T.R.A.I.L.E.S
Trip Registration and Innovative Limited-Space Event Scheduling

First Semester Presentation
Thursday, December 5th, 2019

Mason Pierce
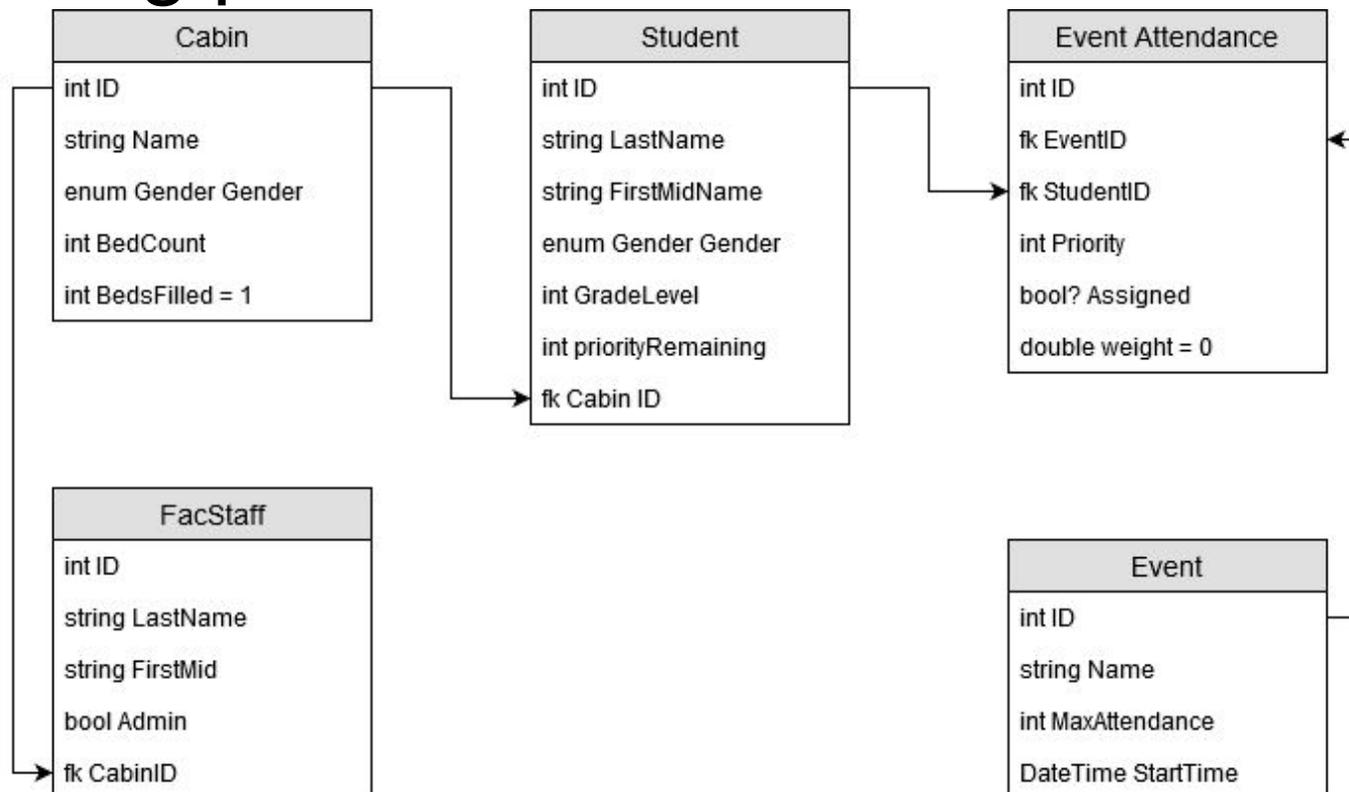David Porter
Avery Raines

What's New?

- Refactored Web Application
    - Student, Event, Cabin, FacStaff, and Event Attendance models, controllers, and views
- Event Signup, Event Scheduler/Assigner
- Journal Entry and Front End
- Bluetooth Messaging

Refactor

- Old models and code were poorly implemented

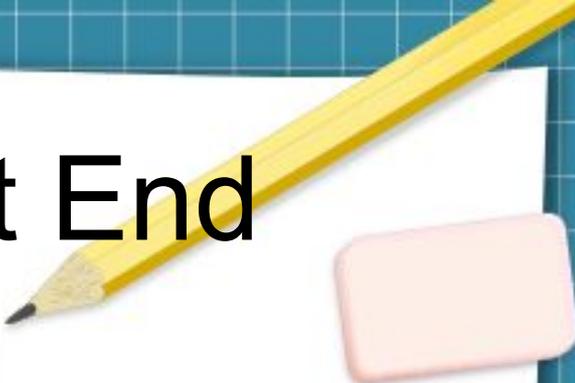- Decided to make a nicer data structure for scheduling process.

Cabin
int ID
string Name
enum Gender Gender
int BedCount
int BedsFilled = 1

Student
int ID
string LastName
string FirstMidName
enum Gender Gender
int GradeLevel
int priorityRemaining
fk Cabin ID

Event Attendance
int ID
fk EventID
fk StudentID
int Priority
bool? Assigned
double weight = 0

FacStaff
int ID
string LastName
string FirstMid
bool Admin
fk CabinID

Event
int ID
string Name
int MaxAttendance
DateTime StartTime

Event Signup and Scheduling

DEMO

Journal Entry and Front End

```
function saveEdits(){
    var editElem = document.getElementById("edit");

    var userVersion = editElem.innerHTML;

    localStorage.userEdits = userVersion;

    document.getElementById("update").innerHTML="Notes Saved!"



function checkEdits() {
    if(localStorage.userEdits!=null) {
        document.getElementById("edit").innerHTML=localStorage.userE
    }
}
```
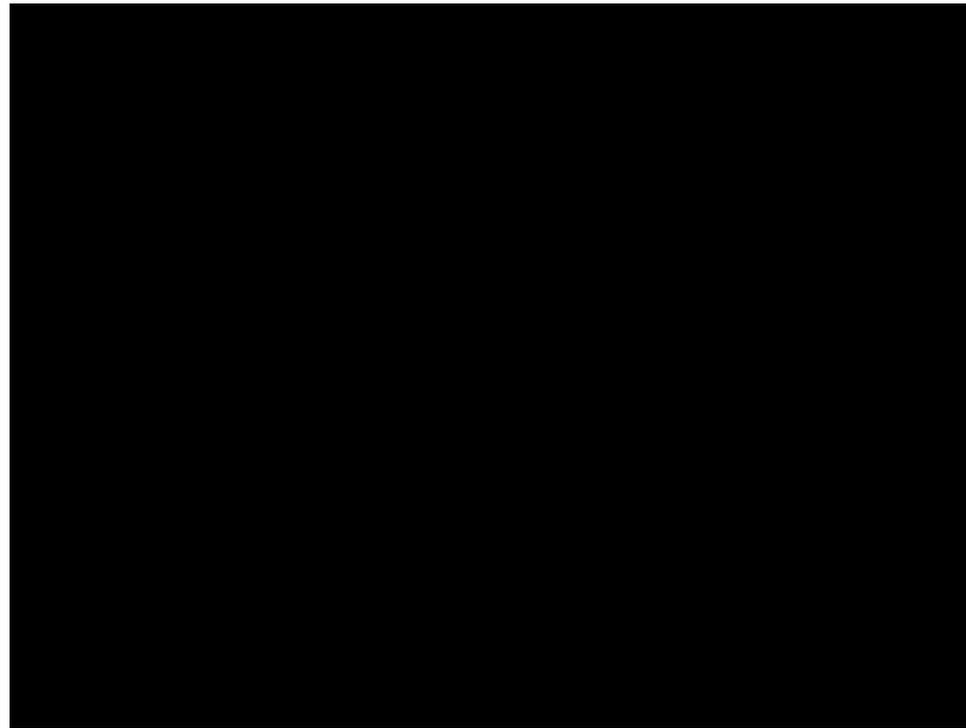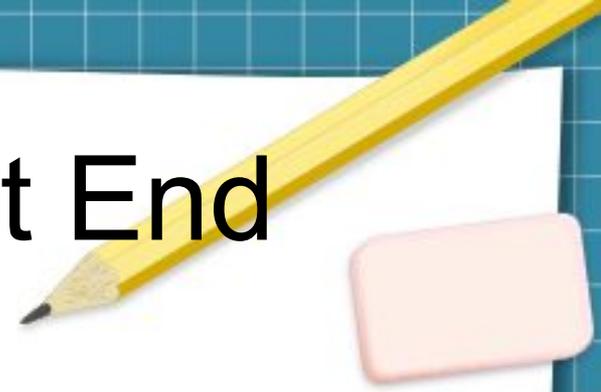
```
<body onload="checkEdits()">
```

Journal Entry and Front End

Bluetooth Messaging

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple//DTD PLIST 1.0//EN" "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
    <key>CFBundleDevelopmentRegion</key>
    <string>en</string>
    <key>CFBundleExecutable</key>
    <string>$(EXECUTABLE_NAME)</string>
    <key>CFBundleIdentifier</key>
    <string>$(PRODUCT_BUNDLE_IDENTIFIER)</string>
    <key>CFBundleInfoDictionaryVersion</key>
    <string>6.0</string>
    <key>CFBundleName</key>
    <string>$(PRODUCT_NAME)</string>
    <key>CFBundlePackageType</key>
    <string>APPL</string>
    <key>CFBundleShortVersionString</key>
    <string>1.0</string>
    <key>CFBundleVersion</key>
    <string>1</string>
    <key>LSRequiresIPhoneOS</key>
    <true/>
    <key>UILaunchStoryboardName</key>
    <string>LaunchScreen</string>
    <key>UIMainStoryboardFile</key>
    <string>Main</string>
    <key>UIRequiredDeviceCapabilities</key>
    <array>
        <string>armv7</string>
    </array>
    <key>UIRequiresFullScreen</key>
    <true/>
    <key>UISupportedInterfaceOrientations</key>
    <array>
        <string>UIInterfaceOrientationPortrait</string>
    </array>
    <key>UISupportedInterfaceOrientations~ipad</key>
    <array>
        <string>UIInterfaceOrientationPortrait</string>
        <string>UIInterfaceOrientationPortraitUpsideDown</string>
    </array>
</dict>
</plist>
```

Bluetooth Messaging

```
<!--TRAILES Chat-->
<scene sceneID="ICt-bz-slO">
    <objects>
        <viewController storyboardIdentifier="BLECentralViewController" automaticallyAdjustsScrollViewInsets="NO" id="s6h-Zo-tC7" customClass="BLECentralViewController" customModule="Basic_Chat"
            <layoutGuides>
                <viewControllerLayoutGuide type="top" id="LSv-z8-Zyp"/>
                <viewControllerLayoutGuide type="bottom" id="cCu-cf-R0b"/>
            </layoutGuides>
            <view key="view" contentMode="scaleToFill" id="MOw-Ty-hJr">
                <rect key="frame" x="0.0" y="0.0" width="768" height="1024"/>
                <autoresizingMask key="autoresizingMask" widthSizable="YES" heightSizable="YES"/>
                <subviews>
                    <tableView clipsSubviews="YES" contentMode="scaleToFill" alwaysBounceVertical="YES" dataMode="prototypes" style="plain" separatorStyle="default" rowHeight="98" sectionHeaderHe
                        <rect key="frame" x="0.0" y="64" width="768" height="960"/>
                        <color key="backgroundColor" white="1" alpha="1" colorSpace="calibratedWhite"/>
                        <prototypes>
                            <tableViewCell clipsSubviews="YES" contentMode="scaleToFill" selectionStyle="default" indentationWidth="10" reuseIdentifier="BlueCell" rowHeight="98" id="LJh-m2-NaE" c
                                <rect key="frame" x="0.0" y="28" width="768" height="98"/>
                                <autoresizingMask key="autoresizingMask"/>
                                <tableViewCellContentView key="contentView" opaque="NO" clipsSubviews="YES" multipleTouchEnabled="YES" contentMode="center" tableViewCell="LJh-m2-NaE" id="AK0-A7-R
                                    <rect key="frame" x="0.0" y="0.0" width="768" height="97.5"/>
                                    <autoresizingMask key="autoresizingMask"/>
                                    <subviews>
                                        <label opaque="NO" userInteractionEnabled="NO" contentMode="left" horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES" text="RSSI
                                            <rect key="frame" x="14" y="52" width="120" height="21"/>
                                            <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" flexibleMaxY="YES"/>
                                            <fontDescription key="fontDescription" type="system" pointSize="17"/>
                                            <color key="textColor" red="0.0" green="0.50196081400000003" blue="1" alpha="1" colorSpace="calibratedRGB"/>
                                            <nil key="highlightedColor"/>
                                        </label>
                                        <label opaque="NO" userInteractionEnabled="NO" contentMode="left" horizontalHuggingPriority="251" verticalHuggingPriority="251" fixedFrame="YES" text="Peri
                                            <rect key="frame" x="14" y="23" width="291" height="21"/>
                                            <autoresizingMask key="autoresizingMask" flexibleMaxX="YES" flexibleMaxY="YES"/>
                                            <fontDescription key="fontDescription" type="system" pointSize="17"/>
                                            <color key="textColor" red="0.0" green="0.50196081400000003" blue="1" alpha="1" colorSpace="calibratedRGB"/>
                                            <nil key="highlightedColor"/>
                                        </label>
                                    </subviews>
                                </tableViewCellContentView>
                                <connections>
                                    <outlet property="peripheralLabel" destination="Owd-Uc-DEI" id="NrB-Zn-JsO"/>
                                    <outlet property="rssiLabel" destination="OwW-qX-zLz" id="R3R-b1-YlY"/>
                                </connections>
                            </tableViewCell>
                        </prototypes>
                        <connections>
```

Bluetooth Messaging

```
//
//   UUIDKey.swift
//   TRAILES Chat
//
//   Created by Avery Raines on 12/1/19.
//   Copyright © 2019 Avery Raines. All rights reserved.
//

import CoreBluetooth
//Uart Service uuid


let kBLEService_UUID = "6e400001-b5a3-f393-e0a9-e50e24dcca9e"
let kBLE_Characteristic_uuid_Tx = "6e400002-b5a3-f393-e0a9-e50e24dcca9e"
let kBLE_Characteristic_uuid_Rx = "6e400003-b5a3-f393-e0a9-e50e24dcca9e"
let MaxCharacters = 20

let BLEService_UUID = CBUUID(string: kBLEService_UUID)
let BLE_Characteristic_uuid_Tx = CBUUID(string: kBLE_Characteristic_uuid_Tx)//(Property = Write without response)
let BLE_Characteristic_uuid_Rx = CBUUID(string: kBLE_Characteristic_uuid_Rx)// (Property = Read/Notify)
```

UUID for iOS to recognize Bluetooth functionality
Defined in the CBUUID Class

Bluetooth Messaging

Bluetooth
stuff!

iOS has a
library called
CoreBluetooth
that provides
many tools for
our use

```swift
//
//  BLECentralViewController.swift
//  TRAILES Chat
//
//  Created by Avery Raines on 11/29/19.
//  Copyright © 2019 Avery Raines. All rights reserved.
//

import Foundation
import UIKit
import CoreBluetooth


var txCharacteristic : CBCharacteristic?
var rxCharacteristic : CBCharacteristic?
var blePeripheral : CBPeripheral?
var characteristicASCIIValue = NSString()



class BLECentralViewController : UIViewController, CBCentralManagerDelegate, CBPeripheralDelegate,

    //Data
    var centralManager : CBCentralManager!
    var RSSIs = [NSNumber]()
    var data = NSMutableData()
    var writeData: String = ""
    var peripherals: [CBPeripheral] = []
    var characteristicValue = [CBUUID: NSData]()
    var timer = Timer()
    var characteristics = [String : CBCharacteristic]()

    //UI
    @IBOutlet weak var baseTableView: UITableView!
    @IBOutlet weak var refreshButton: UIBarButtonItem!

    @IBAction func refreshAction(_ sender: AnyObject) {
        disconnectFromDevice()
        self.peripherals = []
        self.RSSIs = []
        self.baseTableView.reloadData()
        startScan()
    }

    override func viewDidLoad() {
        super.viewDidLoad()
        self.baseTableView.delegate = self
        self.baseTableView.dataSource = self
```

What's Done?

Week of Completion	Goal
10/07	Development environments and tech stack training completed.
10/14	Basic Application built and database working with a model and controller. Views display and call controller correctly.
10/28	Cabin selection functionality completed.
11/18	Finished design of event scheduling process, redesign of data model to accompany the process began.
12/02	Refactor complete. Event signup complete. Event scheduler "work" with the first event, but none of the rest.

What's to Come?

Week of Completion	Goal
01/27	User Authentication/Recognition, Administrative features, Schedule builder fully functional, Bluetooth messaging functional.
03/02	Peer-to-Peer Bluetooth Communication/Messaging fully functional.
04/06	Messaging service complete. Front-end polishing/integration begins. Major bugs with backend fixed. Begin Final Presentation prep.
05/04	Front-end looking good, noticeable bugs fixed. Final Presentation ready.