EXPERIMENT NO: 04

Aim: Classify above identified requirement into functional and non-functional requirements.

Theory:

- **What is SRS?**

  SRS stands for Software Requirement Specification. Software requirement is a functional or non-functional need to be implemented in the system. Functional means providing particular service to the user. For example, in context to banking application the functional requirement will be when customer select "View Balance" they must be able to look at their latest account balance. Software requirement can also be a non-functional, it can be a performance requirement. For example, a non-functional requirement is where every page of the system should be visible to the users within 5 seconds. So, basically Software requirement is a Functional or Non-functional need that has to be implemented into the system. Software requirement is usually expressed as a statement.

  - **Functional Requirement:**
    Functional requirements are the desired operations of program, or system as defined in software development and systems engineering. It describes the functions a software must perform. A function is nothing but inputs, its behaviour, and outputs. It can be a calculation, data manipulation, business process, user interaction, or any other functionality which defines what function a system is likely to perform. Functional Requirements are also called Functional Specification.

  - **Non-Functional Requirement:**
    Non-functional requirements describe how the system works. A non-functional requirement defines the quality attribute of a software system. They represent a set of standards used to judge the specific operation of system. A non-functional requirement is essential to ensure the usability and effectiveness of the entire software system. Non-functional requirements are often called Quality attributes of a system. Example, how fast does the website load?

- **Scenario: “Students attendance management system”.**

- **Questions:**

1. **What are the Functional Requirements for above scenario?**

The various functional requirements for the scenario – ‘Students attendance management system’ are:

- Storing the required details of the students
- Updating the attendance of the students in the database
- Generation of Excel sheet of student attendance record
- Editing student attendance details
- Deleting student attendance details
- Notifying students with low attendance percentage

2. **What are Model: n-functional Requirements for above scenario?**

The non-functional requirements for the above scenario are:

- Maintainability:

  The software application should be maintainable. That is, the software should be able to be updated according to the new changes requested by the client depending on the feedback of the client.

- Security:

  The software application should have two factor authentication for login and sign up. Also the software database should be secure so that there is no chance for data breach of student information. For this the software system should have only administrator access.

- Safety:

  The software application should a backup server with data backup so that if any mishaps were to happen the damage could be minimized.

- Portability:

  The software application should be portable, i.e. if the user is logging in from a different device with the same id, the user should have full access to the data of the attendance and students.

3. What are Benefits of Non-functional Requirements?

The benefits of Non-functional Requirements are:

- Non-functional Requirements ensure the maintainability and reliability of the software.
- Non-functional Requirements ensure that the software is safe and secure by constructing the security policy of the software system and by creating backup of the data to keep it safe.
- Non-functional Requirements ensure that the performance of the software and User Experience is up to the mark.

4. Differentiate between Functional Requirements and Non-functional Requirements?

Functional Requirements:

1. Functional Requirement defines a component/part of a system.
2. Functional Requirement is specified by the user.
3. Functional Requirement is mandatory.
4. Functional Requirement is usually easier to define.
5. Functional Requirement is defined at the component level.
6. Functional Requirement helps in verifying the functionality of the software.
7. Functional Requirement specifies/describes what the product does.
8. Functional Requirement's end result can be said to be the features of the product.
9. Example,
    a. Editing student attendance details.
    b. Uploading data to database.

Non-functional Requirements:

1. Non-functional Requirement defines the quality attribute of a system.
2. Non-functional Requirement is specified by the technical team, i.e. the Software architect, Software developer, etc.
3. Non-functional Requirement is not mandatory.
4. Non-functional Requirement is comparatively harder to define.
5. Non-functional Requirement is applied to the system as a whole.
6. Non-functional Requirement helps in verifying the performance of the software.
7. Non-functional Requirement specifies/describes how the product works.
8. Non-functional Requirement's end result can be said to be the features of the product.
9. Example,
    a. The attendance should be updated within 500ms of application starting.
    b. Backup of data should be stored for safety.

- **Conclusion:**

  Hence, in this practical I have classified the above identified requirements on ‘Students attendance management system’ into functional and non-functional requirements and also differentiated between functional requirements and non-functional requirements.

(10)	(20)	(10)	(10)	TOTAL