**Product Requirements**

**Team: *Team Selfie***

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| ***Revision Number*** | ***Revision Date*** | ***Summary of Changes*** | ***Author(s)*** |
| 1 | 7 Feb 2015 | The document has been filled out for the first time. | All team members |
| 2 | 28 Feb 2015 | Updated the system requirements to accurately reflect our design (changed “3 types of users” to “4” - Docs, Nurses, Patients, Admins). | Mike |
| 3 | 7 Mar 2015 | Updated the document based on Professor Martinez’s mycourses comments. | Mike |

# **Brief problem statement**

We represent a funding group (HAccelerator) chartered to create applications for the benefit of health-care across the country. The project we currently want to make a reality will be called **HealthNet**. At its core, HealthNet is meant to enable their hospitals in the US to be able to manage both employees and patients. The successful implementation should make it easy for users to effortlessly sign-up as patients so that the hospital can, without difficulty, manage their procedures and patient related tasks to optimize day-to-day work-flow.

The HealthNet product is intended to improve hospitals by providing an easy mechanism for managing employees, gathering statistical data on the inner workings of the hospital, signing up patients, making appointments, and allowing ease of transfer of both patients and their information between hospitals.

We want a product whose emphasis is on ease of use, whose navigation is straightforward and where the status of any, and all, information shown is clearly displayed. Ultimately, a system where understanding and communication about hospital and patient matters is improved.

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# **Stakeholders**

**Dr. House and Dr. Wilson** – Keep track of the team’s progress on the project. Give feedback and request changes on behalf of the hospital. Act as an intermediate between the hospital administrators and the Software Engineering team.

**Hospital Administrators** – View statistics and performance of the system. Tell Dr. House what they do and don’t want. The real “customer”.

**Software Engineering Team** – Responsible for the day-to-day operations and coordination of all aspects related to the software product's life-cycle. This include, among others: planning and delegation of team roles and responsibilities; elicitation and clarification of requirements; analysis and design; implementation, testing and release of all software components. Will communicate with Dr. House on a regular basis to discuss their progress and possible changes to the interface.

**end users of the project as stakeholders (patients, administrator, doctors).** Whether the software is functional determines whether they are functional in the work environment.

**Users profile**

The target user must:

* Have basic experience using computers and browsing the internet. Has filled out online forms or surveys and may have purchased or sold a product.
* Have a computer with access to the internet
* Have an interest in improving their health by using an online way of interacting with their hospital
* Be willing to share information such as home address and contact information as well as more personal information such as medical history

Furthermore, the Doctors should:

* have profiles that do not necessarily need to contain the same information as patients

Lastly, the administrators:

* should have complete access to all parts of the system and have all abilities that the system can afford

# **System requirements**

At a high-level this project will be source controlled in SVN, run on Django using python, sqlite and needs to be compatible with the latest browsers. It will be designed to run on the versions installed on the machines in the software engineering laboratory.

The interface will be designed to be used by those with very limited computer knowledge. Continuous progress will be made and the team will communicate this progress with Dr. House. The team will respond to any changes Dr. House requested and make these changes if it is possible to do so by the given deadline. The interface will at first include information about the patients and employees that the software engineering team feels are helpful and Dr. House will decide what to change. User registration will be set up so that it can either be done all at once or started with primary information and finished later with the rest. Doctors will be able to enter information on behalf of the patients. The interface will be designed to four types of users: patients, Doctors, Nurses, and administrators. Administrators will have all the privileges of a standard employee with the additional privilege of being able to see system performance information and statistics. The interface will also include a messaging system between the doctors and the patients.

**Feature Requirements (User Stories)**

The following list of user stories is neither final nor comprehensive. You must consider it your responsibility to maintain its relevance, clarify any misunderstandings and keep it up-to-date. Any changes must be discussed with the Product Owner for approval.

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| **No.** | **User Story Name** | **Description** | **Release** |
| **1\*\*** | Patient Registration | Users sign up to become a Patient by providing their personal contact information, proof of insurance and unique login credentials.    Additionally, a patient should provide the system with some basic medical profile information, a choice of preferred hospital and emergency contact information (linked to another patient if they are already in the system). | **R1** |
| **2** | Administrator Registration | Doctors, Nurses, and Administrators will be added to the system by other administrators. All information for creating these new accounts will be done through an administrator account. | **R2** |
| **3\*\*** | Update Patient Profile Information | Patients can update their profile information. | **R1** |
| **4\*\*** | Update Patient Medical Information | Doctors and Nurses can update patient medical information. | **R2** |
| **5** | Export Information | Patients will be able to export their information and their test results from the system with relevant privacy warnings. | **R2** |
| **6\*\*** | Create or Update Patient Appointment | Patients, doctors and nurses can create or update an appointment with a doctor and at one of the doctor’s available locations.    If the patient or doctor already has an appointment at the time selected, then the system will not allow for the appointment. | **R1** |
| **7\*\*** | Cancel Patient Appointment | Patients can cancel their existing appointments.    Doctors can cancel their existing appointments.    Nurses cannot cancel (only modify) existing appointments. | **R1** |
| **8\*\*** | Appointment Calendar | Doctors and patients will easily be able to view all of their appointments in a calendar view.    Nurses will be able to see all appointments for the day and week between Patients and Doctors. | **R1** |
| **9** | Add/Remove Prescriptions | Doctors can add or remove a prescription to a patient record.    Nurses can view the prescriptions of patients belonging to the same hospital.    Patients can view their prescriptions from their account. | **R2** |
| **10** | Viewing Patient Medical Information, Prescriptions and Tests and Results | Doctors can view all medical information for any patient in the system (regardless of Hospital).    Nurses can only view patient medical information in the hospital they work for.    Patients can view their tests (pending or completed) and view the corresponding results for those tests that have been released by the doctor.    Prescriptions and other non-sensitive information is viewable by the patient without a need for doctor’s release. | **R2** |
| **11** | Release Test Results | Doctors (within the patient’s hospital) can, upon evaluating a patient’s test results, release them for view by that patient.    Comments may be added to the specific test result for view by the patient. | **R2** |
| **12** | Logging System Activity | For security, many actions in the system will be logged for review at a later date.    Some examples of actions to be logged include but are not limited to updating of a Patient’s information, viewing of a Patients information/records, and transfers of a Patient from one hospital to another. | **R1** |
| **13** | Admission and Discharge to/from Hospital | Doctors and Nurses can admit a patient to the hospital for an extended stay (reasons could be: emergency, observation, surgery, etc.). These are typically unexpected visits but can result from a decision made after a scheduled appointment. This event is recorded by the system.    Doctors are the only ones to approve a patient’s discharge from the Hospital. This event is recorded by the system. | **R2** |
| **14\*** | Viewing Activity Log | Administrators will be able to view the logs of all system activity for a given time-frame at their hospital. Some examples of this might be:  - breakdown of the viewing activity of patient records or by system user  - most common system activities (or by user)    Other important and informative statistics yet to be determined. | **R1** |
| **15** | Viewing System Statistics | Administrators will be able to view compiled statistics for a given time-frame at their hospital. Some examples of this might be:  - number of patients visiting the hospital  - average number of visits per patient  - average length of stay (from admission to discharge)  - most common reasons for being admitted to the hospital  - prescription statistics    Other important and informative statistics yet to be determined. | **R2** |
| **16** | Patient Transfer | Patient can be transferred between hospitals.    Transfers can be carried out by either administrators or by doctors (ones who are at the receiving hospital). | **R2** |
| **17** | Upload Patient Information | Doctors will be able to upload the results of a patient’s tests if needed.    Doctors will be able to upload images such as those used in X-Rays to update a patient’s record.    Uploads are considered as updates to a patient’s medical information. | **R2** |
| 18 | Send Private Message | Doctors, nurses, patients and administrators can send private messages of limited length via the system. | **R2** |

**Use case diagrams to be constructed (actual diagrams on the design deliverable) also, at this time only the use cases for R1 have been modeled.**

**Patient Registration**

**Administrator Registration**

**Update Patient Profile Information**

**Update Patient Medical Information**

**Export Information**

**Create or Update Patient Appointment**

**Cancel Patient Appointment**

**Appointment Calendar**

**Add/Remove Prescriptions**

**Viewing Patient Medical Information, Prescriptions and Tests and Results**

**Release Test Results**

**Logging System Activity**

**Admission and Discharge to/from Hospital**

**Viewing Activity Log**

**Viewing System Statistics**

**Patient Transfer**

**Upload Patient Information**

**Send Private Message**

**Use case description**

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| **Use Case Number:** | ***UC-01*** |
| **Use Case Name:** | *Patient Registration* |
| **Overview:** | *The patient provides personal and medical information and is entered into the system* |
| **Actor(s):** | *Primary- the patient. Secondary- Doctor, nurse* |
| **Pre-condition(s):** | *The patient has not been entered into the system yet* |
| **Scenario Flow:** | *Main (success) Flow: Patient submits their information. Information is validated. Patient is entered into the Hospital user system* |
| ***Alternate Flows:*** | *Alternate Flows: Patient submits incorrect information. Patient submits insufficient information. System is full. System is offline* |
| **Post Condition:** | *Patient is successfully entered into the system with their current personal and medical information.* |

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| **Use Case Number:** | ***UC-03*** |
| **Use Case Name:** | *Update Patient Profile* |
| **Overview:** | *This feature is when an actor accesses a patient’s information and updates a specific section (after they’ve already been registered).* |
| **Actor(s):** | *Patient* |
| **Pre-condition(s):** | *Patient already exists, field to be updated already exists, Patient has access to the profile trying to be updated* |
| **Scenario Flow:** | *Actor accesses system. They then search for the patient to be updated. The patient is then found and the actor accesses their profile. The actor locates the information to be updated, updates it, and closes out the system.* |
| ***Alternate Flows:*** | *The user does not exist, then the system will return an error message to the actor.*  *Field to be updated doesn’t exist, either we need to add that field or the actor should close out the system.*  *The actor doesn’t have access to the profile, meaning someone is trying to access information they shouldn’t be (security).* |
| **Post Condition:** | *Patient’s records are updated successfully and the system is exited.* |

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| **Use Case Number:** | ***UC-04*** |
| **Use Case Name:** | *Update Patient Medical Information* |
| **Overview:** | *Doctors and Nurses need to be able to update relevant patient medical records to have the most up to date information for each patient. This provides access for that.* |
| **Actor(s):** | *Doctors and Nurses* |
| **Pre-condition(s):** | *The patient exists, the doctor/nurse has the necessary privileges to alter patient information, the system activity is logged.* |
| **Scenario Flow:** | *Doctor/Nurse search for specific patient. Their credentials check out and they access the patient’s information. They then proceed to update the relevant info, log their activity and then close the system.* |
| ***Alternate Flows:*** | *The user doesn’t exist, then an error should pop up.*  *Their credentials don’t match, an error should pop up and they should be locked from the system.*  *They don’t log their activity, a message should pop up and tell them to before exiting.* |
| **Post Condition:** | *System is closed and the relevant info has been successfully updated.* |

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| **Use Case Number:** | ***UC-05*** |
| **Use Case Name:** | *Log System Activity* |
| **Overview:** | *Any major changes to the system (i.e. when a new user is registered, when a current user’s information is updated, etc.) will be logged in a system file. Details about the change such as the time, date, and type of change will be included in the log.* |
| **Actor(s):** | *Patients, Doctors, Nurses, and Administration* |
| **Pre-condition(s):** | *A change or update to system information has been committed (i.e. a user who has changed information in their accounts has saved the change(s))* |
| **Scenario Flow:** | *A user of the system makes a change to its information (i.e. creates a new account or updates the information in an existing account).*  *A detailed message will be generated by the event with the following attributes: Date and Time, Type of change, Result of change*  *If a log file exists, the message will be appended to the file. Otherwise, a new log file containing the message will be created.* |
| ***Alternate Flows:*** | *Alternate Scenario #1*  *An error in the system has occurred.*  *The system will generate an error message that includes the following attributes: Date and Time, Type of change, Result of change*  *If a log file exists, the message will be appended to the file. Otherwise, a new log file containing the message will be created.* |
| **Post Condition:** | *After the log file has been appended, the file will be saved.* |

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| **Use Case Number:** | ***UC-06*** |
| **Use Case Name:** | *Create or Update Patient Appointment* |
| **Overview:** | *Patients, doctors and nurses can create or update an appointment with a doctor and at one of the doctor’s available locations.*    *If the patient or doctor already has an appointment at the time selected, then the system will not allow for the appointment.* |
| **Actor(s):** | *Primary: Patients, doctors and nurses*  *Secondary: Patients, doctors and nurses* |
| **Pre-condition(s):** | *Actor does not have an appointment* |
| **Scenario Flow:** | *Main (success) Flow: User enters new time place and other actors needed for appointment. If actors do not have appointment at that time and appointment is created and users are informed of this change.* |
| ***Alternate Flows:*** | *Alternate Flows: User enters time place and other actors needed for appointment. If actors do not have appointment at that time and appointment is created and users are informed of this change.* |
| **Post - Condition:** | *Appointment is created and saved in the system* |

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| **Use Case Number:** | ***UC-07*** |
| **Use Case Name:** | *Cancel Patient Appointment* |
| **Overview:** | *Patients can cancel their existing appointments.*  *Doctors can cancel their existing appointments.*  *Nurses cannot cancel (only modify) existing appointments.* |
| **Actor(s):** | *Primary: Patients, doctors and nurses*  *Secondary: Patients, doctors and nurses* |
| **Pre-condition(s):** | *There is an appointment at a time and place with other users* |
| **Scenario Flow:** | *User tries to cancel their appointment, if they are a Patient or Doctor the system cancels the appointment and notifies the relevant parties* |
| ***Alternate Flows:*** | *User tries to cancel their appointment, if they are a nurse the appointment is not changed and the user is informed that they cannot cancel appointments* |
| **Post Condition:** | *There is no longer an appointment.* |

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| **Use Case Number:** | ***UC-14*** |
| **Use Case Name:** | *Viewing Activity Log* |
| **Overview:** | *All important activity in the system should be properly documented in an activity log. This feature is for viewing that log.* |
| **Actor(s):** | *Administrators* |
| **Pre-condition(s):** | *The time frame they select is valid. There’s system activity to show.* |
| **Scenario Flow:** | *The time frame is valid, then the log for that time period appears on screen. Once the admin is satisfied, he/she closes the log and closes out the system. The admin should properly document his viewing of the activity log as well.* |
| ***Alternate Flows:*** | *If the time frame is invalid, an error should pop up asking for adjustment.*  *If there’s no activity, report it to the admin via message or pop up.* |
| **Post Condition:** | *The admin viewed the log and closes out the system.* |