Workbook: Week 1

06.07.2019

Amita Shah - Medical Tasking Software Team
UTSA Advanced Software Engineering

Table of Contents

Project Summary

Project Name
AmiTask ™

Team Name
AmiTask ™ Team

Team Members
- Gene Tigner
- Sam Carey
- Mohammed Raheem
- Nick Ryan
- Jamie Mesinnger
- Joseph Chumpitaz
- Julia Bowers
- Alberto Zapata
- Anthony Vierra
- Emmanuel Espenoza-Tello
- Jonathan Guzman
- Nehemiah Alvarado
- Andrew Noe

Summary

AmiTask ™ was developed in response to a need for the replacement of antiquated task management systems amongst hospital teams (pagers, paper, emailing/SMS). The goal of the software is to accomplish the exact goals of current systems (task assignment and management, access to lists of patients and patient details, and access to a repository of important documents) while being more convenient and simpler to use. AmiTask ™ enables hospital teams to manage various aspects of their daily work by providing a streamlined software solution.

The AmiTask ™ team worked closely with professionals in the field to ensure that the application can deliver mission-critical functions while remaining user-friendly. The result is a design that aims to translate complicated feature-sets into natural, intuitive experiences.

AmiTask ™ brings structure to the daily chaos of task delegation and management by intelligently organizing tasks by date and priority. Medical staff will have instant access to powerful task management tools such as creating, editing and deleting tasks. Users can easily access lists of patients associated with tasks they're assigned to, as well as a master list of all patients. Within the app users can access an organized list of medical documents as well.

The software supports medical teaming and grouping. A user can join several medical teams, and can easily switch between the teams. The app experience and data (tasks, patients, and documents) will be defined by which team the user currently has selected. Within groups, AmiTask ™ connects task members together to be more productive within their work environment. AmiTask ™ removes the need for heavy use of external physical planners and to some extent even removes the need for pagers.

AmiTask ™ is a native application developed for both Android and iOS devices to encapsulate all user types.

AmiTask ™ Features

- Generate tasks to maintain a daily routine
- List patients so that medical staff can easily see which patients are connected to tasks
- Upload documents related to patient conditions and tasks for users to have easy access to
- Receive notifications about important updates and tasks

Target Platforms

iOS / Android

Glossary

1. **Medical Teams (data object) –** A grouping of medical staff that a user is a part of. Medical Teams users within medical teams only see tasks that those medical teams create.
2. **Primary -** Physician a Patient regularly visits.
3. **Consult -** A specialist in a related field
4. **Groups -** Groups are subsets of the team, groups work together to complete tasks
5. **Schedule –** The Time dependent linear task list for a medical team member
6. **Team Member –** An individual medical staff member
7. **Group Member -** An individual on a medical team that has been placed within a group on a task.
8. **Task (data object) –** An item that requires action by a medical staff member
9. **Patient (data object) –** An individual that has been admitted to the hospital in some capacity. Patients can be associated with users through tasks.
10. **Communication/Chat –** Means of informing team members, sharing information, and collaborating within the application
11. **Patient Data (data object) –** Information collected on a patient
12. **Personal Health Information (data object) –** Regulated and protected Identifiable information from the patient
13. **Medical History (data objects) –** Records consisting of a combination of Patient Data and PHI
14. **Document (data object)** - files of different types that medical team members need to utilize, usually associated with a patient.
15. **Handoff –** Passing off of tasking from one Team Member to another.

User roles

Anonymous User

(Users that do not have accounts can do the following)

- **Login**
- **New User**
- **Password**

General User

(Inherits from anonymous)

- **Add Task**
- **Remove Task**
- **Complete Task**
- **Approve Tasking**
- **Deny Tasking**
- **Create a Team**
- **Select a Team**
- **Add Group Members**
- **Remove Group Members**
- **Swap out Group Members**

- **Add patient (admittance)**
- **Handoff Patient**
- **Remove patient (discharge)**
- **Update Patient Records**
- **Login**
- **Password**
- **Password Reset**
- **Add comment**
- **User Update**

Admin User

(Admin inherits all user types)

- **Edit User Credentials**
- **Approve User Roles**
- **Lock Account**
- **Remove Accounts**

Functional Requirements and Screen Mockups

User Functional Requirements

- **Login** - Authenticates user account with provided credentials and begins user session. If credentials are invalid then display "Username or Password are incorrect". 3 Invalid login attempts will prevent that IP address from trying to log in again for 1 minutes.
- **Logout** - Deletes user session
- **Register/create account** - creates a new user account (locked)
- **Verify new account** - unlocks account after email verification
- **Change password** - changes the logged in users password
- **Forgot password** - Allows a user that is not logged in the ability to change their password after email verification
- **View profile** - allows the user that is logged in to view their profile and profile information.
- **Edit profile** - edit the associated logged in users profile information.
- **Change user job type** - allows the user to change their job type if they are no longer titled under a previous job type. Requires approval

Team Functional Requirements

- **Create Teams** - Users can create teams and specify the team name, users can also select certain individuals to be on certain teams
- **Delete Teams** - Users can delete a team if the team no longer serves a purpose, the tasks associated with the team are archived
- **Edit Teams** - Users can edit teams, to include the team name, and the persons involved in the team

Task Functional Requirements

- **View Task List** - Users are able to view their currently assigned tasks and the Team's current task list
- **Create Task** - Users can create new tasks and have the option to tag patients that are assigned to the team that they are creating the task under, they are able to specify the task title, who is required to complete the task, and give a description of what the task is for.
- **Delete Task** - Users can delete tasks that do not serve a purpose or they made a mistake

- **Complete/Archive Task** - Users can complete tasks that are associated with their teams, marking a task complete will move the task into an archive at the bottom of the daily tasks
- **Edit Task** - Users can edit tasks from the Quick Actions menu or the Task Details view
- **Chat** - Group members can communicate within a chat window for a Task
- **Add Members** - Group members can invite others to work on a Task

Patient Functional Requirements

- **View Patient List** - Users can view a list of patients associated with their currently assigned tasks, as well as a list of all patients associated with the current team
- **Export Patient List** - A user can export a list of patients. This list can be built by filtering for patients with specific tags
- **Create Patient** - A user can add a new patient that has been admitted to the hospital
- **Delete Patient** - A user can remove a patient from the patient view after the patient has been discharged from the hospital
- **Edit Patient** - Users can edit patient information from the Quick Actions menu or the Patient Details view.
- **Patient Transfer** - Removes the patient from the team view and places it in the view of another team. All tasks that are currently in progress are associated with that patient follow to the other team and show up as new tasks. Old tasks follow as completed

Documents Functional Requirements

- **Upload a Document**- A user can add a new document
- **Delete Document**- A user can remove a document from the documents list
- **Edit Document Notes** - Users can edit notes associated with a specific document
- **File Export** - If a user needs to share a certain document, they can access a system share interface (iOS: Share Cards, Android: Android Share menu)

Notifications Functional Requirements

- **Disable Notifications -** A user can disable certain types of notifications
- **Notification Types -** Specifies the type of notification that will be sent to other users.
- **Push Notifications -** Whenever certain events happen the system will notify the appropriate devices that are tied to appropriate accounts.

Search Functional Requirements

- **Search Tasks**- The search bar changes per screen, on the task screen it defaults to search for tasks. Tasks can be searched for by name, date created, task id, and person
- **Search Patients** - Patients can be searched for by name, task associated with, date of birth, and patient id
- **Search Documents** - Documents can be searched for by name, and patient association
- **Filtering** - The search bar has an optional filter that allows for multiple different layers of searching to be unlocked from the same screen
- **View Recent Searches** - When the search is brought up it will show a history of recently searched for items.

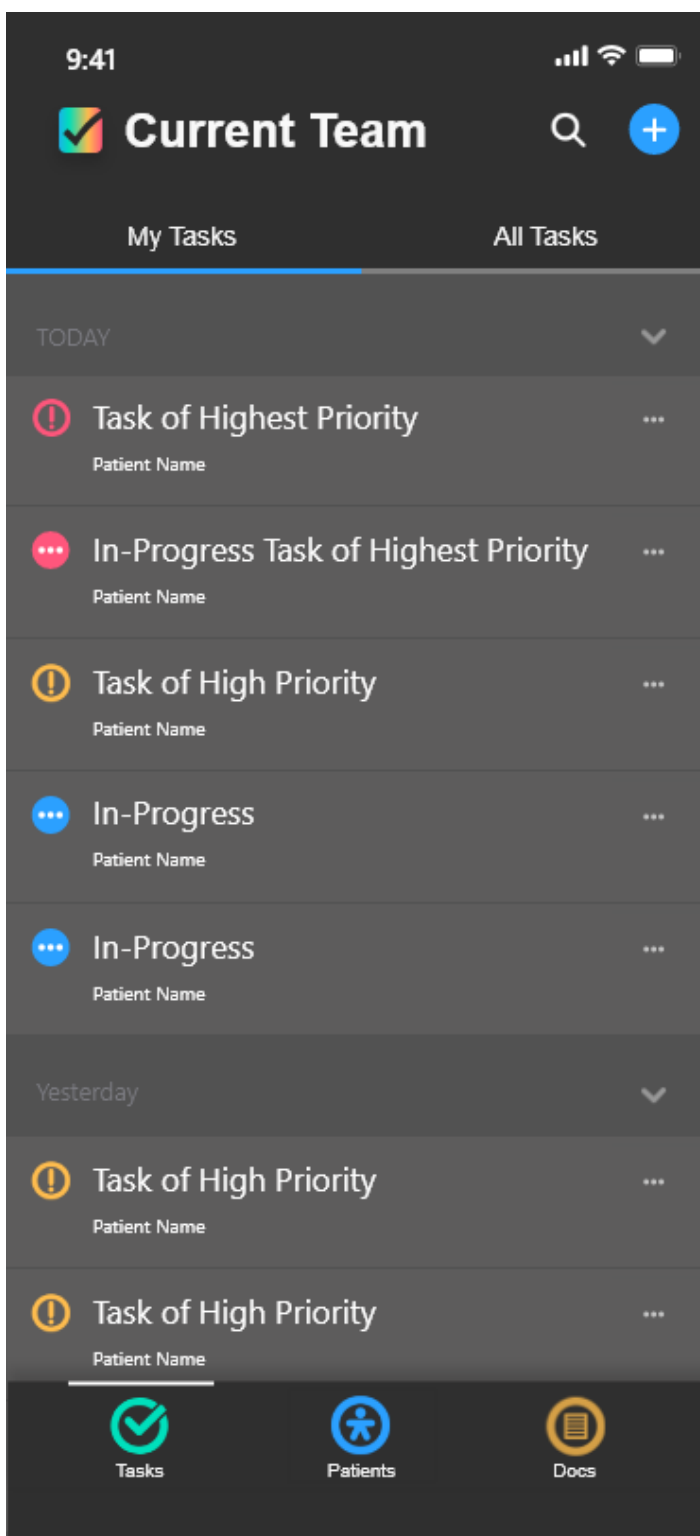## Screen Mockups

Tasks - Task List

First view the user sees after signing in/registering and selecting a team to view

This view contains two lists:

My Tasks: All Tasks assigned to the logged in User, for the Team they're currently viewing

All Tasks: All Tasks assigned to all Users on a Team

Organized by date, and by priority

9:41

✅ **Current Team**   🔍   ➕

My Tasks   All Tasks

TODAY   ⌄

⊘ Task of Highest Priority   ···
Patient Name

● In-Progress Task of Highest Priority   ···
Patient Name

⊘ Task of High Priority   ···
Patient Name

● In-Progress   ···
Patient Name

● In-Progress   ···
Patient Name

Yesterday   ⌄

⊘ Task of High Priority   ···
Patient Name

⊘ Task of High Priority   ···
Patient Name

Tasks   Patients   Docs

Tasks - Adding a Task

Fields may change as requirements grow

9:41

Add Task

Task Title *

task title

Date * | Time
mm/dd/yyyy | hh:mm

Status | Priority
active ⌄ | low ⌄

Notify
no ⌄

Attributes
Mark all that apply.

☐ Recurring   ☐ Compleatable
☐ Singular   ☐ Assignable
☐ Edit Name   ☐ File Upload
☐ Edit Detail   ☐ Comments

Add Members
Select up to 1000 people to add to this task.

🔍

Task Description

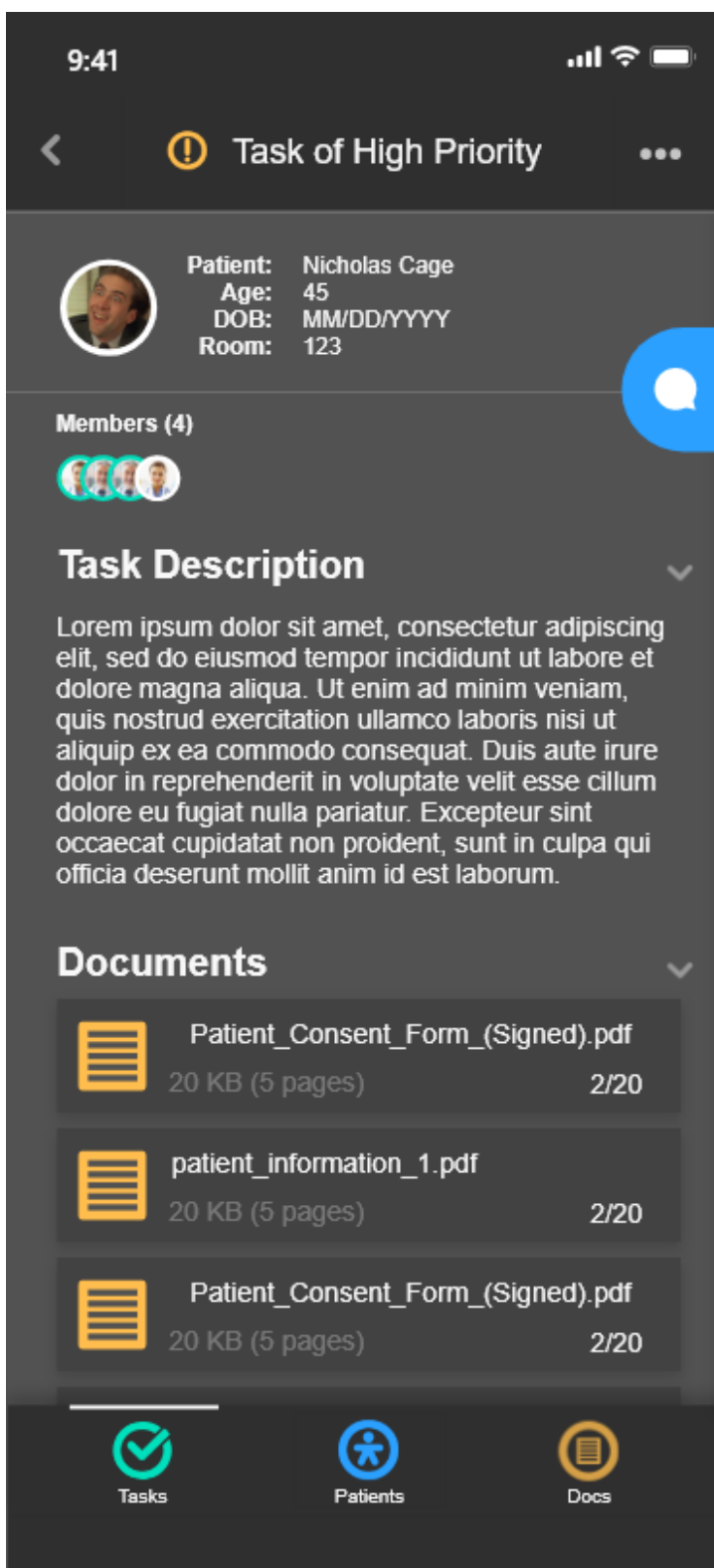enter text description

Cancel | Draft | Confrim

Tasks - Task Item Detail

This view contains any information associated with a specific task:
- Patient Info (if applicable)
- Task Description
- Documents associated with Task
- Members

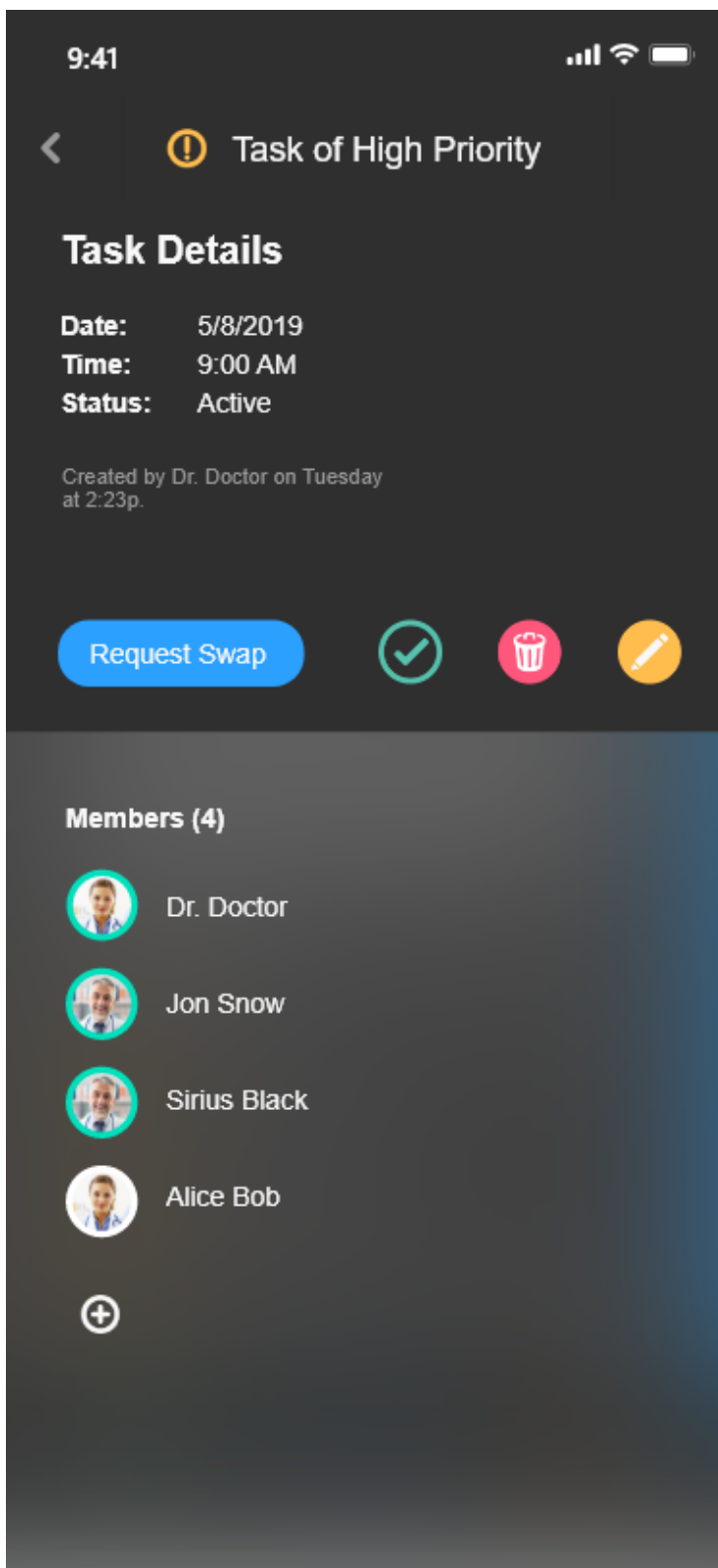Task Details can be accessed by tapping the ellipsis

Chat can be accessed by tapping the icon, or swiping left

9:41

< ⓘ **Task of High Priority** •••

Patient: Nicholas Cage
Age: 45
DOB: MM/DD/YYYY
Room: 123

Members (4)

Task Description ⌄

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Documents ⌄

Patient_Consent_Form_(Signed).pdf
20 KB (5 pages)   2/20

patient_information_1.pdf
20 KB (5 pages)   2/20

Patient_Consent_Form_(Signed).pdf
20 KB (5 pages)   2/20

Tasks   Patients   Docs

Tasks - Task Details

Here users can mark a task as completed, delete the task, or edit its contents. They can also request to swap tasks.

The group list can be viewed in detail and can be added to from here.

9:41

<   ⓘ **Task of High Priority**

Task Details

Date: 5/8/2019
Time: 9:00 AM
Status: Active

Created by Dr. Doctor on Tuesday at 2:23p.

Request Swap   ✓   🗑   ✏

Members (4)

Dr. Doctor

Jon Snow

Sirius Black

Alice Bob

⊕

Tasks - Chat

Users can chat with group members and utilize chat tools like @ing, and file uploads.
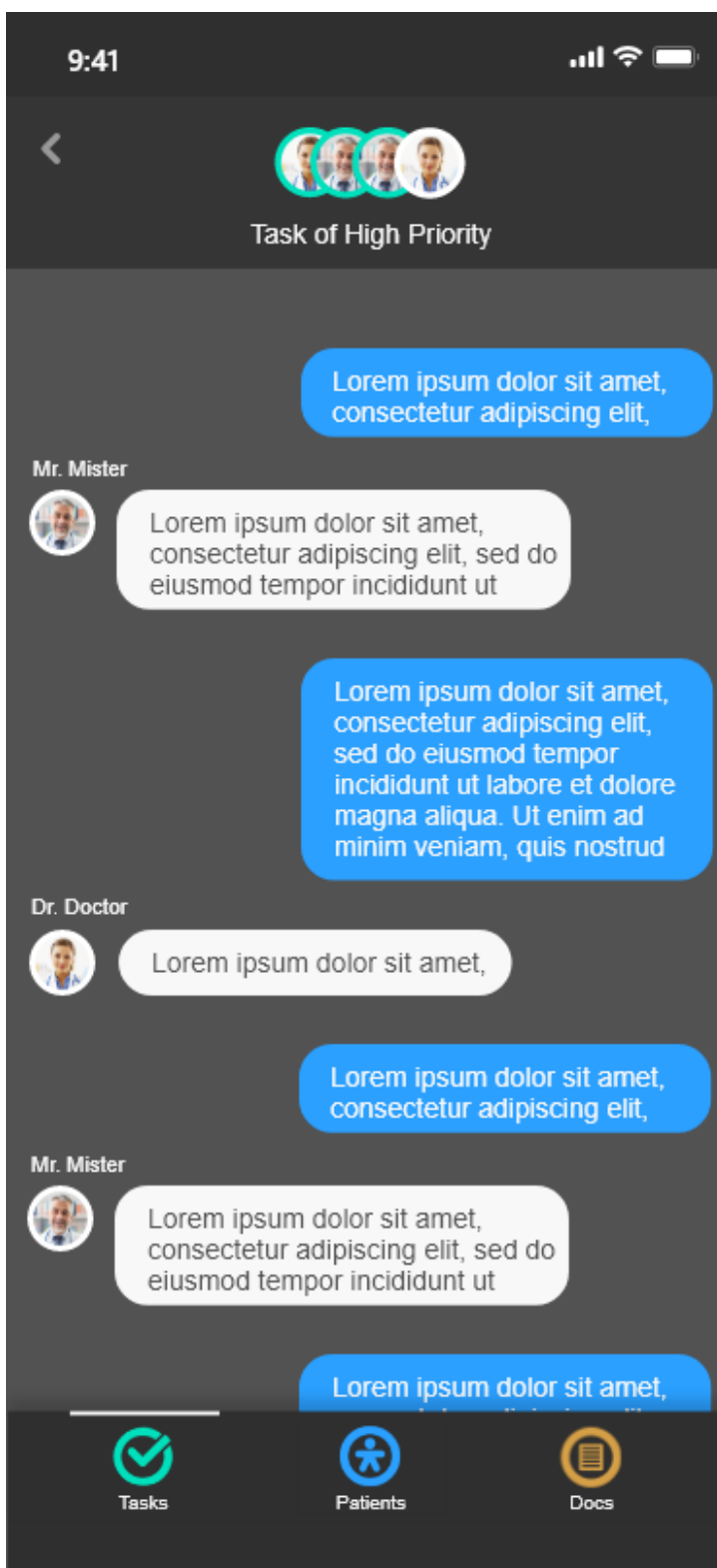
Patients - Patient List

This view contains two lists:

My Patients: All Patients associated to Tasks of the logged in User, for the Team they're currently viewing

All Patients: All Patients associated with all Tasks assigned to all Users on a Team

Organized by date, and by priority
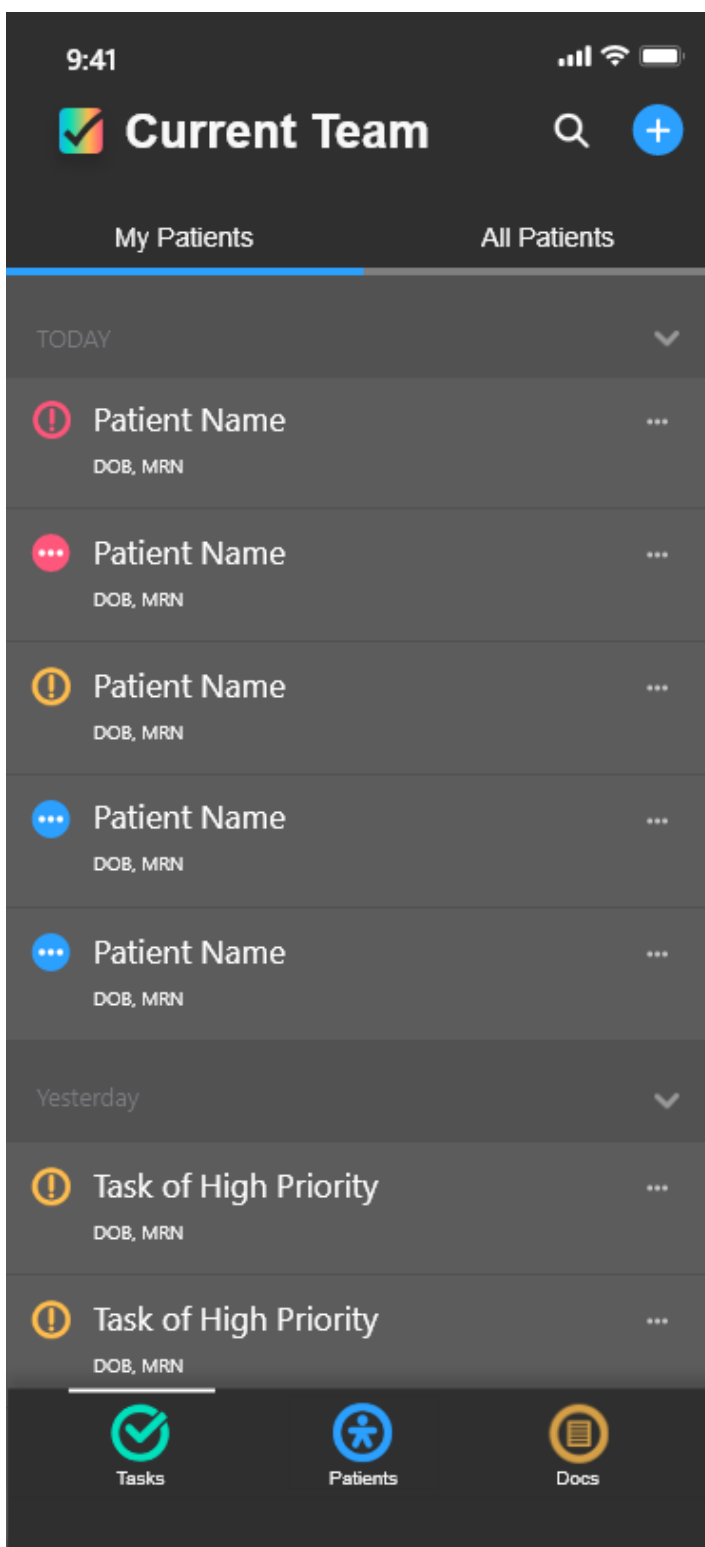
Patients - Adding a Patient

Fields may change as requirements grow

9:41

Add a Patient

Name

first name *

middle initial

last name *

DOB *

mm/dd/yyyy

EMR # *

XXXXXX-X

Select all that apply

☐ Heart Disease   ☐ Hypertension
☐ Diabetes   ☐ Cancer
☐ Asthma   ☐ Blindness
☐ Arthritis   ☐ Dementia
☐ Other

Health History

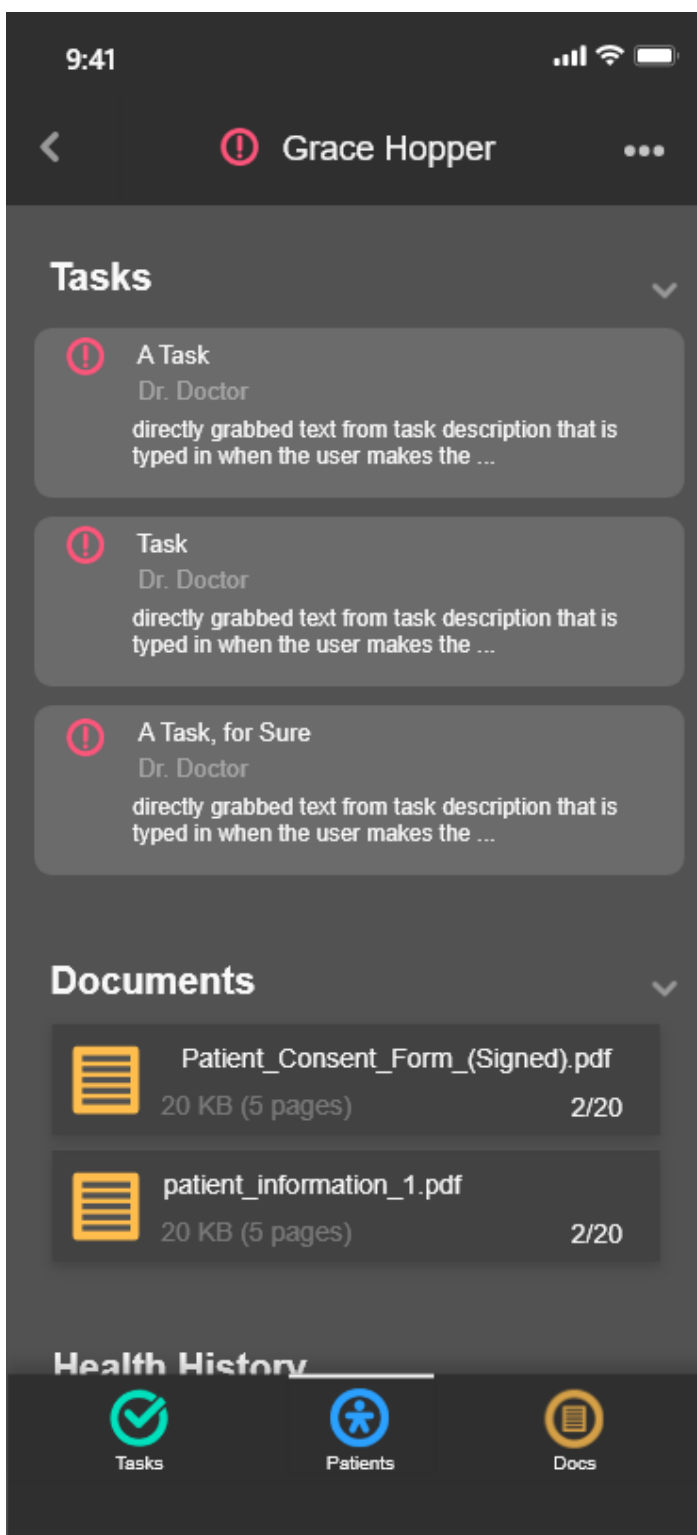enter text description

Cancel   Draft   Confrim

Patients - Patient Item Detail

This view contains any information associated with a specific patient:
- Tasks associated with patient
- Documents associated with patient
- Health history

Patient Details can be accessed by tapping the ellipsis

9:41

Grace Hopper

Tasks

A Task
Dr. Doctor
directly grabbed text from task description that is typed in when the user makes the ...

Task
Dr. Doctor
directly grabbed text from task description that is typed in when the user makes the ...

A Task, for Sure
Dr. Doctor
directly grabbed text from task description that is typed in when the user makes the ...

Documents

Patient_Consent_Form_(Signed).pdf
20 KB (5 pages)   2/20

patient_information_1.pdf
20 KB (5 pages)   2/20

Health History

Tasks   Patients   Docs

Patients - Patient Details

Here users can mark a task as completed, delete the task, or edit its contents. They can also request to swap tasks.

The group list can be viewed in detail and can be added to from here.

9:41

‹   ⓘ Grace Hopper

Patient Information

Date of Birth: 12/09/1906
EMR #:   354629-M
Sex: Female
Location: New York, NY
Blood Type: O
Conditions: Heart Disease, Diabetes
Allergies: Penicillin

Documents - Documents List	
	9:41 ▪▪▪ 🔋
	✅ **Current Team** 🔍 ➕
	My Patient Docs All Documents
	📄 patient_information_1.pdf 2/20 20 KB (5 pages)
	📄 patient_information_2.pdf 2/20 30 KB (6 pages)
	📄 patient_information_3.pdf 3/15 10 KB (1 pages)
	📄 patient_information_2.pdf 2/20 30 KB (6 pages)
	📄 patient_information_2.pdf 2/20 30 KB (6 pages)
	📄 patient_information_2.pdf 2/20 30 KB (6 pages)
	📄 patient_information_2.pdf 2/20 30 KB (6 pages)
	✅ Tasks 👤 Patients 📑 Docs

Documents - Document Item Detail

Documents - Document Details

Users can edit notes, or delete the document

9:41

< patient_information_1.pdf

Document Information

Created by Dr. Doctor on Tuesday at 2:23p.

Notes:

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu

Size: 30 Kb
Date: 5/7/2019 - Tuesday 2:23pm

Search

The Search button is accessible from Tasks, Patients, and Docs Lists.

Search is contextual. If a User is viewing the Task List, Search will by default filter for Tasks. This works in the same way for Patients and Document. Search filters are togglable.
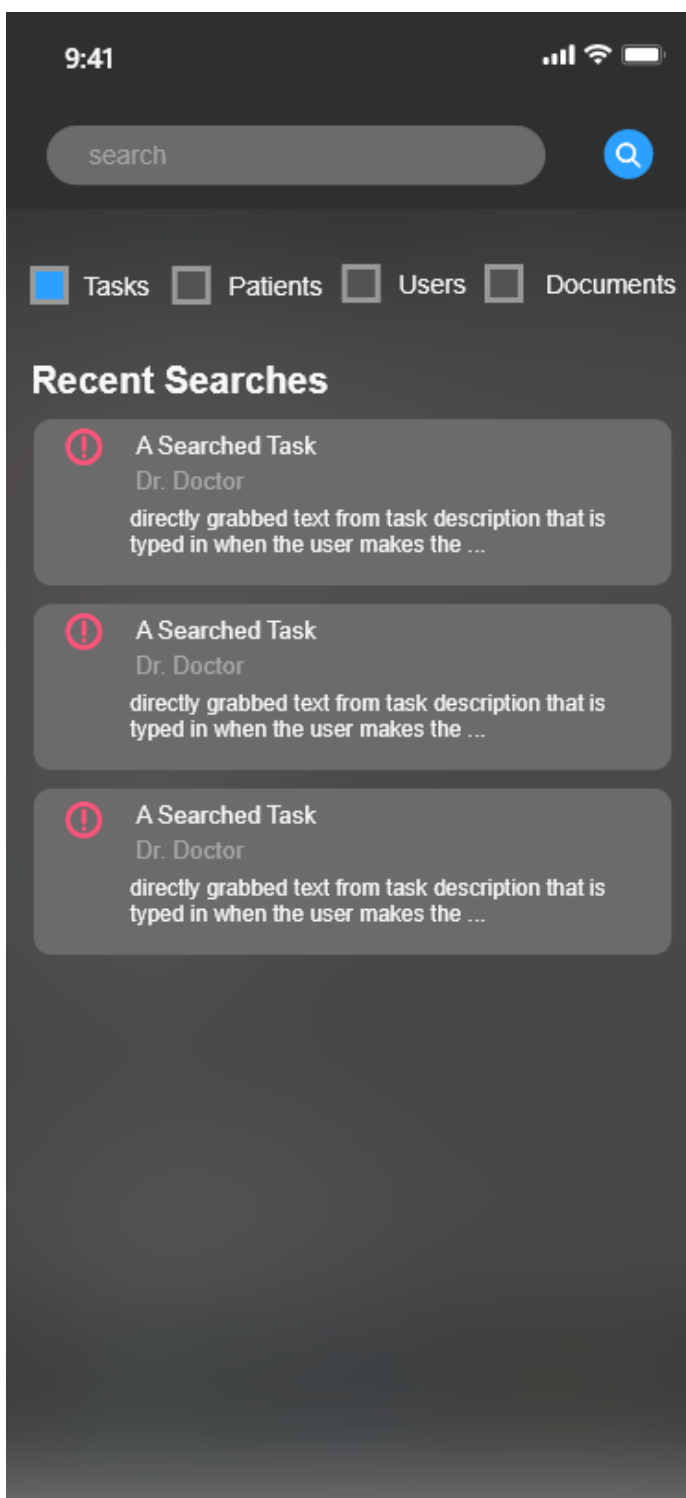
Side Panel Menu Accessible from Main views: Task List (schedule) Patient List Docs List	9:41 Matt Moore matt_moore@gmail.com Drafts Notifications Completed Tasks My Teams Team name 1 Team name 2 Team name 3 App Settings Logout
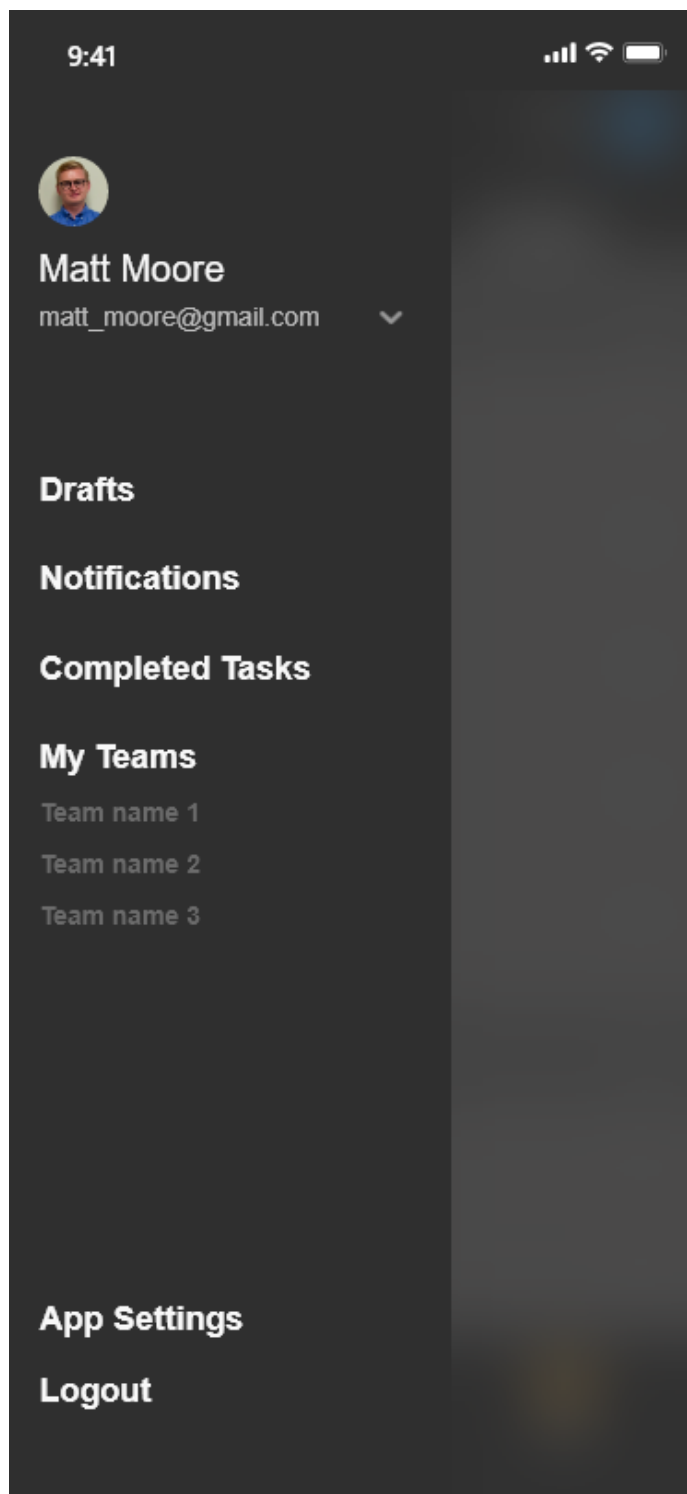
Data objects

User

A medical team staff member that is using the application. Users are apart of teams, they interact with team oriented tasks and groups. A user must create an account and have that account verified and approved before manipulating tasks.

Login Email: Medical Team member's email address for logging in

- Field constraints: must be a valid email address and must be unique (no two users can have the same login email)
- Enforced in: New User

Password: Medial Team member's login password, SHA-256 hash

- Field Constraints: between 15 and 30 characters, can consist, but does not have to consist of the following: upper and lowercase characters, numbers, and special characters (!@#$).
- Modified in **Create Account** and **Forgot Password.**

User Icon: (optional) image file that represents the user.

- Field constraints: image file of type (png, jpg, bmp, tiff, gif) with a size up to 512kb.
- Modified in **Create Account** and **Edit Profile.**

User Job: The Job that the user has been hired to do.

- Field Constraints: chosen from a list of jobs in the hospital.
- Enforced in: New User, Update User, Admin Approval

Team

A medical team that 1 or more users belong to. Tasks are created and utilized within teams to accomplish goals and other team oriented tasks. A user must create a team or join an existing team in order to start receiving/completing tasks.

Team Name: Medical Team name that uniquely identifies it from other teams

- Field constraints: between 1 and 255 alpha-numeric characters, white space also allowed, special characters not allowed
- Modified in **Create Team** and **Edit Team**.

Team Members: List of team members that make up the team

- Field constraints: between 1 and 20 users
- Modified in **Create Team** and **Edit Team.**

Team Icon: (optional) image file that represents the team.

- Field constraints: image file of type (png, jpg, bmp, tiff, gif) with a size up to 512kb.
- Modified in **Create Team** and **Edit Team.**

Color: (optional) color associated with the team to help with unique identifiability

- Field constraint: color class data type, predefined colors to choose from
- Modified in **Create Company** and **Edit Company**

Task

A Task is an activity that an individual or group is assigned to complete. Tasks can be created, edited, and deleted by any user. Patients can be associated with tasks as well. Tasks are marked as completed by a user when they have been.

Task title: Scheduling software task name field

- Field Constraints: between 0 and 100 mix of alpha-numeric characters and numbers. No special characters.
- Enforced in **Create Task** and **Edit Task**

Priority: task priority is signified by different icons that are showcased in the task view, you can also see task priority icons in the patient view which will showcase the most critical task priority that the patient has tied to it.

- Field constraints: chosen between the following 3 priorities (Critical, Semi-Critical, Normal)
- Modified in **Create Task, Edit Task** and **Complete Task**

Notify: Sets the priority for push notifications

- Field constraints: chosen between the following 3 priorities (All Team Members, All Group Members, A specific Job role)
- Modified in **Create Task** and **Edit Task**

Attributes: The type of task that is being created, tasks can have multiple types

- Field constraints: chosen from a list of boolean checks (Recurring, Singular, Edit Name, Edit Detail, Completable, Assignable, File Upload, Comments).
- Modified in **Create Task** and **Edit Task**

Add Group Members: Each task has an optional way to add existing team members to a task to form a group for completing said task.

- Field constraints: Chosen from a list of Team Members, list is featured alphabetically [a-z].
- Modified in **Task Details, Create Task,** and **Edit Task**

Task Description: Scheduling software task description field

- Field Constraints: an unlimited number of characters, can consist of any set of characters.
- Modified in **Create Task** and **Edit Task**

Patient

Patients are a pseudo user, they only exist as profiles and do not belong to individuals that can utilize the platform. Patients are associated per team.

Patient First Name: Field to take in the patients first name

- Field constraints: Between 1 and 255 alpha characters [aA-zZ], white space also allowed, special characters and numbers not allowed.
- Modified in **Add Patient** and **Edit Patient.**

Patient Middle Name: (optional) field for the patients middle name

- Field constraints: Between 1 and 255 alpha characters [aA-zZ], white space also allowed, special characters and numbers not allowed.
- Modified in **Add Patient** and **Edit Patient.**

Patient Last Name: Field for the patient's last name

- Field constraints: Between 1 and 255 alpha characters [aA-zZ], white space also allowed, special characters and numbers not allowed.
- Modified in **Add Patient** and **Edit Patient.**

Patient Birth Date: Field for the Patient's date of birth

- Field constraints: Integer based input restricted to the format of (MM/DD/YYYY).
- Modified in **Add Patient** and **Edit Patient.**

EMR #: unique number assigned to patients

- Field constraints: Integer based input, alpha restricted, no special characters formatted to a static integer input of 6 numbers.
- Modified in **Add Patient** and **Edit Patient.**

Patient Conditions: checkboxes listing patient health conditions

- Field constraints: Boolean based input, lists off patient conditions (Heart Disease, Diabetes, Asthma, Arthritis, Other, Hypertension, Cancer, Blindness, Dementia)
- Modified in **Add Patient** and **Edit Patient.**

Health History: Field for the patients health information that needs to be known upon admission.

- Field constraints: Unlimited non-restricted character input.
- Modified in **Add Patient** and **Edit Patient**

Document

A document is a file that is uploaded that is needed in order to complete a task or satisfy patient information gathering. Users may upload a multitude of different file types and have them listed under the documents view.

Document Upload: Upload documents to the application

- Field constraints: acceptable file types: jpg, jpeg, png, tiff, docx, otf, txt, pdf. Document to upload to Documents List
- Modified in: **Add Document** and **Edit Document Notes**

Document notes: Provide auxiliary information for uploaded documents

- Field constraints: Unlimited non-restricted character input
- Modified in: **Add Document** and **Edit Document Notes**

Navigation map
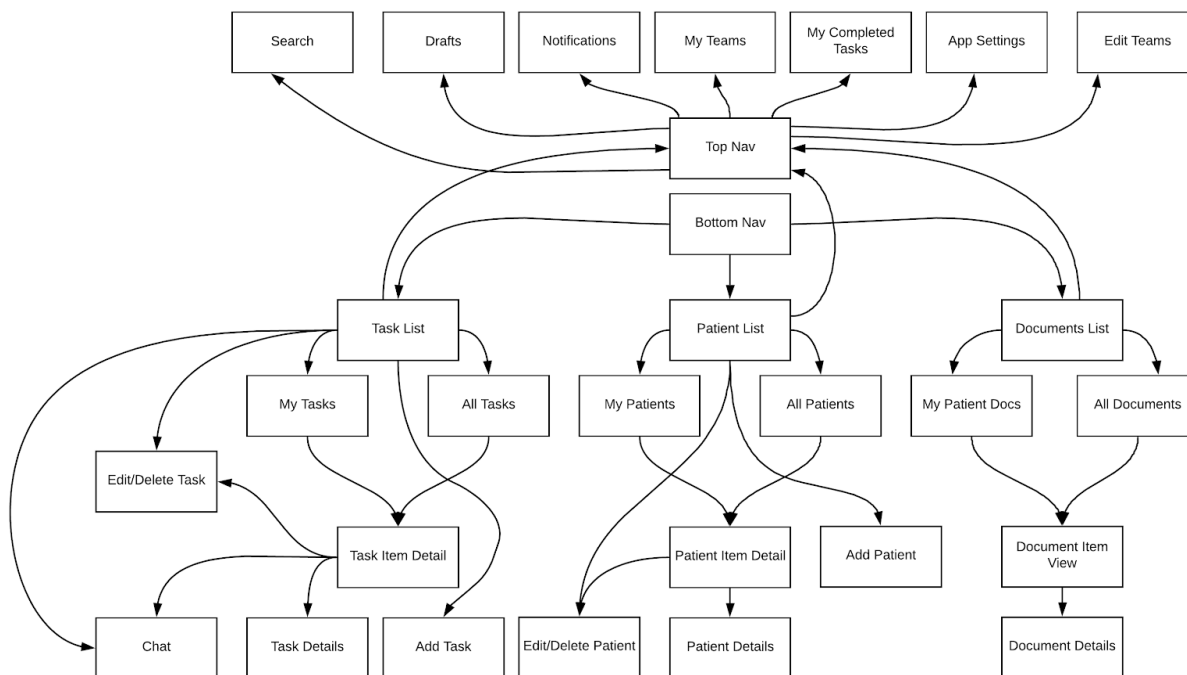
Milestones

Completed Milestones:

UI/UX

- Complete Navigation proposals
- Finalize Task Item Detail, Task Detail Views
- Finalize Patient Item Detail, Patient Detail View
- Complete Functional Mockup

iOS

- Familiarize team with programming environment
- Set up dummy login, task and docs views
- Set up Functional bottom nav

Android

- Database connection setup
- Set up bottom navigation bar
- Set up dummy Task list
- Simple login is completed

Database

- Drafted Database Schema
- Finalized Database Schema
- Successfully queries
- Successful Auth

Up and Coming Milestones:

UI/UX

- Complete Redesign after correspondence with client

iOS

- Task list populated with some sample tasks (maybe have it clickable) and a sample user
- Completed login functionality
- Itemized Task Clickable Screen Transition Functionality
- Document Viewable Screen Transition Functionality

Android

- Tasks home screen finalized
- Task Item Detail Semi-Functional
- Document Item Semi-Functional

Database

- Restructure Schema to fit new changes from the client

Quality Assurance

- Login Functional Testing Complete (Android)
- Documentation perfection (Documentation)