

Software requirement specification

E-Health Management System



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1. **Problem statement**

The aim of the project is to build a software that can give an accurate diagnosis of a patient’s condition based on the symptoms and an implicative medicine suggestion. It also tracks recent updates in research relating to a particular disease and informs the doctor. It also acts a management system, which will keeps a track or patients, staff and utilities. It deals with maintenance and functioning of each department of the hospital. The software also has an electronic record of a patient’s medical history which has a feedback system to automatically update itself.

1. **Background information**

Following are the activities that take place in a hospital

* Consultation by doctors on diseases
* Conducting tests and scans
* Diagnosis and prescription for a disease
* Providing treatment facility
* Admitting patients

Other maintenance activities include

* Generating bills
* Recording patient information
* Keeping an inventory for all the medicines

The targeted users of this software would be

* Patients (in-patient and outpatient)
* Doctors
* Nurses
* Lab technician
* Pharmacist
* Accountant
* Receptionist
* Department heads (oncology, pediatrics..)
* Administrator
* Emergency response team

The scope of the project encompasses all the activity of a hospital- medical like diagnosis and giving prescription or maintenance like allotting a ward or booking a schedule for a ct scan.

A lot of work done by doctors and operational staff is done on paper right now. This can be very cumbersome and has security and privacy risks associated with it. It is also time consuming to search for a document in such huge pile of documents.

Currently there are many software’s in the market, some of them being insta hms, softclinic, health.net, i-care etc. That can reduce the paperwork.

Secondly, the load of remembering all the diseases and all of their symptoms falls on the shoulders of doctor. Forgetting or overlooking a simple piece of information could mean false diagnosis leading to false treatment and hence risk patient health. Same the case with horrendous amounts of medicines that a doctor is supposed to remember.

The aforementioned software does not deal with this problem. This system when implemented could take this load off doctors’ shoulders so that they could focus more on patient care.

Thirdly, new breakthroughs happen in the field of medical research every day. But sadly even FDA approved treatments take at least 15 years to reach hospital and for being actually implemented. The main reason for this being huge workload on doctors leave them incapable of updating their treatments.

This project minimizes this gap between research and implementation by performing a web search of patient’s diagnosis in medical databases like omim (online mendelian inheritance in man) and pubmed. It also searches for alternatives of drugs so that doctors does not miss them.

1. **Stakeholders**
   1. Patients (in-patient and outpatient)
   2. Doctors
   3. Nurses
   4. Lab technician
   5. Pharmacist
   6. Accountant
   7. Receptionist
   8. Department Heads (oncology, pediatry..)
   9. Dean of Hospital
   10. Emergency response team
2. **Functional requirements**
   1. Patients
      1. Patients can register themselves as in-patient or out patient.
      2. Patients can provide and edit their personal details along with SSN no and e-health record no.
      3. Patients should be able to provide health insurance details if available
      4. In patients can check their ward no
      5. Patients can view and cancel their appointments, tests, or scans.
      6. Patient should be able to receive a prescription and dosage instructions
      7. Patient’s medical history should automatically update itself
      8. Patients can view their current bill.
   2. Doctors
      1. Doctors can log in and view their messages, emergency alerts, and appointments.
      2. Doctors can send messages to other staff and patients.
      3. Doctors should be able to cancel an appointment (with reason).
      4. Doctors should be able to view a patient’s medical history.
      5. Doctor should be able to enter the symptoms to the software and get a suggestive diagnosis and prescription.
      6. Doctor can accept or reject this diagnosis (provide a reason in care of rejection) and prescribe drugs to a patient.
      7. Doctors should be able to prescribe tests and scans.
      8. Doctors should receive the test/scan reports of his patients.
      9. Doctor should receive regular reports of his ICU patient’s vitals.
      10. Doctors receive urgent mail in case of any emergency regarding his patient
      11. Doctor should get updates about new treatments and drugs for the disease diagnosed.
      12. Doctor should be able to search for new breakthroughs for any disease.
      13. Refer a patient to a specialist or surgeon.
      14. Send a report to surgeon.
   3. Nurses
      1. Nurses should be able to Login and view messages.
      2. Nurses should be able to Reply to messages.
      3. Nurses should be able to Send the vitals of a patient to his/her doctor regularly.
      4. Nurses should be able to urgent mail a doctor.
   4. Lab technician
      1. Lab technician should be able to generate a report for test/scan.
      2. Lab technician Should be able to Mail the report to the concerning doctor
   5. Scan technician
      1. Scan technician should be able to View scans images.
      2. Scan technician should be able to Mark certain points or areas on image.
      3. Scan technician should be able to Generate a report
      4. Scan technician should be able to Mail the report to the respective doctor.
   6. Pharmacist
      1. Pharmacist should be able to view patient’s prescription.
      2. Pharmacist should be able to update the inventory.
   7. Accountant
      1. Accountant should be able to view the patient’s bill.
      2. Accountant should be able to view patient’s insurance details.
      3. Accountant should be able to send the billing details to insurance company after patient’s permission.
      4. Accountant should be able to enter cash in details
      5. Accountant should be able to print bill
   8. Surgeon
      1. Surgeon should be able to login, view and reply to messages.
      2. Surgeon should be able to view Surgery schedule, cancel and postpone a surgery.
      3. Surgeon should be able to view the report of patient who is to undergo surgery
   9. Receptionist
      1. Receptionist should be able to register a new patient.
      2. Receptionist should be able to login, view, and reply messages.
      3. Receptionist should be able to check availability of doctors.
      4. Receptionist should be able to book an appointment for a patient with a doctor.
      5. Receptionist should be able to check the availability of a facility (lab/scan room).
      6. Receptionist should be able to schedule a lab/scan for patient.
      7. Receptionist should be able to schedule a surgery for patient.
      8. Receptionist should be able to check out a patient.
      9. Receptionist should be able to book an appointment for lab/scan
   10. Department heads (Oncology, Paediatrics..)
       1. They should be able to login, view, and reply to messages.
       2. They should be able to view doctor and nurse details.
       3. They should be able to view diagnosis, treatment, and recovery of a patient.
       4. They should be able to generate a report.
       5. They should be able to view meetings date and venue.
       6. They should be able to issue notices and memos
       7. They should be able to view medical history of a referred patient
       8. They should be able to provide a diagnosis.
   11. Dean of the hospital
       1. Dean should be able to login, view, and reply to messages.
       2. Dean should be able to issue notices.
       3. Schedule / reschedule /cancel a meeting
       4. Dean should be able to view attendance of staff
       5. Dean should be able to approve salary.
   12. ER team
       1. They should be able to login, view, and reply to messages.
       2. They should be able to receive location of patient(s) in urgent mail.
3. **Nonfunctional requirements**
   1. Privacy of the patient

Privacy of patient’s details is of utmost importance and proper care shall be taken to protect it, personal details of the patient are only visible to the patient and the receptionist, while the medical history, diagnosis, and treatment are only visible to the patient and the doctor who is seeing him/her.

* 1. Performance

Immediate response in case of emergencies

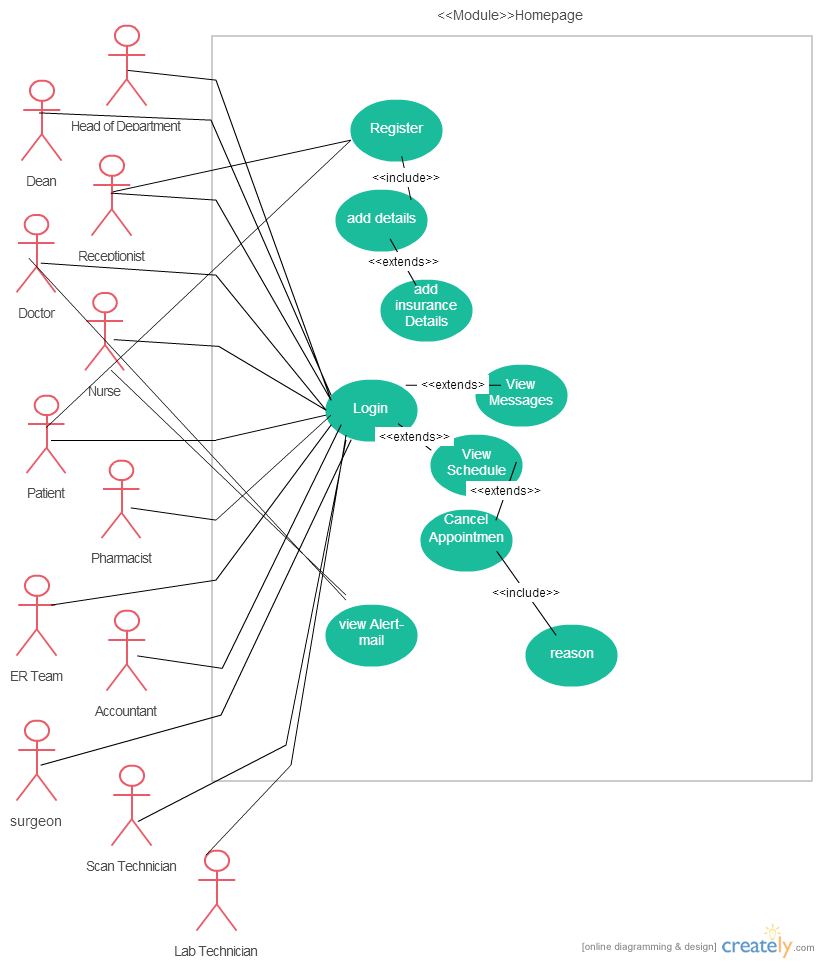
urgent mail facility has been included to inform the concerning doctors, nurses, or ER team immediately.

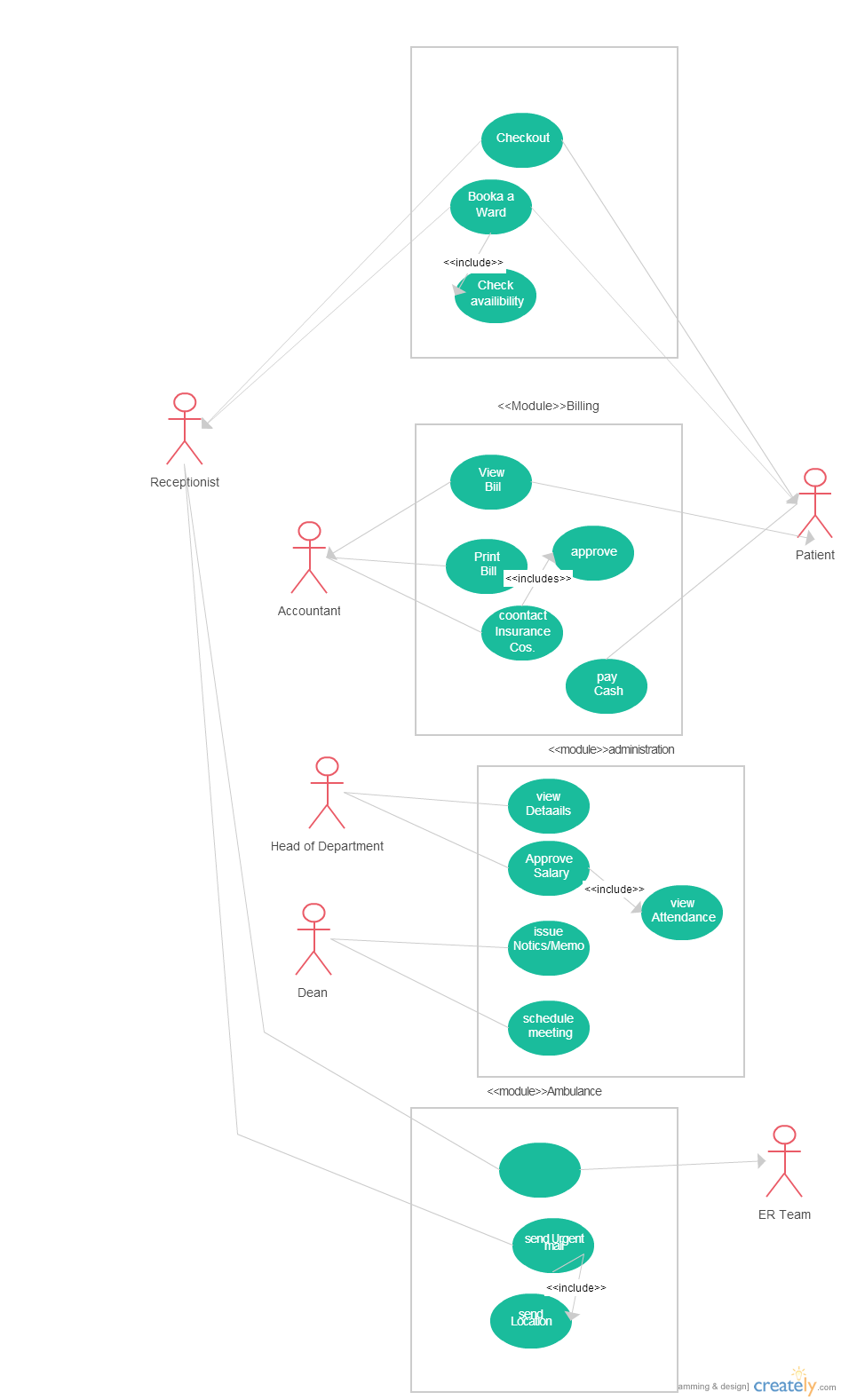
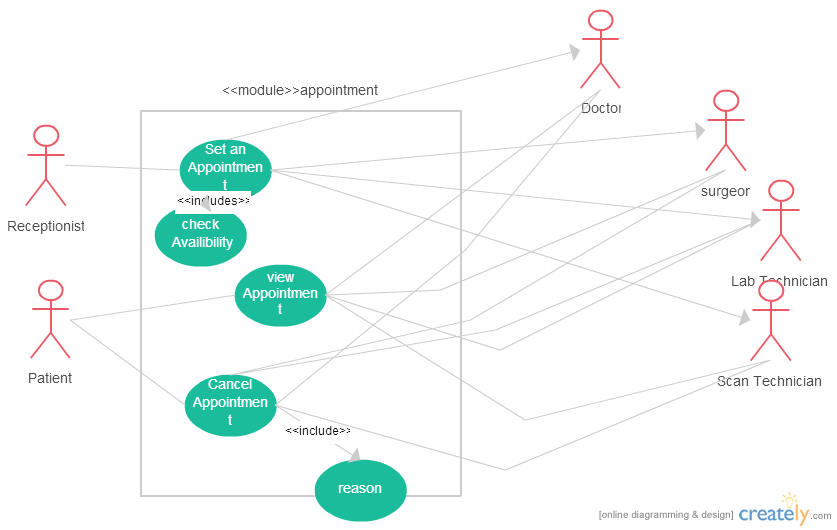
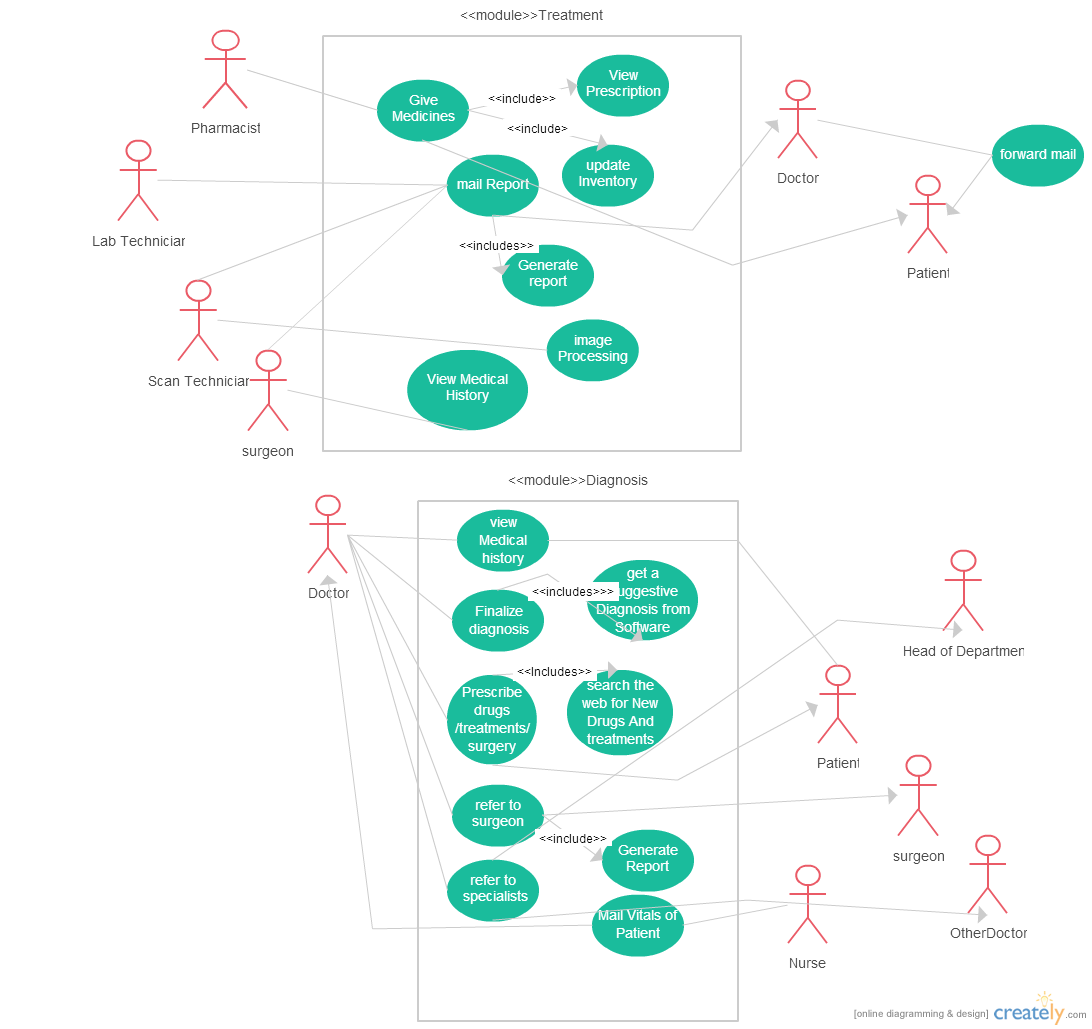
* 1. Usability

This system shall provide mouse and keyboard navigation. It will be available through a web browser such as google chrome or IE 5 or higher. It will have menus, pages, and dropdown lists. It shall provide printer friendly outputs of reports so that users can have easy to read print outs of the reports

* 1. Reliability

The software shall be available 24 hours a day for application users

1. **Use case Diagrams**

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