

MICHIGAN STATE

U N I V E R S I T Y

Project Plan

Resident Physician Tracking

The Capstone Experience

Team Spectrum Health

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*From Students...
...to Professionals*

Functional Specifications

- Android and iOS app for residents to record shift times
- Shift from hand-written time sheet
- Notifications when approaching shift time limits
- Web portal for Resident Coordinator to view and export resident shift times for auditing purposes



Design Specifications

- Mobile apps
 - Manual time entry screen
 - Automatic timer screen
- Web Portal
 - Used by Resident Coordinator
 - View resident shift times in a table format
 - Export data to a CSV file for auditing purposes



Screen Mockup: Android

Resident Tracking

Start

Dec	28	2016
Jan	29	2017
Feb	30	2018
8	49	AM
9	:	50
10	51	PM

Stop

Dec	28	2016
Jan	29	2017
Feb	30	2018
8	49	AM
9	:	50
10	51	PM

Reset Submit

Resident Tracking

01/25/2017

Start 11:15 PM

Duration 00:00

START

Restrictions

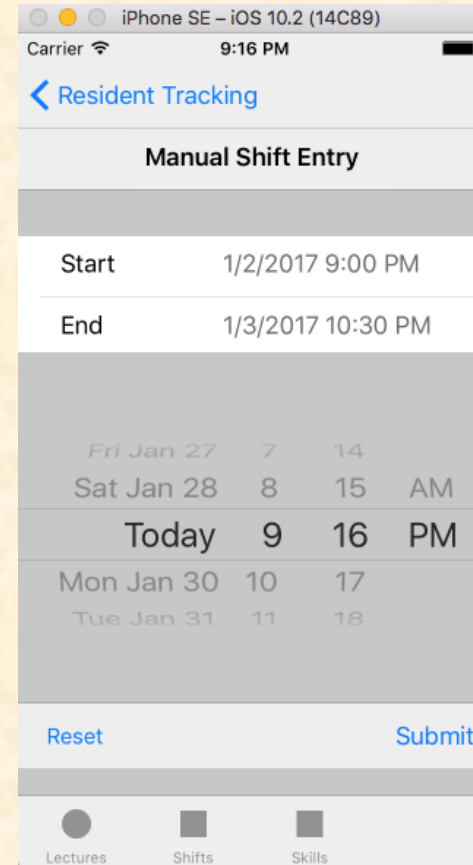
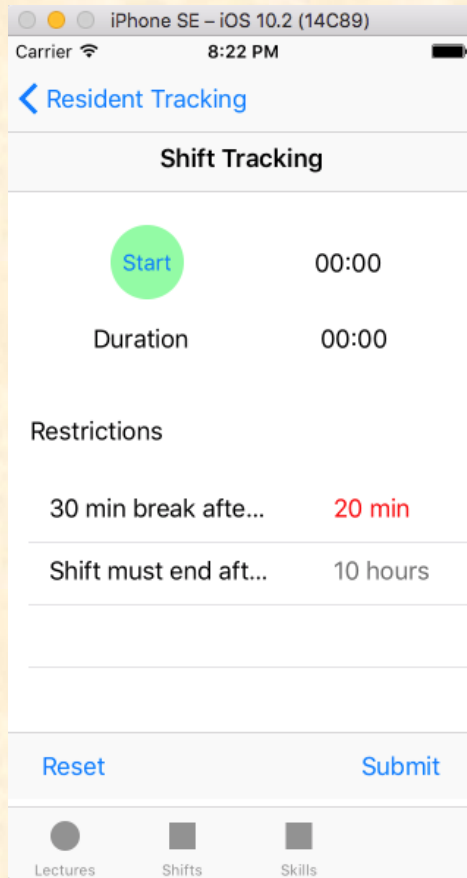
30 min break after **20 min**

Shift must end after **10 hours**

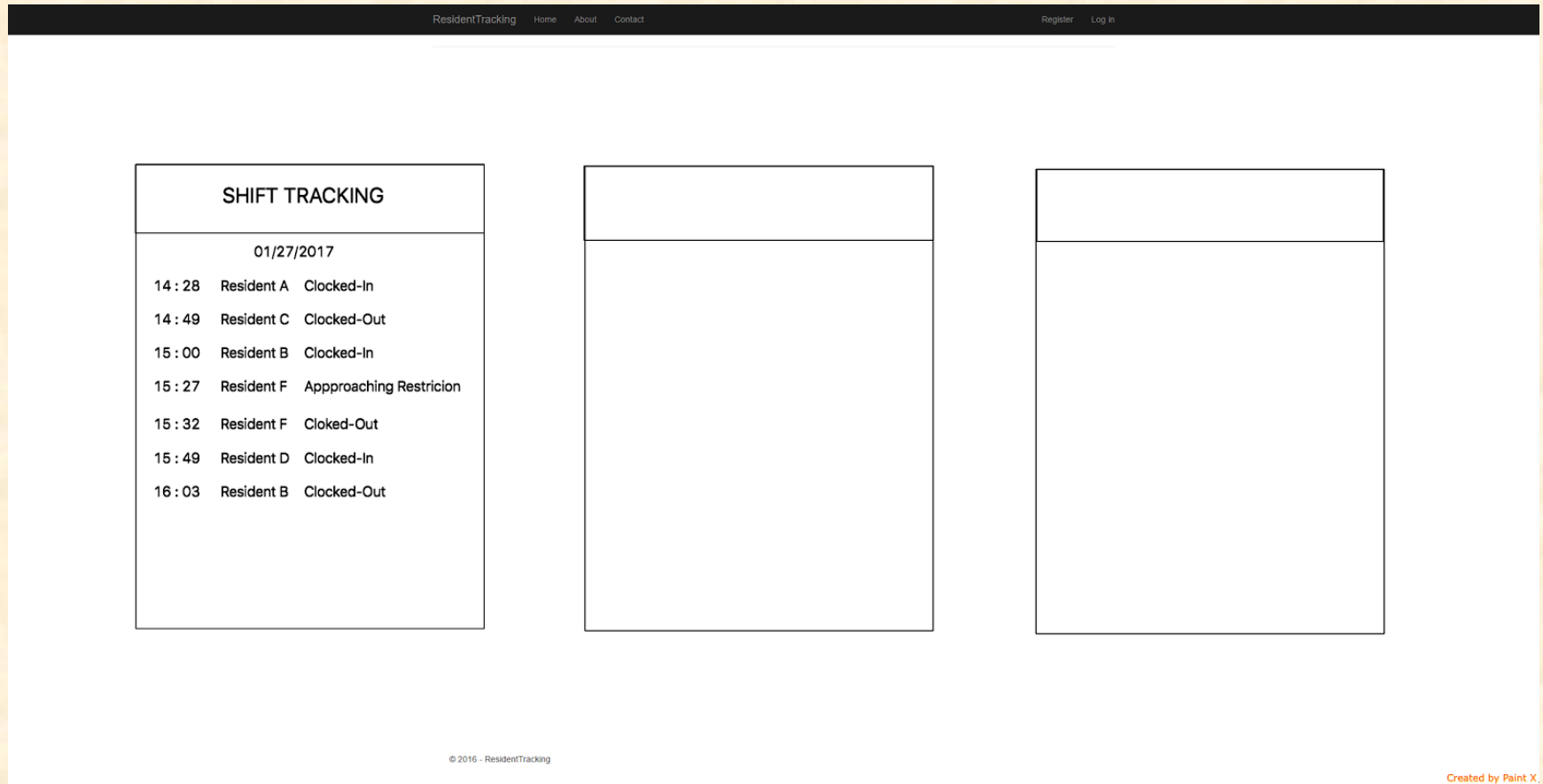
RESET SUBMIT



Screen Mockup: iOS



Screen Mockup: Admin Portal Home Page



Screen Mockup: Admin Portal Shift Tracking Page

ResidentTracking Home About Contact Register Log In

SHIFT TRACKING find residents

Name	Last Clock-In	In / Out
Resident A	9 : 21	Out
Resident B	16 : 49	In
Resident C	12 : 30	In
Resident D	14 : 23	In
Resident E	8 : 46	Out
Resident F	17 : 55	In
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Screen Mockup: Admin Portal Resident Page

ResidentTracking Home About Contact Register Log In

Resident A
Period From To
Total Shift Time :

In	Out	Hours Elapsed

Export

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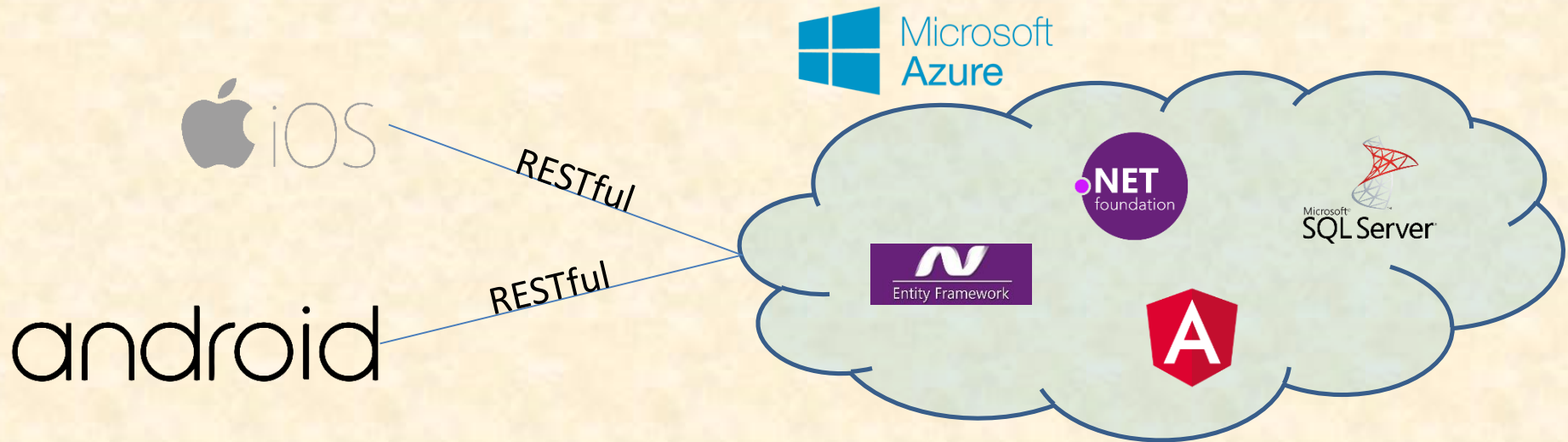
Created by Paint X.

Technical Specifications

- Microsoft Azure instance to host
 - The API
 - Microsoft SQL Server Database
 - Admin portal website
- API built using
 - .NET Core Application in C#
 - Entity Framework Core
- Admin portal
 - ASP.NET Core MVC application
 - Angular 2
- Mobile apps interact with the API via RESTful services



System Architecture



System Components

- Hardware Platforms
 - Microsoft Azure
- Software Platforms / Technologies
 - API
 - C#, .NET Core, Entity Framework
 - Visual Studio 2015
 - Mobile apps
 - Java - Android Studio
 - Swift – Xcode
 - Native
 - Admin Portal
 - cshtml, AngularJS 2.0
 - Visual Studio 2015
 - Version control
 - GitHub
 - Issue Tracking
 - ZenHub



Testing

- Junit – Android/ Java
- XCTest – Swift/ iOS
- Unit testing – C#/ API



Risks

- Risk 1
 - Open ended design process for product
 - Create frequent mock-ups and communicate frequently with client contact and Resident Coordinator
- Risk 2
 - Simultaneously developing same application and contributing to the same code base
 - Strict code reviews and version control
 - Naming standard for branches and commits
 - Pull requests
- Risk 3
 - Consistency across the app for UI/UX when having 3 teams designing 3 different set of features
 - Communication between teams and client
 - Setup for Android, iOS, and web portal UI assigned to a certain team



Questions?

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