IQRA NATIONAL UNIVERSITY

Final-Term Examination Spring 2020

Course Name		id	Name	Instructor
Software Requirement Specification		12406	Abdullah	Aasma Khan

Question No: 01 (10)

Define requirements and define what the system (take example of any system) is required to do and what are the features and constraints under which it operates.

Requirements: A requirement is a quality or qualification that you must have in order to be allowed to do something or to be suitable for something. Its products met all legal requirements. Graduate status is the minimum requirement for entry to the teaching profession. Constraints, demands, necessities, needs, or parameters that must be met or satisfied, usually within a certain timeframe. Marketing: A standard of benefit, cost, timeliness, and value of a product or service as expressed or perceived by a customer.

1. **System**: A system is a collection of elements or components that are organized for a common purpose. The word sometimes describes the organization or plan itself (and is similar in meaning to method, as in "I have my own little system") and sometimes describes the parts in the system (as in "computer system"). an organized array of individual elements and parts forming and working as a unit:

2. A usually large entity composed of interconnected parts:

3. Systematic arrangement and design:

4. The approach used to do something.

5. A system must have three basic constraints − A system must have some structure and behavior which is designed to achieve a predefined objective. Interconnectivity and interdependence must exist among the system components. The objectives of the organization have a higher priority than the objectives of its subsystems. UI Requirements (UIR)

6. User interface specs are not considered "requirements" in traditional requirements management theory.

7. Phooey! In my opinion, UI specs are indeed requirements (what else are they?) – and in fact should be considered an integral part of requirements for any software that has a UI.

8. **Domain requirements** • The system's operational domain imposes requirements on the system. –For example, a train control system has to take into account the braking characteristics in different weather conditions. • Domain requirements be new functional requirements, constraints on existing requirements or define specific computations.

Question No: 02

(10)

Explain software requirements types.

Different Types of Software Requirements:

- **Business Requirement**
- **Business Rule**
- **Constraint**
- **Feature**
- **Functional Requirement**
- **Non Functional Requirement**
- **System Requirement**
- **User Requirement**

Business Requirements: These are high-level business goals of the organization building the product, or the customer who commissioned the project. These are usually provided as a single page of high-level bullets.

Market Requirements: These drill down into BRs, but still are high-level. In addition to business goals, they also outline market needs.

Business Rule: A policy, guideline, standard, or regulation that defines or constrains some aspect of the business. Not a software requirement in itself, but the origin of several types of software requirements. The overall objective is to ensure an organization is meeting its goals.

include corporate policies, government regulations, industry standards, and computational algorithms.

Constraint: A restriction that is imposed on the choices available to the developer for the design and construction of a product.

Feature: One or more logically related system capabilities that provide value to a user and are described by a set of functional requirements.

Functional requirement

A description of a behavior that a system will exhibit under specifc conditions.

Nonfunctional requirement

A description of a property or characteristic that a system must exhibit or a constraint that it must respect.

Quality attribute

A kind of nonfunctional requirement that describes a service or performance characteristic of a product.

System requirement. A top-level requirement for a product that contains multiple subsystems, which could be all software or software and hardware.

User requirement:

A goal or task that specific classes of users must be able to perform with a system, or a desired product attribute

Question No: 03 (10)

State difference between system requirement engineering and software requirement engineering.

The difference between System Engineering and Software Engineering is not very clear. However, it can be said that the System Engineers focus more on users and domains, while Software Engineering focus more on n implementing quality software

Requirement Engineering: The process to gather the software requirements from client, analyse and document them is known as requirement engineering. The goal of requirement engineering is to develop and maintain sophisticated and descriptive

- 'System Requirements: Specification' document Requirements engineering is the process of defining, documenting, and maintaining requirements in the engineering design process. It is a common role in systems engineering and software engineering. The first use of the term requirements engineering was probably in 1964 in the conference paper "Maintenance, Maintainability, and System Requirements Engineering'

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Question No 04:

Give five reasons why requirements negotiation is needed in software engineering.

Negotiation

       is a decision-making process

       involves interaction and interdependency

       implies two parties with conflicts

Conflicts are inevitable since stakeholders have mismatching goals

User: many features, high level of service, early availability

Customer: budget/schedule constraints, cost effectiveness, compliance with standards

Developer: flexible contracts, stable requirements

The objectives of customers, users, or developers have to be reconciled to develop mutually acceptable agreements

Stakeholders are not forced to agree

The result of negotiation is also to understand why stakeholders disagree

Identifying opposed interests is crucial for project success

Identified disagreements represent risks that need to be addressed by managers Introduction Requirements Negotiation

Requirements negotiation should be used early on and repeated in later stages

Establishing a requirements negotiation process is not easy

How can conflicts be identified?

How can the identified conflicts be resolved?

How can feasible alternatives be found?

Who is in charge of the negotiation, the stakeholders themselves or a facilitator?

How can the negotiation be supported with tools or other means?

Requirements negotiation is an iterative process through which stakeholders make tradeoffs between

requested system functions

the capabilities of existing or envisioned technology

the delivery schedule the cost

Question No 05: (10)

Identify the **actors** and the **objects** in the following scenario to register a patient in a hospital management system and draw a **use case diagram**:

      The administrator enters the patient's name, address, date of birth and emergency contact details into the system. If the patient has only public health insurance, the administrator enters the patient's medicare number, and the system verifies this with government health database. If the patient also has private health insurance, then the administrator enters also the patient's private health insurance details, and the system verifies

these details with the private health insurance system. When these details are verified as correct, the system saves the patient's details and confirms the registration.

Good Luck ☺