Mobile Application for Medication Adherence

Test Plan

Testing Overview

Testing on **Android 9.0** (Pie, API 28).

All tests will be performed manually.

Acceptance testing will be performed on:

- Samsung Galaxy S9 - 1440 x 2960 resolution
- Google Pixel 2 - 1080 x 1920 resolution
- Samsung Google Nexus S - 400 x 800 resolution

Unit testing will be performed on:

- Samsung Galaxy S9

Acceptance Criteria/Integration Tests

[ ] add a medication

    [ ] add name

    [ ] add dosage information

    [ ] add schedule information (optional?)

    [ ] add doctor (optional)

[ ] view list of all medications

    [ ] edit an existing medication

    [ ] delete a medication

    [ ] change an active medication to inactive

    [ ] change an inactive medication to active

[ ] view list of all doctors

    [ ] edit an existing doctor

[ ] delete a doctor

[ ] view medication schedule

    [ ] view daily schedule

        [ ] indicate if a medication was taken (for today only)

        [ ] indicate if a medication was missed (for today only)

    [ ] view weekly schedule

    [ ] view monthly schedule

        [ ] each box in calendar links to that days schedule

        [ ] daily list produced by calendar has link to previous day

        [ ] daily list produced by calendar has link to next day

[ ] view medication adherence

    [ ] view monthly medication adherence

        [ ] overall adherence

        [ ] adherence by medication

    [ ] view weekly medication adherence

        [ ] overall adherence

        [ ] adherence by medication

    [ ] view daily medication adherence

        [ ] overall adherence

        [ ] adherence by medication

[ ] receive notification for each scheduled medication

    [ ] indicate medication was taken from notification

    [ ] indicate medication was missed from notification

    [ ] snooze notification

GUI Test Cases

Description	Input	Expected Output	Test Results
Add invalid medication (in new medication wizard)	None	Error, medication name and dosage required	Passed 11/8
Add invalid medication (dosage) (in new medication wizard)	Medication name, Dosage = 0	Error, invalid pill dosage	Passed 11/8
Add invalid active medication (in new medication wizard)	Medication name, Dosage, End date before today	Error, invalid end date	Passed 11/8
Add valid medication (in new medication wizard)	Medication name, Dosage	Added to medication list	Passed 11/8
Get default medication image (in new medication wizard)	New medication name = 'test'	Default medication image	Passed 11/8
Get valid medication image (in new medication wizard)	New medication name = 'Tylenol'	Default medication image, Image of tylenol	Passed 11/8
Autofill medication name (in new medication wizard)	New medication, Name = 'xan'	Suggested name = "XANAX (oral pill)"	Passed 11/23
Suggests dosage from autofilled name (in new medication wizard)	New medication, Name = 'xan', Select "XANAX (oral pill), Click 'dosage per pill'	Presents the options: 0.25 0.5	Passed 11/23
Add invalid doctor (in new medication wizard)	None	Error, doctor name required	Passed 11/8
Add valid doctor (in	Doctor Name	No error, added to	Passed 11/8

new medication wizard)		doctors list	
Schedule invalid dosage (dosage amount) dusing medication creation	Daily, Time, Dose count = 0	Cannot select 'OK' while dose count = 0	*Failed 11/8, no error* Passed 11/11
Schedule invalid dosage (days) (in new medication wizard)	Select no days Enter time & dosage, Click 'ADD'	Error, at least one day required	Passed 11/8
Schedule valid dosage (in new medication wizard)	Daily, Time, Dosage > 0	Added to list	Passed 11/8
Schedule repeated dosage (in new medication wizard)	Daily, Time, Dosage > 0, Repeat time & dosage	Error, time and dosage already scheduled	*Failed 11/8, no error* Passed 11/11
Schedule two dosages at the same time (in new medication wizard)	Time, Dosage > 0, Repeat time, New dosage > 0	Error, time already scheduled	Failed 11/8, no error message, app crashes after hitting 'FINISH' (unique constraint failed)
Delete scheduled dosage from scheduling screen (in new medication wizard)	Click 'X' delete button	Removed from list	Passed 11/8
View medication list ('Medications' menu option)	None	Displays list of all medications	Passed 11/8
Update medication from list (invalid)	None (delete auto filled data)	Error, medication name and dosage required	Passed 11/8
Update medication from list (valid)	New name, New start & end dates, New dosage	Medication is updated in list	Passed 11/8

Delete medication from list	Swipe right on medication card	Medication is removed from list	Passed 11/11
View 'Home' screen	None	Medication schedule for today is displayed	Passed 11/8
Indicate medication was taken from home screen	Click 'Taken', Input time	Medication is marked as taken and time is displayed	Passed 11/15
Indicate medication was missed from home screen	Click 'Missed'	Medication is marked at missed	Passed 11/15
Indicate taken medication was missed	Click 'Missed' on medication indicated as taken	Medication is marked as missed	*Failed 11/15,* Passed 11/23
Indicate missed medication was taken	Click 'Taken' on medication indicated as missed, Input time	Medication is marked as missed	*Failed 11/15* Passed 11/23
Dose is automatically marked as missed if not indicated otherwise	For a dose, do not click 'Taken' or 'Missed', View the dose the next day	Dose is marked as missed	Passed 11/19
Medication is automatically marked as inactive when end date is passed	Set a medication with end date = today, View the medication the next day	Medication is marked as inactive	Passed 11/19
Cannot click 'Missed' or 'Taken' if current time < dose time (acceptable delay = 0)	Create medication w/ Acceptable Delay (AD) = 0 hrs, Schedule a dose for time > current time, View dose in sched.	'Missed' and 'Taken' are greyed out (cannot be selected)	Passed 11/19
Can click 'Missed' or 'Taken' if current time >= dose time (acceptable delay = 0)	Create medication w/ AD = 0 hrs, Schedule dose for current time, View dose in sched.	'Missed' and 'Taken' can be selected	Passed 11/19

Cannot click 'Missed' or 'Taken' if current time + 1hr < dose time (acceptable delay = 1)	Create medication w/ AD = 1 hr, Schedule dose for current time + 1hr 1 min, View dose in sched.	'Missed' and 'Taken' are greyed out (cannot be selected)	Passed 11/19
Can click 'Missed' or 'Taken' if current time + 1hr. >= dose time (acceptable delay = 1)	Create medication w/ AD = 1 hr, Schedule dose for current time + 1hr, View dose in sched.	'Missed' and 'Taken' can be selected	Passed 11/19
Cannot click 'Missed' or 'Taken' if current time + 2hr < dose time (acceptable delay = 2)	Create medication w/ AD = 2hrs, Schedule dose for current time + 2hrs 1 min, View dose in sched.	'Missed' and 'Taken' are greyed out (cannot be selected)	Passed 11/19
Can click 'Missed' or 'Taken' if current time + 2hr >= dose time (acceptable delay = 2)	Create medication w/ AD = 2hrs, Schedule dose for current time + 2hrs, View dose in sched.	'Missed' and 'Taken' can be selected	Passed 11/19
Cannot click 'Missed' or 'Taken' if current time + 3hr < dose time (acceptable delay = 3)	Create medication w/ AD = 3hrs, Schedule dose for current time + 3hrs 1 min, View dose in sched.	'Missed' and 'Taken' are greyed out (cannot be selected)	Passed 11/19
Can click 'Missed' or 'Taken' if current time + 3hr >= dose time (acceptable delay = 3)	Create medication w/ AD = 3hrs, Schedule dose for current time + 3hrs, View dose in sched.	'Missed' and 'Taken' can be selected	Passed 11/19
View 'Calendar' screen	None	Current month is displayed with today highlighted	Passed 11/8
'Today' button on calendar view	Scroll ahead to next month, Click 'Today'	Brought to this month's calendar	Passed 11/8

View upcoming day from calendar view	Click on any date after today	Medication schedule for that day is displayed with 'Missed' and 'Taken' greyed out	Passed 11/8
From a daily view, view the day before	Click left arrow by the date	Medication schedule for that day is displayed with 'Missed' and 'Taken' greyed out (if not today)	Passed 11/8
From a daily view, view the day after	Click right arrow by the date	Medication schedule for that day is displayed with 'Missed' and 'Taken' greyed out (if not today)	Passed 11/8
Verify medications with an end date set do not appear in daily views past the end date	Create medication with end date = today, Schedule a dose, View tomorrow's schedule from calendar	Medication does not appear in daily schedule	Passed 11/19
View daily adherence (overall)*	None	Today's overall adherence is displayed	Passed 11/8
View daily adherence (per medication)*	Click dropdown arrow	Today's adherence is displayed per medication	Passed 11/8
View weekly adherence (overall)*	Select 'week' from the dropdown menu	This week's overall adherence is displayed	Passed 11/8
View weekly adherence (per medication)*	Click dropdown arrow	This week's adherence is displayed per medication	Passed 11/8
View monthly	Select 'month' from	This month's overall	Passed 11/8

adherence (overall)*	the dropdown menu	adherence is displayed	
View monthly adherence (per medication)*	Click dropdown arrow	This month's adherence is displayed per medication	Passed 11/8
Deleting a medication removes adherence data for that medication	Clear app data, Create a medication and generate adherence data (mark doses as missed or taken), Verify adherence data in summary screen, Delete that medication, View 'Summary'	No adherence data	Passed 11/19
View prescribing doctor information	None	One doctor is displayed with a dropdown menu to view other doctors	Passed 11/8
Edit prescribing doctor information (valid)	New name	Doctor is updated in doctor list	Passed 11/8
Edit prescribing doctor information (invalid)	Remove name	Error, doctor name required	*Failed 11/8, no error* Passed 11/11
Delete doctor from list	Click 'REMOVE' button	Doctor is removed from list	Passed 11/8
Receive notification for scheduled dose	None	Notification appears on phone at scheduled time	Not tested
Snooze notification	Click 'snooze' on notification	Notification appears at time designated by snooze	Not tested
Indicate dose was taken from	Click 'taken' button, Input time	Medication is indicated as taken	Not tested

notification			
Indicate dose was missed from notification	Click 'missed' button	Medication is indicated as missed	Not tested
Increase image size from the settings menu	Click 'Use larger images' then navigate to 'Home'	Medication images are larger	Passed 11/15
Enable dark mode from the settings menu	Click 'Override system theme' then 'Enable dark mode'	Dark mode is enabled	Passed 11/15
Disable overriding the system theme from the settings menu without disabling dark mode	With dark mode enabled, click 'Override system theme'	Dark mode is disabled	Passed 11/15
Delete app data from the settings menu	Click 'Delete Database' then 'YES'	App data is cleared	Passed 11/8

* - to verify adherence data:

Add medication 'A' for 100 mg, schedule 4 doses daily (6 am, 10 am, 2 pm, 6 pm) for 1 x dosage with 1hr delay

Add medication 'B' for 100 mg, schedule 2 doses daily (6am, 6pm) for 2 x dosage with 1hr delay

View todays schedule:

Mark A - 6 am as taken at 6 am (on time)

Mark B - 6 am as taken at 8 am (late)

Mark A - 10 am as taken at 12 pm (late)

Mark A - 2 pm as missed (missed)

Mark A - 6 pm as taken at 6 pm (on time)

Mark B - 6 pm as taken at 6:30 pm (on time)

View adherence:

(Daily, weekly, and monthly should all be the same)

Overall - expected results:

On time: 3/6

Late: 2/6

Missed: 1/6

By Medication - expected results:

A: 50% on time, 25% late, 25% missed

B: 50% on time, 50% late