Emergency Transfer Summary for Saint Bernard

Problem Domain

Saint Bernard is a minimalistic electronic medical record (EMR) app for remote nursing and emergency facilities. The app combines local storage with cloud synchronization strategies to allow working offline, during intermittent communication and online periods. When a patient needs to be transferred, the system allows to send patient records electronically if possible, and printed case summaries in several forms.

Saint Bernard is trying to sign a new client owning 5 Ski Camps in Europe. This client, as a precondition to sign the deal, requested to implement an emergency summary to transfer injured skiers from their medical outposts to hospitals. This summary deviates from standard forms, being closer to a narrated summary written by the medical staff. Here an example the client gave to Saint Bernard sales team:

Emergency Transfer Summary (Form 34L-D)				
Transferring Facility				
Name Blue Alps Ski Camp				
Patient Information				
First Name Thomas	Middle Name	Last Name Schudel	Medical Record (MR) 30997	
Summary This 43 years old male was admitted to Blue Alps Ski Camp emergency facility on February 18, 2018 at 5:07pm due to a fracture of upper end of right tibia (S82.101). The observed symptoms on admission were severe pain, swelling and limited bending of the joint. No soft tissues were damaged. Upon asking about known allergies, the patient disclosed hypersensitivity to aspirin or NSAIDs and gluten intolerance. Upon asking about chronic conditions, the patient disclosed Asthma (J45). The patient was administered with Acetaminophen 500mg PO q4hr to relieve pain, and Naproxen 500mg PO q6hr to relieve swelling. The staff performed an exploratory radiography at 5:15pm, revealing a closed fracture in the right tibia (S82.101A). Our team proceeded to temporary bracing the right leg to restrict the motion.				

Challenge

You, as a Saint Bernard software developer, have the mission to create a simple prototype to close the deal. This prototype will evaluate an existi ng emergency summary template, interpolating different place holders with persisted data to render the final result. The prototype needs to be compatible with Saint Bernard app, a Ruby on Rails web application, using SQLite for data storage and Bootstrap 3 in the UI.

It is important you deliver legible, clean, and extendable code so other developers can integrate your code to complete the requirements. You must also provide enough test coverage to guaranty a reliable demo to the client, and helping the development team to refactor and improve your code. Feel free to ask any question regardless requirements and preconditions.

Below what is known so far:

User Story

As an emergency staff, and after selecting a patient from a list, I want to view the corresponding emergency summary with option to print.

Emergency Transfer Summary Template

Emergency Transfer Summary (Form 34L-D)	
Transferring Facility	
Name `[facility.name]`	

Patient Information				
First Name `[patient.first_name]`	Middle Name `[patient.middle_name]`	Last Name `[patient.last_name]`	Medical Record (MR) `[patient.mr]`	

Summary

This `[patient.age]` years old `[patient.gender]` was admitted to `[facility.name]` on `[patient.admission.date]` at `[patient.admission.time]` due to `[patient.admission.diagnoses | comma_separated | described_code]`. The observed symptoms on admission were `[patient.admission.symptoms | comma_separated | description]`. `[patient.admission.observations | comma_separated | description]`.

Upon asking about known allergies, the patient disclosed `[patient.allergies | comma_separated | description]`. Upon asking about chronic conditions, the patient disclosed `[patient.chronic_conditions | comma_separated | described_code]`. The patient was administered with `[patient.medications | comma_separated | space_separated | name, dosage, route, frequency, “to”, necessity]`.

The staff performed `[patient.diagnostic_procedures | comma_separated | description, “at”, time]`, revealing `[patient.diagnoses | comma_separated | described_code]`. Our team proceeded to `[patient.treatments | comma_separated | space_separated | description, “to”, necessity]`.

Persisted Data Structures

- Facility
  - name: String

- Patient: Model
  - first_name: String
  - middle_name: String
  - last_name: String
  - mr: String
  - dob: DateTime
  - gender: Gender
  - admission: Admission
  - allergies: [Allergy]
  - chronic_conditions: [Diagnosis]
  - medications: [MedicationOrder]
  - diagnostic_procedures: [DiagnosticProcedure]
  - diagnoses: [Diagnosis]
  - treatments: [Treatment]
- Gender: Enumeration
  - male
  - female
  - other

- Admission: Model
  - moment: DateTime
  - diagnoses: [Diagnosis]
  - symptoms:[Symptom]
  - observations: [Observation]
- Diagnosis: Model
  - code: String
  - description: Text
- Symptom: Model
  - description: Text
- Observation: Model
  - description: Text
  - moment: DateTime
- Allergy: Model
  - description: Text
- MedicationOrder: Model
  - name: String
  - unit: MassUnit
  - dosage: Decimal
  - route: MedicationRoute
  - frequency: OrderFrequency
- MassUnit: Enumeration
  - mg
- MedicationRoute: Enumeration
  - PO
  - IM
  - SC
- OrderFrequency: Model
  - value: String
  - unit: FrequencyUnit
- FrequencyUnit: Enumeration

    - hour
- DiagnosticProcedure: Model
    - description: Text
    - moment: DateTime

- Treatment
    - description: Text
    - necessity: Text