System Tests

4.1 User Side Functionalities

4.1.1 The system should allow them to create an account.

Importance: High

Test Case:

Input	Expected Output	Actual Output
UserId: "972821010"	Account Successfully Created Send text message containing userId to the phone number entered	Account Successfully Created Text is sent containing userId
UserId: "user1"	PSU id must be only 9 digits!	PSU id must be only 9 digits!
(after first login input) username: "972821010"	Sorry that ID already exists. Please sign in!	Sorry that ID already exists. Please sign in!

4.1.2 The system should allow them to log into the web app.

Importance: High

Dependencies: 4.1.1

Test Case:

Input	Expected Output	Actual Output
User: "972821010"	Logged in.	User Logged in
User: "user1"	Unsuccessful login attempt. Username doesn't exist.	Please register for an Account.

4.1.3 This system should allow users to reserve, leave, or report issues on a spot.
Must set ID first.
Importance: Medium
Dependencies: 4.1.1, 4.1.2
Test Case:

Input	Expected Output	Actual Output
Reserve check clicked on lot 'D'	Reserved Lot: D Admin Page: Reservation Count increased by 1 for Spot D Total Reservation Count increased by 1 Capacity decreased by 1	Reserved Lot: D Admin Page: Reservation Count increased by 1 for Spot D Total Reservation Count increased by 1 Capacity decreased by 1
Cancel x button clicked on lot 'D'	Exited Lot: D Admin Page: Capacity increased by 1	Exited Lot: D Admin Page: Capacity increased by 1
Report Issue button clicked.	Modal popup Issue shows up on Admin page, user can enter details to pop up form such as: License plate no and model	Modal popup: "Please provide some details" Issue shows up on Admin page, with entered information

4.1.4 The system should allow the user to get their Id when Forgotten.
Importance: Low
Dependencies: 4.1.1, 4.1.2
Test Case:

Input	Expected Output	Actual Output
Enter Phone Num: '123456789'	User Id has been sent to your phone	User ID sent successfully!
Enter Phone Num: '123456'	No ID found!	Sorry, No matching ID found for entered number. Please try another number

Enter Phone Num: '1re23456'	Invalid Phone Number	

4.1.5 The system should allow the users to add money in their account.
Importance: Medium
Dependencies: 4.1.2, 4.2.3
Test Case:

Input	Expected Output	Actual Output
User enters ID:972821010 User enters amount: 12	User balance is increased by the amount given.	"Payment received" Add $12 to the user's balance.
User enters Invalid Id	'Id not valid"	Please enter a valid ID
User enters invalid amount (negative)	Error, amount can't be negative	"Value must be greater than or equal to 0"
User enters invalid amount (greater than 999)	Error, amount cant be greater than 999.	"Value must be less than or equal to 999"

4.1.6 The system should allow users to enter the amount of time they would like to reserve
Importance: Medium
Dependencies: 4.1.1, 4.1.2
TestCase:

Input	Expected Output	Actual Output
User enters a numeric digit 1	Reservation time set to 1 User Sent confirmation text	Reservation time set to 1 User Sent confirmation text
User enters -1	Error, time must be greater than 0.	Prints "Please enter a valid tim"'

4.1.7 The system should allow users to check-out of the lot as they exit.
Importance: High
Dependencies: 4.1.2, 4.2.5
Test Case:

Input	Expected Output	Actual Output
User scans QR code at the exit gate. Enters their UserId: "fasdfs" [Invaid ID]	Rejects Check-out	Rejects Check-out
User scans QR code at the exit gate. Enters their UserId: "972821010" [Valid ID] Reserved at rate of $10/hr Spent 1 hr	User is checked out. Their status value in the db becomes 0. They can once again reserve a new spot Admin page: UserId removed from "Currently Parked" for the LotId they reserved Total Cost is calculated as $10 and displayed on checkout screen, automatically deducted from balance Transaction Details sent as text also	User is checked out. Their status value in the db becomes 0. They can once again reserve a new spot Admin page: UserId is removed from "Currently Parked" for the LotId they reserved Total Cost is calculated as $10 and displayed on checkout screen, automatically deducted from balance Transaction Details sent as text also

4.1.7 The system should allow users to check-in to the lot as they enter.
Importance: High
Dependencies: 4.1.2, 4.2.5
Test Case:

Input	Expected Output	Actual Output
User scans QR code at the	Rejects Check-in	Rejects Check-in

entrance gate. Enters their UserId: "fasdfs" [Invaid ID]		
User scans QR code at the entrance gate. Enters their UserId: "972821010" [Valid ID] [Reserved a spot on Map]	User is checked in. Their status value in the db becomes 1. They can no longer reserve a new spot or leave their current spot Admin page: UserId is displayed in "Currently Parked" for the LotId they reserved Transaction Details sent as text also	User is checked in. Their status value in the db becomes 1. They can no longer reserve a new spot or leave their current spot Admin page: UserId is displayed in "Currently Parked" for the LotId they reserved Transaction Details sent as text also
User scans QR code at the entrance gate. Enters their UserId: "972821010" [Valid ID] [Did not Reserve a spot on Map]	Rejects Check-in	Rejects Check-in

4.2 Admin Side Functionalities
4.2.1 The system should allow them to log into the admin-side.
Importance: High
Dependencies: 4.3.2
Test Cases:

Input	Expected Output	Actual Output
ID: 972821010 [Not Admin Credentials!]	Unsuccessful login. Not admin-level credentials.	"Sorry must have admin-level credentials"

ID: rkp8@psu.edu [Access Granted]	Successful login.	"Access Granted. Scroll down for admin information."
ID: vhvkv [Invalid ID]	Unsuccessful login. Invalid ID.	"Sorry must have admin-level credentials"

4.2.2 The system should allow them to view all registered user's Information, except phone number.
Importance: High
Dependencies: 4.2.1
Test Cases:

Input	Expected Output	Actual Output
Successful login	User Directory Table displayed	User Directory Table displayed

4.2.3 The system should allow them to view all currently active issues.

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
Successful login	Table of all active issues displayed	Table of all active issues displayed

4.2.4 The system should indicate which users have exceeded their reservation limit and display their information in a table

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
Successful login	Display table of information of users that have exceeded their limit	Table of information of users that have exceeded their limit displayed

4.2.5 The system should allow Admin to send a custom text message to any user of their choice.

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
UserId: 972821010 Message body: Test [valid UserId with valid phone number on store]	User 972821010 should be sent a text message saying "Test"	User 972821010 receives text message saying "Test"
UserId: qwerty Message body: Test [invalid UserId]	Invalid UserId	Invalid UserId
UserId: Message body: Test [invalid UserId]	Invalid UserId	Invalid UserId
UserId: 943456010 Message body: Test [phone number on store is invalid]	Invalid phone number	Invalid phone number

4.2.6 The system should allow Admin to send a message containing a link to extend their reservation to all users that have exceeded their reservation limit.

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
Click Send Alert to all Users Over Limit button [All users have valid phone numbers on store]	Text sent to User __, __, __ . . . All users receive the following text message: You have exceeded your reservation limit. Please plan to leave soo or extend your Reservation by filling out this form: https://psuparkingsimplified.herokuapp.com/SignedIn/extend.html	Text sent to User __, __, __ . . . All users receive the following text message: You have exceeded your reservation limit. Please plan to leave soo or extend your Reservation by filling out this form: https://psuparkingsimplified.herokuapp.com/SignedIn/extend.html
Click Send Alert to all Users Over Limit button [Some users do not have a valid phone number on store]	Text sent to User __, __, __ . . . Unable to Send text to User __, __, __ . . . Users with valid phone numbers will receive the following text message: You have exceeded your reservation limit. Please plan to leave soo or extend your Reservation by filling out this form: https://psuparkingsimplified.herokuapp.com/SignedIn/extend.html	Text sent to User __, __, __ . . . Unable to Send text to User __, __, __ . . . Users with valid phone numbers received the following text message: You have exceeded your reservation limit. Please plan to leave soo or extend your Reservation by filling out this form: https://psuparkingsimplified.herokuapp.com/SignedIn/extend.html

4.2.7 The system should provide real time performance metric data

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
Successful login	Displays table of information for current capacity, total	Displays table of information for current capacity, total

	reservations made, total revenue	reservations made, total revenue

4.2.8 Admin should be able to delete parking spots from the map

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
Click the Trash Can Icon next to a spot	Spot is removed from map and deleted from database Total capacity value displayed on admin page is decremented	Spot is removed from map and deleted from database Total capacity value displayed on admin page is decremented

4.2.9 Admin should be able to add parking spots to the map

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
Fill out the add spot form	Spot is added to map in alphanumeric order based on LotId and added to database Total capacity value displayed on admin page is incremented	Spot is added to map in alphanumeric order based on LotId and added to database Total capacity value displayed on admin page is incremented

4.3 Admin can resolve an active issue

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
Click on the orange wrench icon next to a spot	Issue is resolved. Spot color changes from yellow back to	Issue is resolved. Spot color changes from yellow back to

	normal colors. The corresponding active issue that was displayed on admin page also disappears.	normal colors. The corresponding active issue that was displayed on admin page also disappears.

4.3 Admin can see the popularity of each spot, as well as which user is currently in each spot, in table format

Importance: High
Dependencies: 4.2.1
Test Cases

Input	Expected Output	Actual Output
Successfully Login	Table showing spot popularity and user currently parked is displayed	Table showing spot popularity and user currently parked is displayed