

## Tutorial 2

**Date: 04-08-2022**

**Deadline to Submit: 11-08-2022**

**Submission Guidelines: Make a final pdf (handwritten) and submit it to the classroom.**

1. What are the main differences between a student software and industrial-strength software?
2. Suppose changes are to be made to a software system that is in operation. Why will changes to such a system cost a lot more than just making changes to the source code files?
3. Consider the description of the Patient Information System called Mentcare (See Figure 1). Answer the following from the given description.
  - a) Identify stakeholders of the Mentcare system.
  - b) Identify Functional requirements of the Mentcare system.
  - c) Write each functional(if possible) requirement in form of User requirement and System requirements
  - d) Identify the Non-functional requirements of the Mentcare system.
  - e) Categorize each non-functional requirement into one of the following categories: Product requirements, Operational requirements, External requirements
  - f) Write each non-functional requirement in the form of a statement that can be quantifiable and objectively verifiable. I.e. It is easy to generate test cases from these statements.
  - g) Identify ambiguities if any in the given requirements.

### **Mentcare: A patient information system for mental health care**

- A patient information system to support mental health care is a medical information system that maintains information about patients suffering from mental health problems and the treatments that they have received.
- Most mental health patients do not require dedicated hospital treatment but need to attend specialist clinics regularly where they can meet a doctor who has detailed knowledge of their problems.
- To make it easier for patients to attend, these clinics are not just run in hospitals. They may also be held in local medical practices or community centers.
- Mentcare is an information system that is intended for use in clinics.
- It makes use of a centralized database of patient information but has also been designed to run on a PC, so that it may be accessed and used from sites that do not have secure network connectivity.
- When the local systems have secure network access, they use patient information in the database but they can download and use local copies of patient records when they are disconnected.

### **Mentcare goals**

- To generate management information that allows health service managers to assess performance against local and government targets.

- To provide medical staff with timely information to support the treatment of patients.

### **Key features of the Mentcare system**

- Individual care management
  - Clinicians can create records for patients, edit the information in the system, view patient history, etc. The system supports data summaries so that doctors can quickly learn about the key problems and treatments that have been prescribed.
- Patient monitoring
  - The system monitors the records of patients that are involved in treatment and issues warnings if possible problems are detected.
- Administrative reporting
  - The system generates monthly management reports showing the number of patients treated at each clinic, the number of patients who have entered and left the care system, number of patients sectioned, the drugs prescribed and their costs, etc.

### **Mentcare system concerns**

- Privacy: It is essential that patient information is confidential and is never disclosed to anyone apart from authorized medical staff and the patient themselves.
- Safety: Some mental illnesses cause patients to become suicidal or a danger to other people. Wherever possible, the system should warn medical staff about potentially suicidal or dangerous patients. The system must be available when needed otherwise safety may be compromised and it may be impossible to prescribe the correct medication to patients.

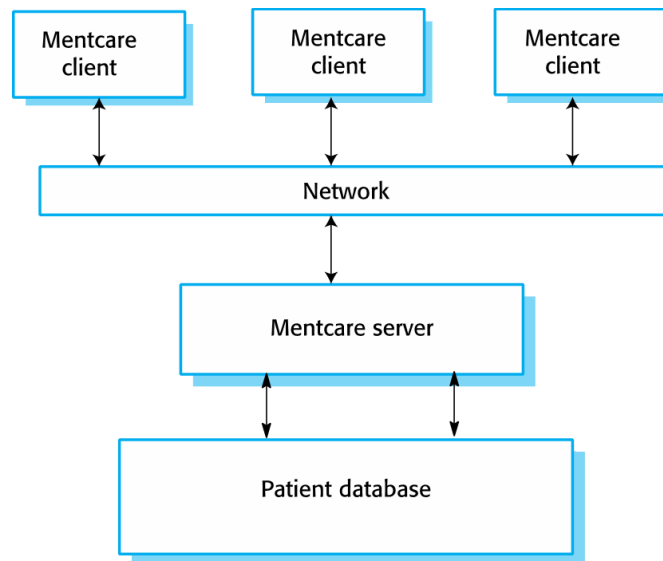


Figure 1 (credits: Book by Ian Sommerville)

4. Discover ambiguities or omissions in the following statement of requirements for part of a ticket-issuing system:

An automated ticket-issuing system sells rail tickets. Users select their destination and input a credit card and a personal identification number. The rail ticket is issued and their credit card account charged. When the user presses the start button, a menu display of potential destinations is activated, along with a message to the user to select a destination. Once a destination has been selected, users are requested to input their credit card. Its validity is checked and the user is then requested to input a personal identifier. When the credit transaction has been validated, the ticket is issued.

5. Write a set of non-functional requirements for the ticket-issuing system, setting out its expected reliability and response time.
6. What are the main error types for requirements?