Electronic Health Record

An electronic health record (EHR) is an information system that stores medical data for a person. The data is structured on medical encounters with doctors and on health issues which can be chronic or acute diseases. A medical encounter can relate to one or more issues. At each medical encounter health services are performed, which can be referrals to other doctors, prescriptions or measurements (eg. blood pressure).

The data in the system can be viewed by the patient or by specified doctors. Each doctor can view only the services related to the health issues that he is allowed to. The access list that determines what doctor is allowed to see what health issue is specified by the patient.

Each time a patient makes a visit to a doctor a new medical encounter is added in the EHR. After the consultation the services are added to the medical encounter. All the modifications in the EHR must be digitally signed using the individual digital signature of the doctor. It is possible to mark past services as incorrect (wrong prescriptions or measurements). In this case they are not deleleted (for future record) but only marked.

In the case of a legal investigation, the attorney investigating the case, can get read access on demand to the EHR.

The EHR system is interoperable with the information systems of the pharmacies. If a patient has a new prescription added in the EHR, he can go to a pharmacy, identify himself with his ID card and the pharmacist can view the prescription. If the patient takes the medicine, the pharmacist can mark the prescription as complete in the EHR.

You are encouraged to increase the complexity of the problem statement in order to fulfil the following requests:

1. **You can add new business objects, new use cases starting from the preliminary problem description. Develop the business architecture.**

2. **Develop the domain model that should emphasize the business information resources. Develop the business information architecture. Map it on the business architecture.**

3. **Design three software architectures using different styles and architectural patterns. Justify your decisions in writing. Select the most suitable architecture for the information system objectives and business constraints and declare it as your application architecture.**

4. **Implement an architectural prototype. A working test system must be produced using a component-based architecture implemented in Enterprise Java Beans 3.0. Develop the information technology architecture and map it on the previous application architecture.**

5. **A prototype of a new architectural application version based on web services will be also welcomed.**