TUTORIAL - 2

U19CS012

1) What are the main differences between student software & Industrial-Strength software?

1)

Student Software	Industrial- Strength software
① Built for demonstration purpose	① Built to solve some problems for client
② Not used later	② Used by client organization for operating some part of business.
③ Usually small is size	③ Large in size.
④ Author is sole user	④ Large number of users.
⑤ Single or less developers	⑤ Team of developers
⑥ Lacks detailed requirements	⑥ has detailed requirements.
⑦ Lacks proper user interface.	⑦ Well designed interface
⑧ Lacks proper documentations.	⑧ Well documented & user manual prepared.
⑨ Less efforts in testing	⑨ Rigorous Testing
⑩ Adhoc developing	⑩ Systematic development.

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?

2.)

→ Usually, changes during software development leads to rework. This is because complete requirements are not present at the start and client's needs tend to change.

The maintenance to development ratio is 80:20, 70:30 or 60:40, this is because, maintenance required

- understanding existing software
- understanding the effects of change
- making the change
- Testing the new parts
- Regression Testing [Retesting old parts that were not changed]

3.) Consider the description of Patient information system called Mentcare.

a) Identify stakeholders of the Mentcare System.

- Patients whose information is recorded in system.
- Doctors who are responsible for accessing and treating patients
- Nurses who coordinate the consultation with doctors and administer some treatments.
- Medical receptionist who manage patients data & appointments
- IT Staff who are responsible for installing and maintaining the system.

- A medical ethics manager ensures that the system meets current ethical guidelines for patient care.

- Health care managers obtain information from system

- Medical record staff ensures that systems info. can be maintained and preserved, and that record keeping procedures have been properly implemented.

b) Identify Functional requirements of the Mentcare System.

- A user shall be able to book / search the appointment list for all clinics.
- The System shall generate each day, for each clinic, a list of patients who are expected to attend appointments that day
- Each staff member using the system shall be uniquely identified by his/her 8-digit Employee ID.

c) Write each functional (if possible) requirement in form of User requirement and system requirement.

USER REQUIREMENT - The Mentcare system shall generate monthly management reports showing cost of drugs prescribed to each clinic during that month.

SYSTEM REQUIREMENT - ① On the last working day of each month, a summary of drug prescribed, then cost and prescribing clinics shall be generated.
② The system shall generate report for printing after 17:30 on the last working day of the month.

- A report shall be created and shall list the individual drug names, the total no. of prescription, no. of dose prescribed and total cost of prescribed drugs for each clinic.

- If drugs are available in different dose units (e.g. 10 mg, 20 mg etc) seperate reports should be created for each dose unit.

- Access to drug cost reports shall be restricted to authorized users as listed on a management access control list.

d) Identify the non-functional requirements of Mentcare System?

i) The Mentcare system shall be available to all cities during normal working hours (Mon-Fri, 8:30-17:30) Downtime within normal working hours shall not exceed 5 seconds in any 1 day.

ii) Users of the mentcare system shall authenticate themselves using their health authority identity card.

iii) The system shall implemented patient privacy provisions as set out in Hstam-03-2006priv.

e) Categorize the above

- Product Requirement :- Point (i) of above answer (↑)

- Operational Requirement :- Point (ii)

- External Requirement :- Point (iii)

f) Write each non-functional requirements in the form of a statement that can be quantifiable and objectively verifiable.

→ The system should be easy to use by all medical staff and should be organized in such a way that user errors are minimized [GOAL]

→ Medical staff should be able to use all the system functions after a hour of training. After this training, the average number of errors made by experienced users shall not exceed two per hour of system use. [Testable non-Functional requirements]

g) Identify ambiguities if any in the given requirements.

→ The extent to which the patients privacy can be protected while retrieving necessary data is not ~~permitted~~ mentioned.

→ The exact timing of report generation not mentioned.

→ What are the features that must be excluded from systems not connected to the centralized database (less secure ones to protect privacy of patients).

4.7 Discover ambiguities or omissions in the following (Given) statement of requirement for part of a ticket issuing system.

→ Is it possible to the user to buy more than one ticket for the same destination or should the user buy them one by one.

→ Is it possible for the user to cancel a ticket before the transaction is complete.

- In case of wrong condition or credentials, what is the system's response??

- Does the user have to input their credential at a specified time or can they input their credentials anytime?

- Does the user needs to repeat all steps to book tickets to another destination?

- Does the system print some sort of receipt of acknowledgement?

5.) Write set of non-functional requirements for the ticket-issuing system, setting out its expected reliability and response time.

5.)

Non-Functional requirements are -

- What is the security framework of the system
- The personal data of the user must be stored securely and the card reading equipment must be safe enought for everyone to use.

Product Requirements :-

- Usability : should have language options
- Efficiency : should run on embedded light hardware system
- Dependability : should run under same schedule as train
- security : should use secure protocal to transfer info. for transactions and proper security on card readers.

Organisation Requirement :- - should use light weight program architecture

External Requirement :- may include authority on transaction history of the user.

6> What are the main error types for requirements?

6.>

→ People Errors :- include errors that occur due to people involved in requirements preparation. It could be due to poor communication, participation, domain knowledge, specific knowledge, applications, process execution or other cognition.

→ Process Errors :- include errors that occur due to inadequate requirement engineering process, and selecting wrong means of achieving goals and objectives.

→ Documentation Errors :- includes error that occurs due to incorrect organization and specification of requirements, regardless of whether the requirements author ~~is~~ understood correctly or not.

X