

# SYMPTOM MANAGEMENT REQUIREMENTS

## BASIC PROJECT REQUIREMENTS

### 1. App supports multiple users via individual user accounts

In capstone-backend: OAuth2SecurityConfiguration. Users are created on line 154.

### 2. App contains at least one user facing function available only to authenticated users

In capstone-backend: OAuth2SecurityConfiguration. Configuration is set up starting on line 94. See also integration test SymptomManagementClientApiTest.onlyDoctorsShouldHaveAccessToDoctorApi and SymptomManagementClientApiTest.onlyPatientsShouldBeAbleToCheckIn.

### 3. App comprises at least 1 instance of each of at least 2 of the following 4 fundamental Android components: Activity, BroadcastReceiver, Service, ContentProvider

In capstone-android:

Activity - LoginActivity, DoctorMainActivity and PatientMainActivity.

BroadcastReceiver: CheckAlertsReceiver, CheckInAlarmReceiver

Service: CheckAlertsService

### 4. App interacts with at least one remotely-hosted Java Spring-based service

In capstone-android: See SymptomManagementApi and use of this class in package task.

### 5. App interacts over the network via HTTP

See above.

### 6. App allows users to navigate between 3 or more user interface screens at runtime

See demo video.

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**7. App uses at least one advanced capability or API from the following list (covered in the MoCCA Specialization): multimedia capture, multimedia playback, touch gestures, sensors, animation.\*\***

In capstone-android: See ScalePageTransformer. This is used in PatientCheckInFragment and DoctorPatientDetailsFragment

**8. App supports at least one operation that is performed off the UI Thread in one or more background Threads of Thread pool.**

In capstone-android: See all classes in package task.

## **FUNCTIONAL DESCRIPTION AND APP REQUIREMENT**

**1. App identifies a Patient as a user with first name, last name, date of birth, a (unique) medical record number, and possibly other identifying information). A patient can login to their account.**

In capstone-backend: See entity Patient

In capstone-android: See LoginActivity

**2. App defines a Reminder as an alarm or notification which can be set to patient-adjustable times (at least four times per day).**

In capstone-android: See class PatientSettingsFragment and alarm CheckInAlarmReceiver. Also see demo video.

**3. A Reminder triggers a Check-In, which is defined by the app as a unit of data associated with a Patient, a date, a time, and that patient's responses to various questions (items 4-8) at that date and time.**

In capstone-android: See CheckInAlarmReceiver and the method sendNotification.

In capstone-backend: See CheckInController and the method checkIn. Also see the demo.

**4. Check-In includes the question, "How bad is your mouth pain/sore throat?" to which a patient can respond, "well-controlled," "moderate," or "severe.**

In capstone-android: WelcomePatientFragment fetches the questions. And each of them is answered in PatientCheckInFragment.

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In capstone-backend: See InitialTestData.createQuestions for the questions to be answered

**5. Check-In includes the question, “Did you take your pain medication?” to which a Patient can respond “yes” or “no”.**

In capstone-android: PatientCheckInFragment line 126. When other questions are done, this question is asked

**6. A Check-In for a patient taking more than one type of pain medication includes a separate question for each medication (e.g., “Did you take your Lortab?” followed by “Did you take your OxyContin?”). The patient can respond to these questions with “yes” or “no.”**

In capstone-android: PatientCheckInFragment line 134. If patient takes more than one pain medication, questions about each of them is asked.

**7. During a Check-In, if a patient indicates he or she has taken a pain medication, the patient will be prompted to enter the time and date he or she took the specified medicine.**

In capstone-android: QuestionFragment line 163. Show the date picker and then the time picker.

**8. During a Check-In, the patient is asked “Does your pain stop you from eating/drinking?” To this, the patient can respond, “no,” “some,” or “I can’t eat.”**

See 4.

**9. App defines a Doctor as a different type of user with a unit of data including identifying information (at least first name, last name, and a unique doctor ID) and an associated list of Patients that the doctor can view a list of. A doctor can login.**

In capstone-backend: See entity Doctor. In DoctorController see method getDoctorPatients.

In capstone-android: See LoginActivity

**10. App allows a patient’s Doctor to monitor Check-Ins, with data displayed graphically. The data is updated at some appropriate interval (perhaps when a Check-In is completed).**

In capstone-android: See ListCheckInsFragment where all patient check-ins are displayed in an ExpandableListAdapter. The CheckIns are updated every time the doctor uses the application. See DoctorMainActivity.createDoctorPatientDetailsFragment.

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**11. A doctor can search for a given Patient's Check-In data by the patient's name (an exact text search hosted server-side).**

In capstone-android: SearchPatientsFragment and SearchPatientsByNameTask.

In capstone-backend: PatientController.getPatientByName

**12. A doctor can update a list of pain medications associated with a Patient. This data updates the tailored questions regarding pain medications listed above in (6).**

In capstone-android: UpdateMedicationsFragment and UpdatePainMedicationsTask

In capstone-backend: PainMedicationController.updatePainMedication

**13. A doctor is alerted if a patient experiences 12 of "severe pain," 16 or more hours of "moderate" or "severe pain" or 12 hours of "I can't eat."**

In capstone-android: CheckAlertsService

In capstone-backend: CheckInController.getAlertsForPatient and private method checkAlert that is called when patient has made a check-in.

**14. A patient's data should only be accessed by his/her doctor(s) over HTTPS.**

In capstone-backend: OAuth2SecurityConfiguration.EmbeddedServletContainerCustomizer

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