

Summary

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Title of the Project: HealthyBufs

Project Summary: HealthyBufs is a healthcare management platform exclusively for students, faculties and other members of CU Boulder where people can locate doctors, pharmacists, pathologists, consultants and book appointments. This platform can also be used for looking up medicines availability in pharmacies. The portal also manages medical records/history of each patient so that it is easier for doctors to make their diagnosis and pharmacists can suggest medicines to patients.

Actors: Patients, Doctors, Pharmacists, Pathologies, Insurance Companies, Admin

Project Requirements

| Business Requirements | | | | |
|-----------------------|--|----------------|------------------------------------|----------|
| ID | Requirements | Topic Area | Actor | Priority |
| BR001 | Patients' login should be using CU IdentityKey | Authentication | Patients | High |
| BR002 | All doctors, pharmacists and pathologists should have names and address | Authentication | Doctors, Pharmacists, Pathologists | High |
| BR003 | A patient can make/edit only a single appointment to a particular doctor until that appointment time is passed | Scheduling | Patient | Medium |
| BR004 | The appointment duration can be 30 minutes | Scheduling | Patient, Doctor | Medium |
| BR005 | Only Admin can sign up doctors/ pharmacists/pathologists after verification | User Account | Admin | High |
| BR006 | A user can only view his/her medical history | Documentation | Patients | High |
| BR007 | Insurance company can view only their patients' history | Authentication | Insurance Company | High |
| BR008 | Pharmacies and Pathologies can view patients' history only when a doctor/ customer allows | Authentication | Pharmacies, Pathologies | High |

| User Requirements | | | | |
|-------------------|---|------------|---------|----------|
| ID | Requirements | Topic Area | Actor | Priority |
| UR001 | Patients can search doctors, pharmacists and pathologists based on name, location or specialization | Lookup | Patient | High |
| UR002 | Patients can search for medicines availability in pharmacies based on pharmacies' names, distance | Lookup | Patient | Medium |

| User Requirements | | | | |
|-------------------|--|---------------|-----------------|--------|
| UR003 | Patient can view available time slots to make appointments for a particular doctor | Scheduling | Patient | Medium |
| UR004 | A patient can make an appointment to a doctor in the available time slot | Scheduling | Patient | Medium |
| UR005 | Patient can view his/her past and future appointments | Documentation | Patient | Medium |
| UR006 | Patient can view medical history | Documentation | Patient | High |
| UR007 | Patient can view lab reports directly in the platform | Documentation | Patient | Medium |
| UR008 | Patient can send a small enquiry to a doctor as a chat or a drop message | Enquiry | Patient, Doctor | Low |
| UR009 | Doctors can register with their specialization, qualification, experience and location | User Account | Doctors | High |
| UR010 | Doctors can view appointments for the day/week/month | Scheduling | Doctors | High |
| UR011 | Doctors can cancel appointments made by patients | Scheduling | Doctors | Medium |
| UR012 | Doctors can update patients' medical records | Documentation | Doctors | High |
| UR013 | Doctors can view medicines availability in a pharmacy nearby before prescribing to patients | Lookup | Doctors | Low |
| UR014 | Doctors can reply to patients' query received on the platform | Enquiry | Doctors | Low |
| UR015 | Pharmacies can update their medicines availability | Documentation | Pharmacies | Low |
| UR016 | Pharmacies can lookup patients' medical history and previous medicine purchases before giving them medicines | Lookup | Pharmacies | Medium |
| UR017 | Pharmacies can update patients' medicine purchases | Documentation | Pharmacies | Medium |
| UR018 | Pathologies can view patients' medical history | Lookup | Pathologies | Medium |
| UR019 | Pathologies can upload patients' tests results | Documentation | Pathologies | Medium |
| UR020 | Admin should first verify doctors, pharmacies and pathologies before signing them up in the system | User Account | Admin | High |
| UR021 | Admin can delete doctors, patients, pharmacies or pathologies | User Account | Admin | High |

| User Requirements | | | | |
|-------------------|---|--------------|-------------------|------|
| UR022 | Admin can view all the registered users to have a collective view | User Account | Admin | High |
| UR023 | Insurance companies can view patients' medical history | Lookup | Insurance Company | Low |


| Functional Requirements | | | | |
|-------------------------|--|----------------|------------------------------------|----------|
| ID | Requirements | Topic Area | Actor | Priority |
| FR001 | System should not allow users to enter the system without proper authentication. | Authentication | Patients | High |
| FR002 | System should alert the pharmacist when the medicine stock gets over | Authentication | Doctors, Pharmacists, Pathologists | High |
| FR003 | A patient cannot be allowed to book an appointment slot of a doctor which is already booked by another patient | Scheduling | Patient | Medium |
| FR004 | System should stop taking appointments from any patients if the doctor has exceeded appointment hours for the day or takes a day off | Scheduling | Patient, Doctor | Medium |
| FR005 | System should notify patients whenever a doctor cancels an appointment due to a personal reason | User Account | Admin | High |
| FR006 | System should notify patients when their medical history is updated | Documentation | Patients | High |

| Non Functional Requirements | | | | |
|-----------------------------|---|----------------|---|----------|
| ID | Requirements | Topic Area | Actor | Priority |
| NFR01 | Medical records must be secured and access control must be maintained | Security | System | High |
| NFR02 | Patient medical history must be available to doctors, pharmacists, pathologies etc. without observable latency (<10 ms) | Authentication | Doctors, Pharmacists, Pathologists | High |
| NFR03 | User account information and password must be stored in a secure manner | Security | System | High |
| NFR04 | Patients must be able to schedule an appointment using a calendar at the first page on the dashboard | Usability | Patients | Medium |
| NFR05 | Any data from the database must be returned correctly or not at all. Incorrect data should not be returned at any cost | Reliability | Doctors, Pharmacists, Pathologists, Patients, Admin | High |

Data Storage

We will be using MySQL Database Management System to store and retrieve Patients', Doctors', Pharmacists', Pathologies etc. details.

UI Mockup

 University of Colorado
Boulder

HEATHY BUFFS

IdentityKey

Password

Payoj Jain

View/Edit Profile

Make an appointment

View Appointments

View Medical Records

View Lab test Report

Online consultation

Search & Book

Search location

Doctors

Pharmacies

Pathologies

Speciality

Orthopaedic

Dermatologist

Cardiologist

Ear-Nose-Throat (ENT) Specialist

Gynaecologist

Gastroenterologist

Orthopaedic

Dr. Andrew Jackson

Orthopaedic
1689 Colorado Avenue, 289, Boulder, CO

[Book](#)

Dr. Jon Snow

Orthopaedic
3210 Winterland Street, 235, Boulder, CO

[Book](#)

Dr. Andrew Jackson

1689 Colorado Avenue, 289, Boulder, CO

Today, 22 Feb

Morning No slots available

Afternoon No slots available

Evening 8 slots available

| | | | |
|-------|-------|-------|-------|
| 18:00 | 18:15 | 18:30 | 18:45 |
| 19:00 | 19:15 | 19:30 | 19:45 |

Night 4 slots available

| | | | |
|-------|-------|-------|-------|
| 20:00 | 20:15 | 20:30 | 20:45 |
|-------|-------|-------|-------|

Patient Name: Payoj Jain
Contact: +1 320-298-5274

[Confirm](#)

Ask a question

Patient Details

Gender: **Age:**

Problem Type (eg Skin, Hair, Mental Health)

Title:

Description: Less than 1000 characters

Your Email:

[Ask a Doctor](#)

Medical Record

Name:

Gender: **Age:**

Date: mm/dd/yyyy **Record ID:**

Doctor:

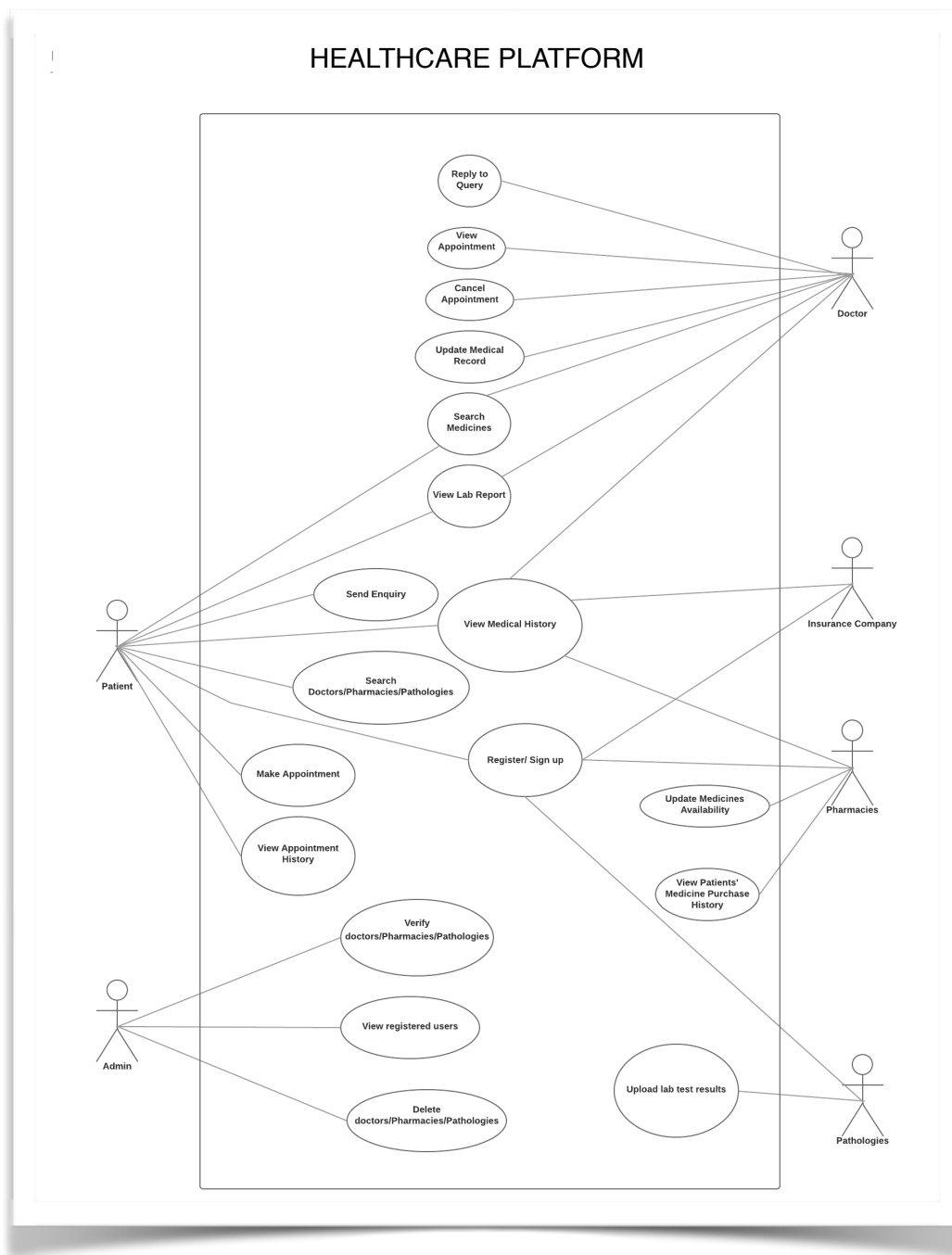
Prescription and Comments: Less than 1000 characters

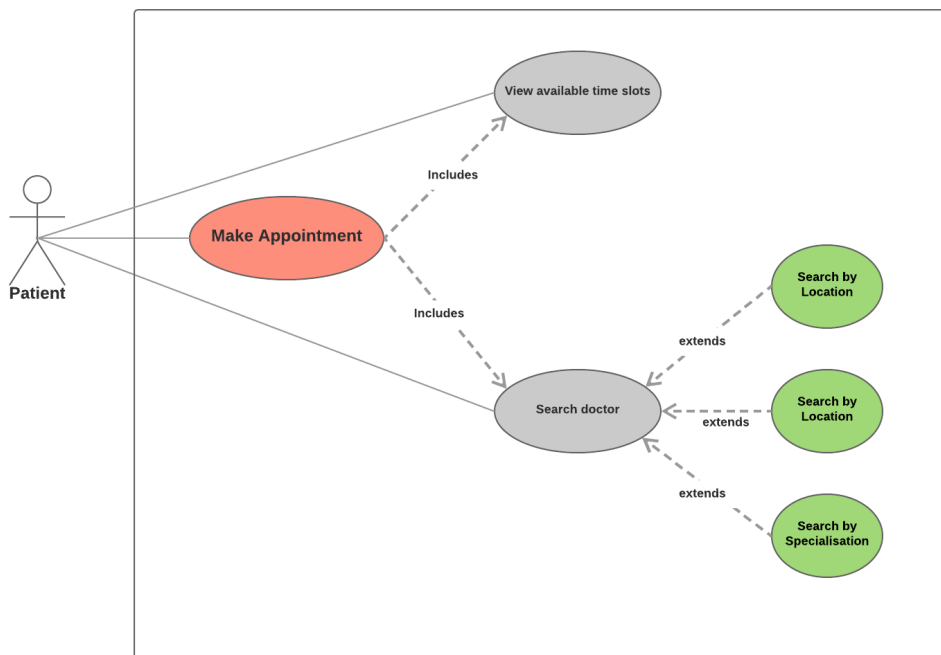
Date: mm/dd/yyyy **Record ID:**

Doctor:

Prescription and Comments: Less than 1000 characters

Use Case Diagram





Use Case Documents

| | |
|----------------------|---|
| Use Case ID | UC001 |
| Use Case Name | Make Appointment |
| Description | Patient can make an appointment with a doctor |

| Actors | Patient | | |
|-------------------------|--|---|---|
| Preconditions | Patient is logged in to the platform | | |
| Postconditions | Patient successfully make an appointment | | |
| Frequency of use | Patient can schedule one appointment for a particular doctor per day | | |
| Flows of Events | | Actor Action | System Response |
| | 1 | Patient searches doctors based on names, specialisation or location | List of doctors based on the selected criteria is displayed |
| | 2 | Clicks/Taps on any doctors' name from the list | |
| | 3 | | Displays doctors relevant data like address, specialisation, experience. System also displays "Book Appointment" option |

| | | | |
|-----------------|---|---|---|
| | 4 | Selects “Book Appointment” | Asks for Date of Appointment |
| | 5 | Enters Date | Displays available time slots for appointment |
| | 6 | Selects an available time slot and clicks “Confirm” | Locks the time slot and updates doctor’s and patient’s appointment schedule |
| Variations | 5 | Error Message: Appointment Date cannot be a past date | |
| | 5 | Pop up Message: All the time slots have been booked. Please choose another date | |
| Exceptions | | | |
| Developer Notes | | | |

| | |
|----------------------|--|
| Use Case ID | UC002 |
| Use Case Name | Patient can ask query from Doctors |
| Description | A patient can consult online from doctors regarding general problem type |

| | | | |
|-------------------------|---------------------------------------|---|--|
| Actors | Patient | | |
| Preconditions | Patient is logged in to the platform | | |
| Postconditions | Query Successfully sent to the doctor | | |
| Frequency of use | Patient can ask 4 questions in a day | | |
| Flows of Events | | Actor Action | System Response |
| | 1 | Patient selects "Online Consultations" | Displays a form with fields for patient to enter |
| | 2 | Patient enters "Problem Type" and types the question he/she is having. Selects "Ask a Doctor" | Sends the query to doctors with specialisation in "Problem type" |
| | | | |
| Variations | | | |
| Exceptions | | | |
| Developer Notes | | | |

| | |
|----------------------|---|
| Use Case ID | UC003 |
| Use Case Name | Updating Patient's Medical Record |
| Description | A doctor can prescribe medicines to patients and add comments by updating medical records of the patients |

| | |
|---------------|--------|
| Actors | Doctor |
|---------------|--------|

| | | | |
|-------------------------|---|---|--|
| Preconditions | Doctor is logged in to the platform Patient has an appointment with the doctor | | |
| Postconditions | Medical history is updated and patient is notified | | |
| Frequency of use | Doctor can update patients' medical records any number of times in a day | | |
| Flows of Events | | Actor Action | System Response |
| | 1 | Doctor selects patient's name from his appointment schedule | Displays patient's medical record |
| | 2 | Clicks/Taps on "Edit Record" | |
| | 3 | Updates medical record by updating comments or prescribing medicines and Selects "Save" | Updates the medical record and notifies patient about the update |
| Variations | | | |
| Exceptions | | | |
| Developer Notes | | | |

Activity Diagram