**Patient Treatment System**

1. **General Information**

In the next few weeks, our team will develop a software application for patient treatment. There are three departments within the system. The first one is a hospital with specialized staff and medicine. The second one is an Institute of Materia Medica in which there are labs that do the disease research and medicine development work. And the third one is a pharmaceutical factory, which is responsible for producing medicines and supplying them to the hospital.

1. **Proposed Entities**
2. Hospital

Outpatient department with doctors and patients, nurse’s station with nurses, and pharmacy with medicine manager.

1. Institute of Materia Medica

Information center with administrator, research labs with professor and lab assistant, and supervision department with medicine quality supervisors.

1. Pharmaceutical Factory

Raw material supply department with material purchaser, production department with workers, and marketing department with salesmen

1. **Key Functionalities**
2. Hospital

* Outpatient department: a patient makes a registration with a doctor first, then the selected doctor can make a prescription for him to take medicines, or can send a hospitalization request to the nurse’s station for the patient. If a currently untreatable disease is found from a patient, the doctor can send the disease sample to the Institute of Materia Medica and request for new medicine development.
* Nurse’s station: a nurse arranges beds for the patients who need hospitalization and can send away patients.
* Pharmacy: staff in it give medicines to patients and purchase medicines from pharmaceutical factory.

1. Institute of Materia Medica

* Information center: can assign the new medicine development tasks to the corresponding research labs after distinguishing the diseases that sent from the hospital.
* Research lab: each lab has one professor who can hire a lot of lab assistants for completing tasks and reports the formulation of new medicines.
* Supervision department: supervisors approve or reject the new medicines depending on their quality. If a new medicine is approved, the supervisor will send the formulation to the pharmaceutical factory.

1. Pharmaceutical Factory

* Raw material supply department: a material purchaser in it manages the quantity of raw materials.
* Production department: production workers produce specific medicine depending on the formulation and raw material.
* Marketing department: salesmen manage category of the medicines and sale them to the hospital.

1. **Additional System Features**

* The system checks the availability of bed before a doctor sends a hospitalization request to nurse’s station.
* The system checks the completion of the tasks before a professor sends the formulation to the supervision department.
* After the new medicine is rejected by the supervisor, the system returns the corresponding disease to the information center for reassigning.