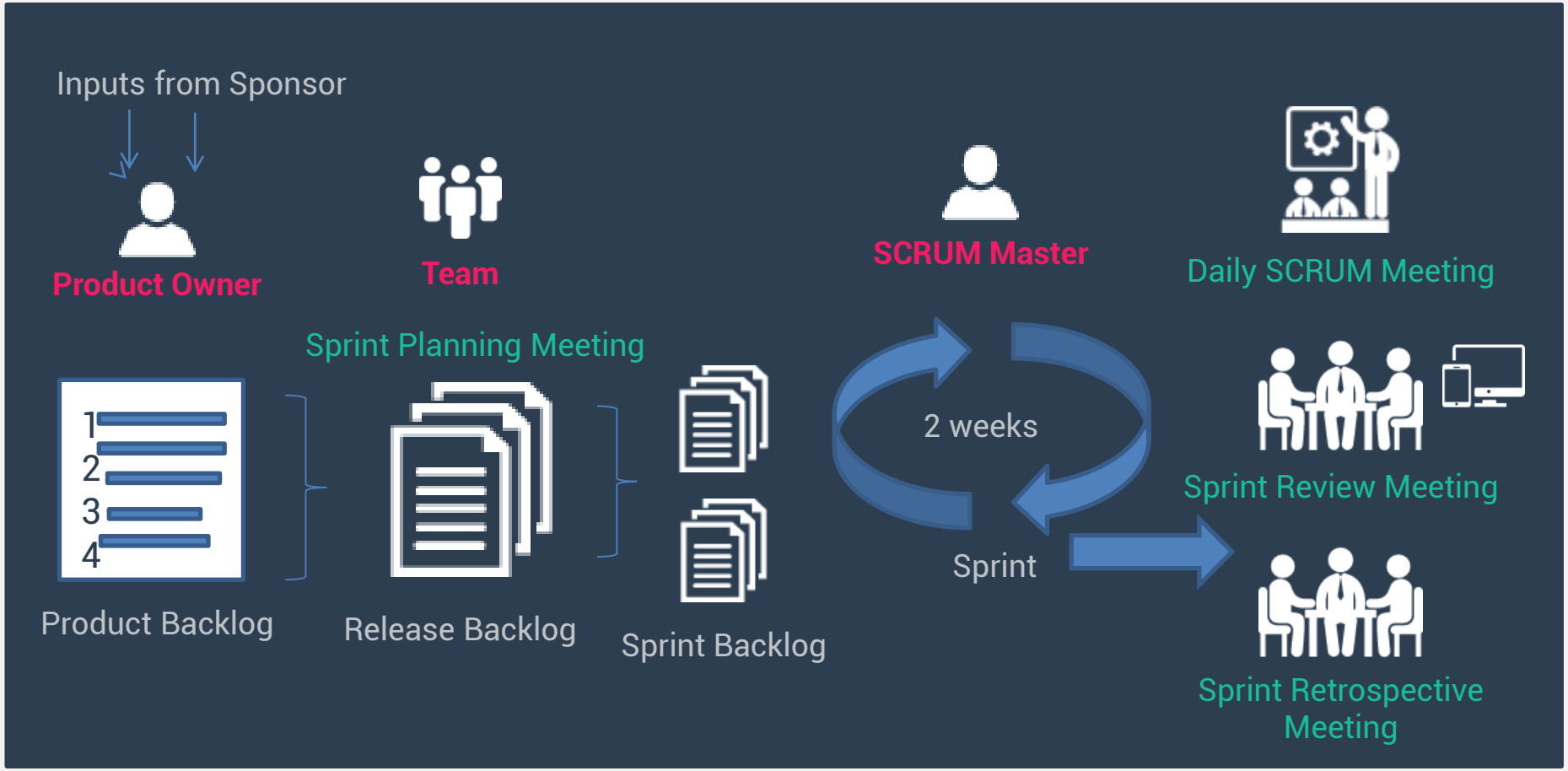


Intuitive to perform different functions in users' day to day operation

PROJECT MANAGEMENT

SIGHT

METHODOLOGY
Scrum



METHODOLOGY
Scrum User Stories

agileWrap

User Story - All User Story
Project: 4Sight

Add User Story | Print View | Export | Import

View By: All User Story ▼ | Reset Filters | Add Child User Story | Delete User Story

Id - Name	Status	Blocke	Est. Pts.	Est. Hrs.	To Do Hrs.	Sprint	Release	Priority	Owner			
20 - Display a list of the next earliest available time slots	To Verify			7.50		Sprint 5		High			5	
21 - Display heat map of appointment schedule	To Verify			4.00		Sprint 5		High			3	
22 - Display a list of the least packed time slots for the subsequent 2 weeks	To Verify			4.50		Sprint 5		High			4	
23 - Add a patient on the waiting list of an appointment time slot	To Verify			11.50		Sprint 5		Medium			4	
24 - Add 2 appointments for the patient, one a confirmed booking and one on the waiting list	To Verify			5.00		Sprint 5		Medium			2	
25 - Notify the admin clerk when a patient could get the time slot on the waiting list	In Progress			12.00		Sprint 5		Medium			4	
26 - Swap the patient's appointment with the preferred time slot on the waiting list	In Progress			16.50		Sprint 5		Medium			7	
27 - Dashboard showing an overview of all the data collected	In Progress			5.00		Sprint 5		Urgent			2	
28 - Graphical representation to measure the effectiveness of various marketing channels	To Verify			24.00		Sprint 5		Urgent			6	
29 - Add customization of data to be displayed on charts	To Verify			10.00		Sprint 5		Urgent			2	
32 - Manage role (CRUD of role)	In Progress			2.50		Sprint 6		Urgent			2	
	In											

METHODOLOGY
Scrum Tasks

agileWrap

Tasks - All Open Tasks

Project: 4Sight

Add Task | Print View | Export | Import

View: All Open Tasks ▼ | Reset Filters

Id	Task	Status	Blocked	Owner	Est. Hrs.	Spent Hrs.	ToDo Hrs.	Due Date	Priority	User Story	Sprint
57	Design form for creating and removing permis	In Progress		Carina Hu	1.00	1.00		11-Aug-2015	Urgent	Manage permission (CRUD of p	Sprint 6
58	Design admin page layout	In Progress		Carina Hu	1.50	1.50		11-Aug-2015	Urgent	Manage role (CRUD of role)	Sprint 6
59	Design form for creating, updating and removi	In Progress		Carina Hu	1.00	1.00		11-Aug-2015	Urgent	Manage role (CRUD of role)	Sprint 6
60	Design form for creating and removing access	In Progress		Carina Hu	1.00	1.00		12-Aug-2015	Urgent	Mange access right (CRUD of a	Sprint 6
61	Design a listbox for displaying all access right	In Progress		Carina Hu	1.00	1.00		12-Aug-2015	Urgent	Mange access right (CRUD of a	Sprint 6
62	Design a listbox for displaying all permissions	In Progress		Carina Hu	1.00	1.00		12-Aug-2015	Urgent	Manage permission (CRUD of p	Sprint 6
63	Design form for creating, updating and removi	In Progress		Carina Hu	1.00	1.00		13-Aug-2015	Urgent	Manage user (CRUD of user)	Sprint 6
64	Design form for assigning, updating user's role	In Progress		Carina Hu	1.50	1.50		13-Aug-2015	Urgent	Manage user's role (CRUD of u	Sprint 6
65	Design a table for displaying all roles created,	New		Carina Hu	1.00		1.00	13-Aug-2015	Urgent	View all roles created	Sprint 6
66	Design a search box	New		Carina Hu	0.50		0.50	13-Aug-2015	High	Search for particular role and us	Sprint 6
67	Design form for assinging user to newly create	New		Carina Hu	2.00		2.00	16-Aug-2015	High	Assign new and existing staffs t	Sprint 6
68	Asynchronous validation to check for existing s	New		Leon Lim	2.00		2.00	16-Aug-2015	High	Assign new and existing staffs t	Sprint 6
69	Automatic population of existing staff details	In Progress		Leon Lim	2.50	1.00	1.50	16-Aug-2015	High	Assign new and existing staffs t	Sprint 6
70	Parsing and posting staff details to the backer	New		Leon Lim	1.00		1.00	19-Aug-2015	High	Assign new and existing staffs t	Sprint 6
71	Front end staff form validation	In Progress		Leon Lim	1.50	1.50		19-Aug-2015	Medium	Assign new and existing staffs t	Sprint 6
72	Process JSON request to create new users in t	In Progress		Sherman Yong	5.00	3.00	2.00	20-Aug-2015	High	Assign new and existing staffs t	Sprint 6

METHODOLOGY
Scrum Taskboard

agileWrap

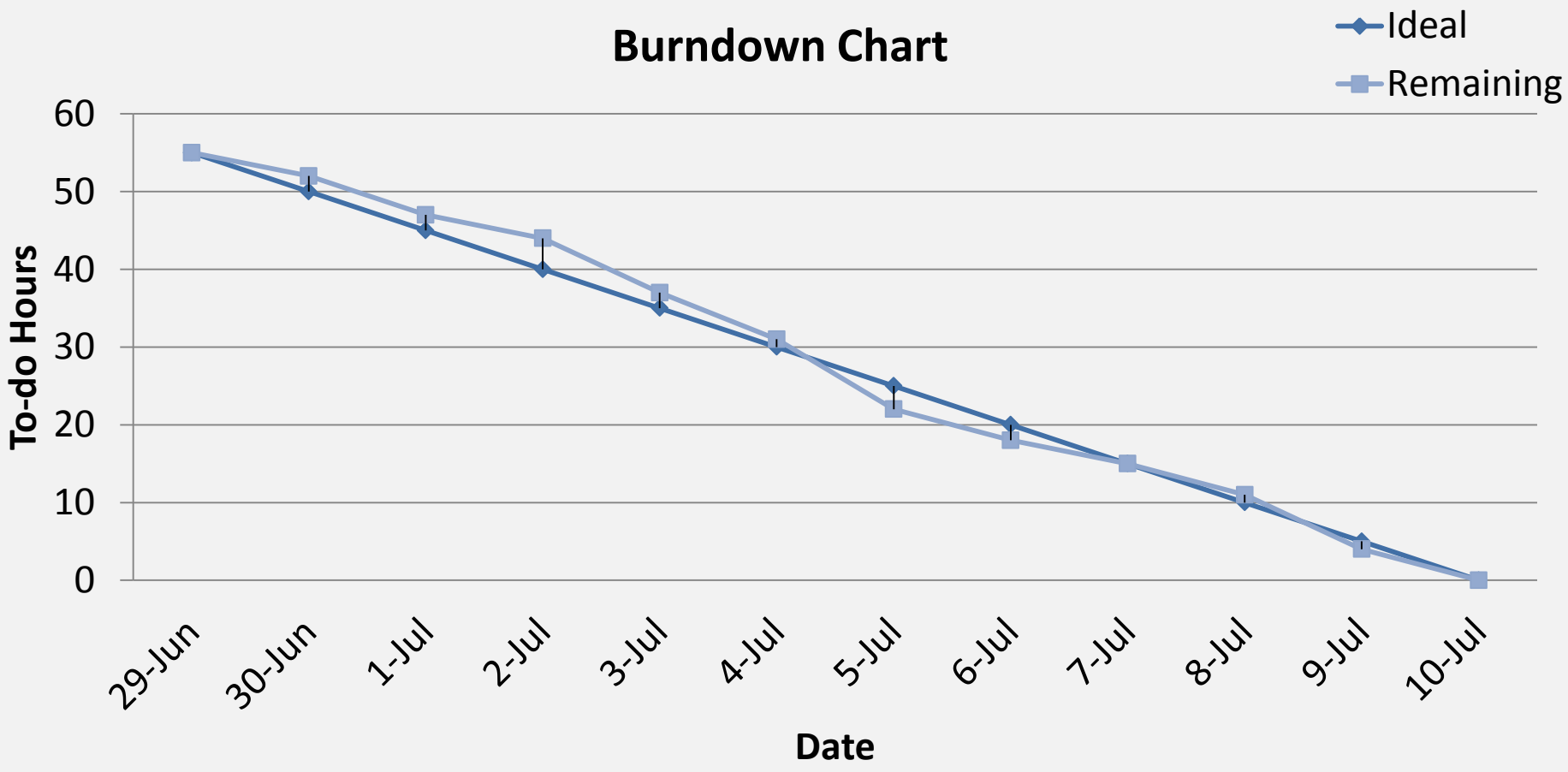
Taskboard

Project: 4Sight

Sprint: Sprint 6 | Owner: ---All--- | Show: Tasks Defects | Filter | Reset | Legend

User Story (13) Plan	New (Tasks & Defects) (17)	In Progress (Tasks & Defects) (17)	To Verify (Tasks & Defects) (0)	Accepted (Tasks & Defects) (0)
32 - Manage role (CRUD of role) 2 0 Est Pts: 0		58 - Design admin page layout C Hu Est Hrs: 1.50 Todo Hrs: 0.00 59 - Design form for creating. C Hu Est Hrs: 1.00 Todo Hrs: 0.00		
33 - Mange access right (CRUD of access right) 2 0 Est Pts: 0		60 - Design form for creating C Hu Est Hrs: 1.00 Todo Hrs: 0.00 61 - Design a listbox for disp C Hu Est Hrs: 1.00 Todo Hrs: 0.00		
34 - Manage permission (CRUD of permission) 2 0 Est Pts: 0		57 - Design form for creating C Hu Est Hrs: 1.00 Todo Hrs: 0.00 62 - Design a listbox for disp C Hu Est Hrs: 1.00 Todo Hrs: 0.00		

METHODOLOGY
Scrum Burndown Chart



PROJECT SCHEDULE

Start Date

End Date

SPRINT

0
18 May
29 May

- Gather Requirements ✓
- Ramp-up Learning ✓

1
1 Jun
12 Jun

- UI Mockup ✓
- Preparation for proposal ✓
- Environment setup ✓

2
15 Jun
26 Jun

- **Proposal** ✓
- **Account Module**
  1. Login/ Logout
  2. Update Settings ✓
- **Appointment Module**
  1. Create Appointment
  2. Update Appointment
  3. Delete Appointment ✓

Milestone	Primary function
UAT	Secondary function
Non-coding task	Tertiary function

PROJECT SCHEDULE

We are here!

Acceptance Presentation

UT 1

Administrative Module
1. Manage Accounts

Review acceptance and project timeline

10 Aug

6

21 Aug

Analytics Module
1. Return of Investment Analysis

13 Jul

4

24 Jul

27 Jul

5

7 Aug

Preparation for acceptance

Intelligent Scheduling
1. Heat Map of Clinic Schedule
2. Suggest Appointment Time Slots
3. Manage Appointment Waiting List

29 Jun

3

10 Jul

Calendar Module
1. Display Calendar
2. Navigate Calendar
3. Search for Appointments
4. Filter for Appointments

PROJECT SCHEDULE

UT 2

User Tracking Module
1. Record user action timings

Analytics Module
1. Survey Results Analysis
2. Dashboard summary and trending
3. Appointment Scheduling Analysis

Review UT 1

24 Aug — **7** — **4 Sep**

Queue Management Module
1. Manage Patient Queue

Notification Module
1. Automated SMS Appointment Reminder
2. Send SMS Appointment Cancellation
3. Send SMS Swap Confirmation
4. Receive SMS to Swap Appointment
5. Survey Task Notification via Email

7 Sep — **8** — **18 Sep**

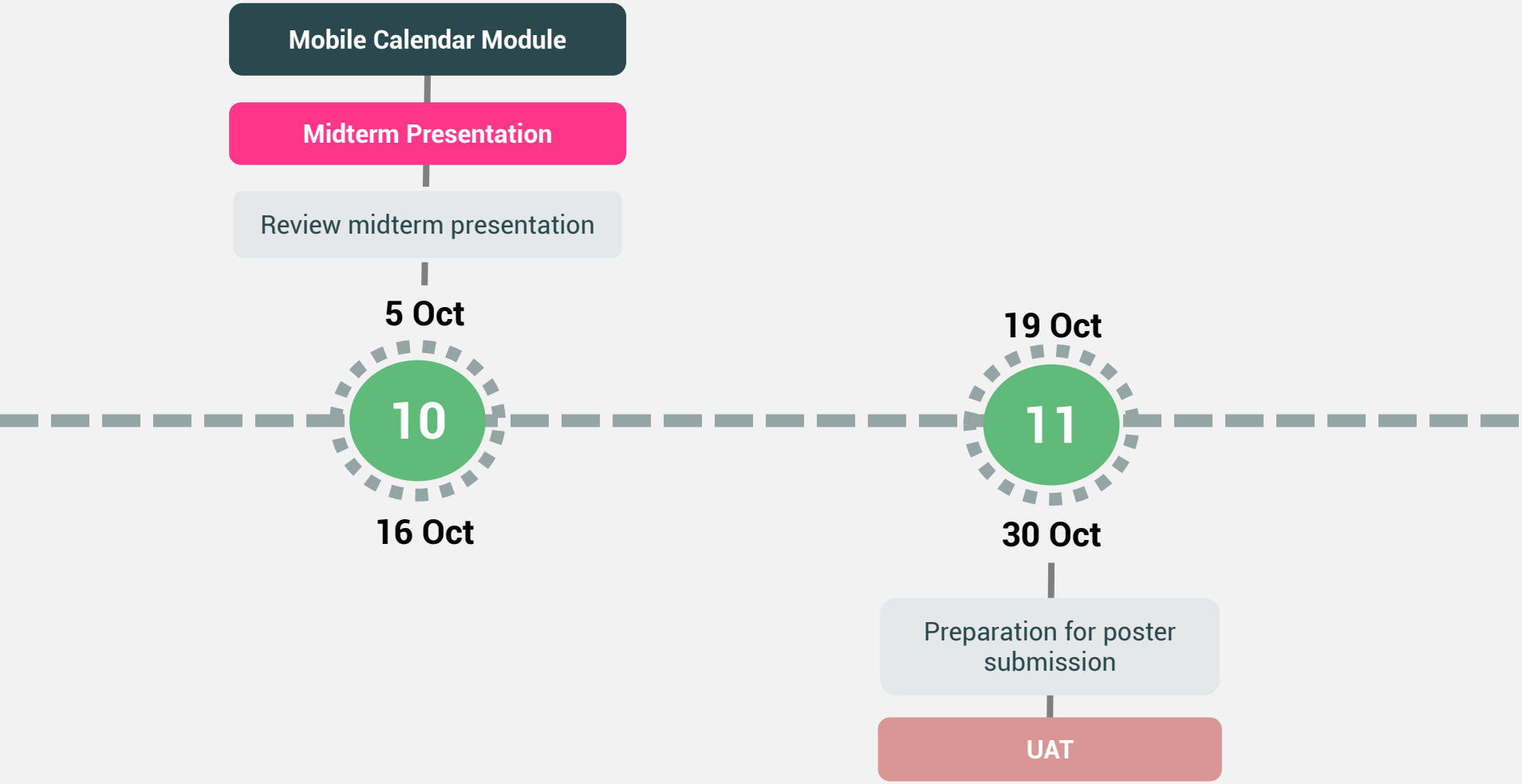
21 Sep — **9** — **2 Oct**

Prepare for midterm presentation

Administrative Module
1. Customization Setting
2. Clinic Expansion Module

Deployment

PROJECT SCHEDULE



PROJECT SCHEDULE

Poster Submission

Preparation for Final Presentation

Review UT 2

2 Nov

12

13 Nov

16 Nov

13

27 Nov

Prepare for Poster Day

Final Presentation

Poster Day

30 Nov

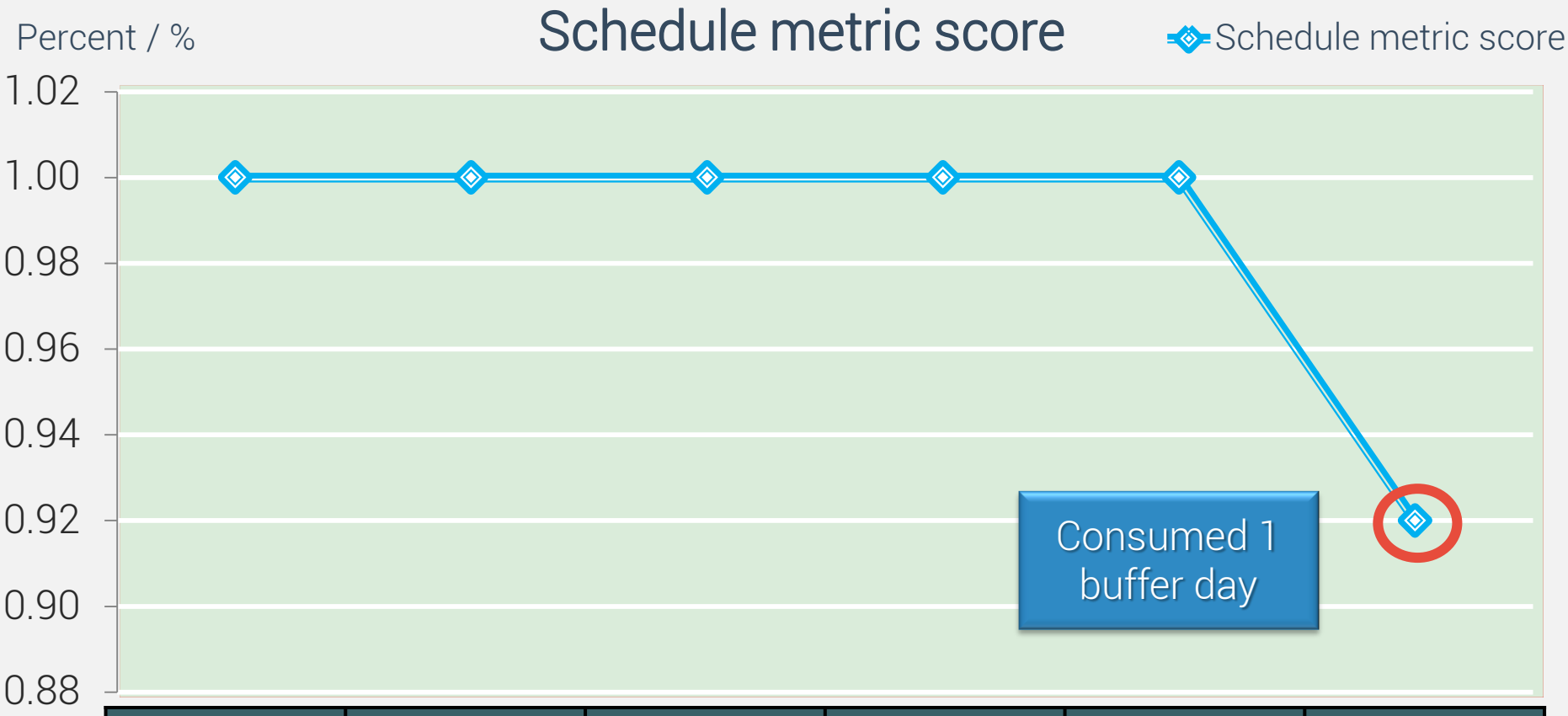
14

3 Dec

METRICS
Schedule

Schedule Metric (Total Estimated Days/Total Actual Days)	
Score	**Action**
Metric < 0.5	1. Inform supervisor and sponsor about the slip 2. Investigate causes of deviation 3. Consider shifting tasks to later sprint or dropping some of the tasks 4. Evaluate product backlog and task breakdown for subsequent sprints. Re-estimate the time for certain tasks if needed
0.5 < Metric <= 0.9	1. Schedule incomplete tasks into buffer time 2. Investigate causes of deviation 3. Consider shifting back tasks to later sprint or dropping some of the tasks 4. Evaluate product backlog and task breakdown for subsequent sprints. Re-estimate the time for certain tasks if needed
0.9 < Metric <= 1.1	Our estimates are fairly accurate, and we are roughly on track
1.1 < Metric <= 1.5	1. Allocate more time for sprint retrospective/ review meeting and testing 2. Investigate causes of deviation 3. Evaluate product backlog and task breakdown for subsequent sprints. Re-estimate the time for certain tasks if needed
Metric > 1.5	1. Inform supervisor and sponsor about the slip 2. Allocate more time for sprint retrospective/ review meeting and testing 3. Investigate causes of deviation 4. Evaluate product backlog and task breakdown for subsequent sprints. Re-estimate the time for certain tasks if needed

METRICS
Schedule

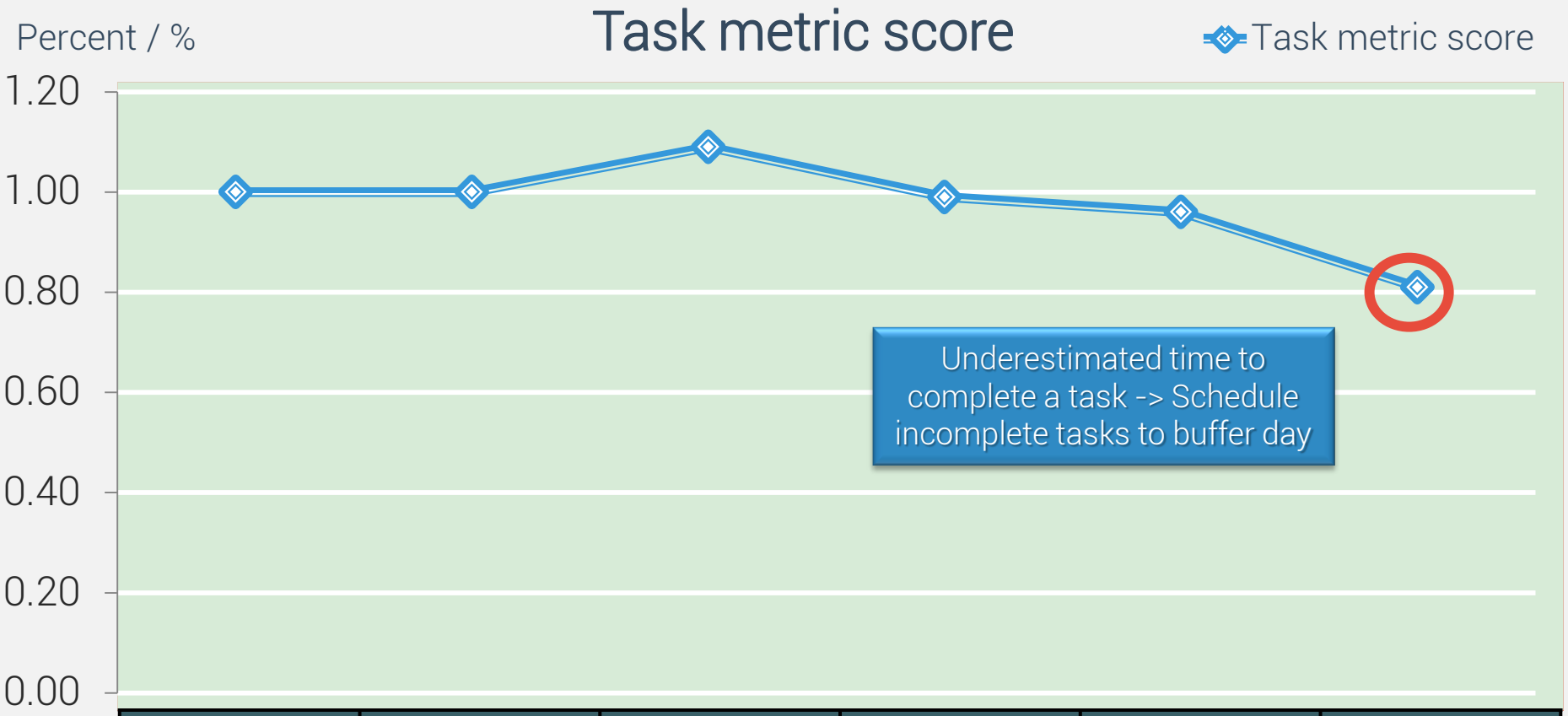


Sprint 0	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5
1.00	1.00	1.00	1.00	1.00	0.92

METRICS
Task

Task Metric (Total Estimated Hours / Total Spent Hours)	
Score	**Action**
Metric < 0.5	1. Inform supervisor and sponsor about the slip 2. Investigate causes of deviation 3. Consider shifting tasks to later sprint or dropping some of the tasks 4. Evaluate product backlog and task breakdown for subsequent sprints. Re-estimate the time for certain tasks if needed
0.5 < Metric <= 0.9	1. Schedule incomplete tasks into buffer time 2. Investigate causes of deviation 3. Consider shifting back tasks to later sprint or dropping some of the tasks 4. Evaluate product backlog and task breakdown for subsequent sprints. Re-estimate the time for certain tasks if needed
0.9 < Metric <= 1.1	Our estimates are fairly accurate, and we are roughly on track
1.1 < Metric <= 1.5	1. Allocate more time for sprint retrospective/ review meeting and testing 2. Investigate causes of deviation 3. Evaluate product backlog and task breakdown for subsequent sprints. Re-estimate the time for certain tasks if needed
Metric > 1.5	1. Inform supervisor and sponsor about the slip 2. Allocate more time for sprint retrospective/ review meeting and testing 3. Investigate causes of deviation 4. Evaluate product backlog and task breakdown for subsequent sprints. Re-estimate the time for certain tasks if needed

METRICS
Task



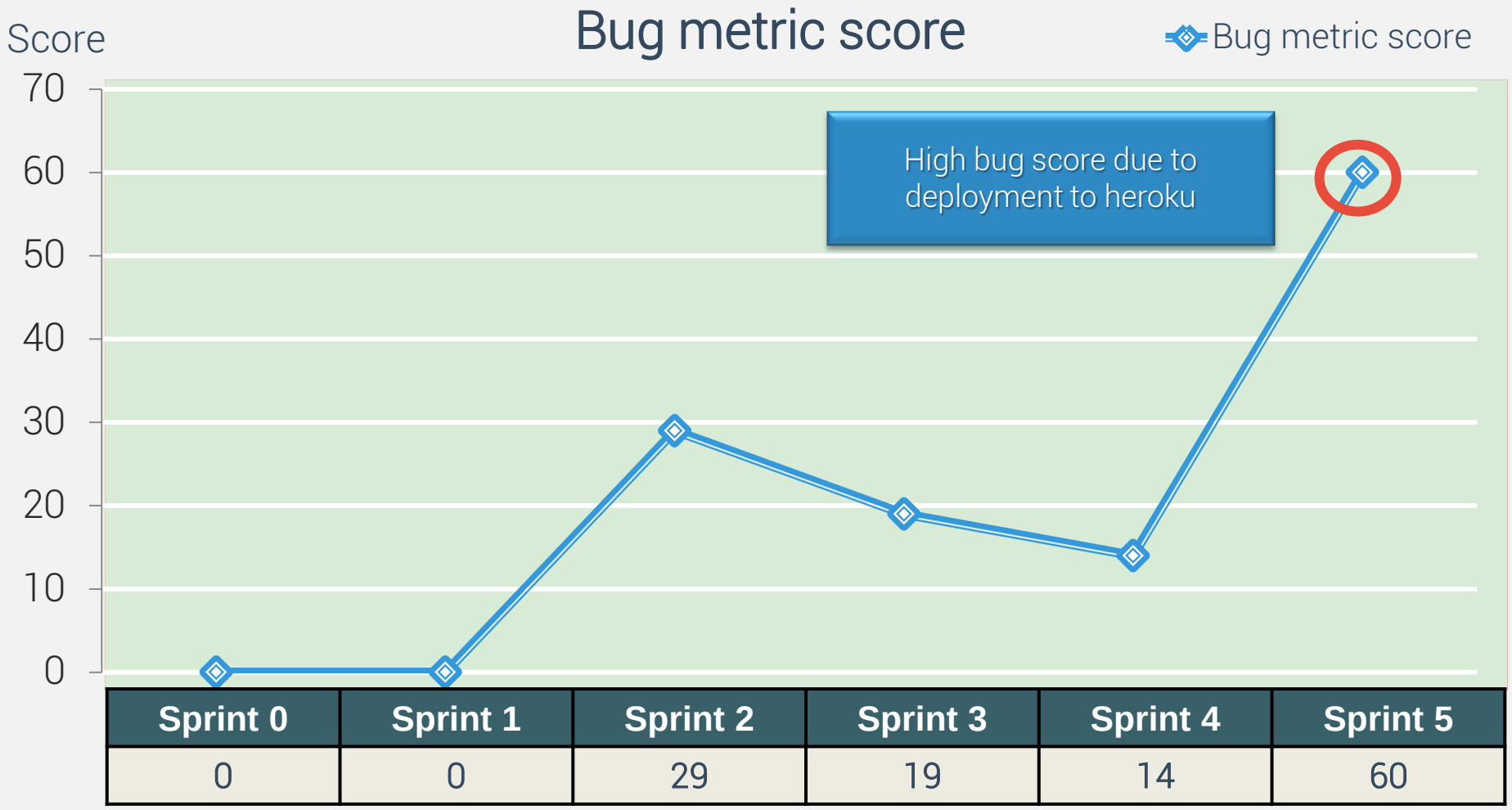
Sprint 0	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5
1.00	1.00	1.09	0.99	0.96	0.81

METRICS
Bug

Bug Metric Score = Severity x Priority

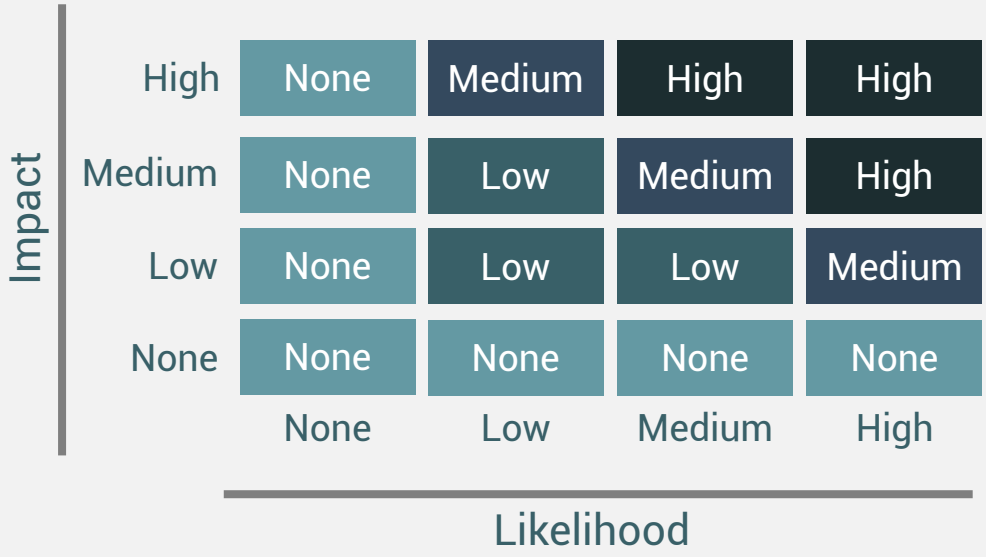
Score	Action
Metric < 100	1. Use the planned debugging time in the iteration. 2. Make use of buffer time at the end of the sprint to debug
Metric >= 100	Team has to stop all current development and resolve the bug immediately

METRICS
Bug



Sprint 0	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5
0	0	29	19	14	60

RISK MANAGEMENT
Risk Scale



- Risks categorise as **high** require urgent attention. They are high in impact level and high in probability of occurrence. Crafting of the mitigation plans have to be well analyzed and developed
- Risks categorise as **medium** require moderate attention. They have a medium impact level and occur on an occasional basis
- Risks categorise as **low** require the least attention. They have a low impact level and occasionally or rarely occur
- Risks categorise as **none** require no attention

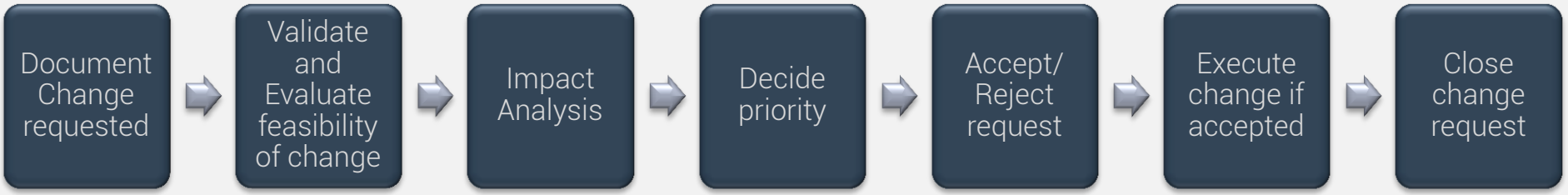
RISK MANAGEMENT

Risk Type	Risk Statement	Consequence	Likelihood	Impact	Mitigation Strategy
Technical Risk	Team member is unfamiliar with the new technologies/languages used such as: django framework, python, angularJS and C3.JS.	1. Disruption to progress 2. Unduly stress to team member	High	High	1. Team members to pick up skill as soon as possible, preferably before coding task. 2. Lead Developer to coach team member where possible. 3. Conduct group learning and sharing

RISK MANAGEMENT

Risk Type	Risk Statement	Consequence	Likelihood	Impact	Mitigation Strategy
Project Management Risk	Insufficient users to conduct testing	Potential problem of not being able to complete a full User Testing. Data collected might not be accurate due to small user pool	High	High	Coordinate in advance with Clearvision stakeholders so that they have ample time to gather relevant users for our User Testing, such as involving nurses and optometrists from other Clearvision clinics.
Project Management Risk	Risk of scope creep as project progresses	Project schedule delays	Medium	High	1. Any proposed change request is to go through the change management process 2. Regular app demos to sponsors in order to reduce change in scope

CHANGE MANAGEMENT
The Process



Sprint	Date	Change Description	Reason of Change	Change Feasibility	Priority Index	Accept/ Reject	Reason for accepting/ rejecting	Action	Status
4	22/7/ 2015	Separate Clearvision and Mount Elizabeth appointmen t schedule	This would help facilitate viewing of respective clinic's schedule. In addition, it provides greater visibility of appointments of clinics which require collaboration.	Add new tabs to separate both views	3	Accept	Accepting the request would not affect the project schedule	Added a new user story into the backlog. To be scheduled in subsequent sprint.	In Progre ss

THE TEAM

SIGHT

LEARNING OUTCOMES

AMABEL LAU

Working with a client requires us to think promptly and adapt to changes. Hence, I wish to be able to better manage the project and various stakeholders expectation through exposing myself to a full project lifecycle.

As an UI developer, it requires me to dive deep into the various front end technologies, such as angular js, javascript and css. Through this learning journey, I hope to be well versed in front end development using these technologies.

CARINA HU

LEARNING OUTCOMES

I have learnt the intricacies of managing our client and any changes in the business requirements

LEON LIM

I have learnt to prioritise my time. Given the scale of the project and the various tools utilized, I had to pioritize some of the deliverables, sometimes at the expense of others, due to dependencies. However, I'm glad we managed to pull through.

SHERMAN YONG

THANK YOU!