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DEPARTMENT OF COMPUTER TECHNOLOGY

Micro-Project Report

Institute Code: 0078
Academic Year: 2022-23 Program: Computer Technology
Course: Software Engineering (SEN) Course Code: 22413 Scheme: I
Semester: 4 Class: SYCM-I Date of Report:04/04/2023

Title of Micro-Project: Study of Quality Evaluation Standards

1.0 Problem Definition: The study of quality evaluation standards involves analyzing and assessing the criteria, guidelines, and procedures used to measure and ensure the quality of products, services, or processes. This study aims to identify and evaluate existing quality evaluation standards and their effectiveness, as well as to propose recommendations for improving and developing new standards to meet evolving needs and expectations.

2.0 Rationale:

Software engineering is the foundation for professional processes to be followed involving principles,techniques, and practices for software development. The course provides a framework for software professionals for building quality assured software products. It enables students to blend the domain specific knowledge with the programming skills to create quality software products.

3.0 Aim /Benefits of Micro-Project:

The Aim/Objectives of the Micro-project is:

- To review and analyze existing quality evaluation standards in a particular industry or field.
- To identify the strengths and weaknesses of current quality evaluation standards and their impact on quality assurance and improvement.
- To assess the effectiveness of quality evaluation standards in meeting customer expectations and industry requirements.
- To propose recommendations for improving and developing new quality evaluation standards to address emerging challenges and opportunities.
- To evaluate the implementation and compliance of quality evaluation standards in organizations and industries.
- To explore the role of technology in enhancing the efficiency and accuracy of quality evaluation standards.
- To examine the ethical, social, and environmental implications of quality evaluation standards and their impact on sustainable development.

4.0 Course Outcomes Achieved (COs):

CO.1: Estimate size and cost of software product.
CO.2: Use Software modelling to create data designs.
CO.3: Apply project management and quality assurance principles in software development.

5.0 Literature Review:

Quality evaluation standards in software engineering refer to the measures and criteria used to assess the quality of software products. To conduct a literature review on this topic, one could search for academic articles, books, and industry reports that discuss different standards and frameworks for evaluating software quality. Some commonly used standards include ISO 9001, CMMI, and IEEE 829. The review could also explore the benefits and limitations of using these standards, as well as any emerging trends in the field.

6.0 Actual Methodology followed:

1. Discussing on various topics and finalized one topic of study of quality evaluation standards.
2. Discussing with guide about micro-project content.
3. Distributing the work among team members.
4. Collecting the information about this micro-project.
5.Conducting a literature review to identify existing quality evaluation standards and their criteria.
6.Analyzing case studies of organizations that have implemented these standards to evaluate their effectiveness.
7.Interviewing experts in the field of quality evaluation to gather insights on the strengths and weaknesses of existing standards.
8.Developing a survey to gather feedback from stakeholders on their experiences with quality evaluation standards.
9.Analyzing the survey data to identify areas where improvements can be made to existing standards or where new standards are needed.
10.Developing recommendations for improving existing standards or developing new ones based on the findings of the study.
11. Preparing softcopy of micro-project.
12. Verifying the soft copy to guide.
13. Finalizing the contented of micro-project.
14. Printing the hard copy of micro-project.
15. Finally submitting the hard copy of our micro project

7.0 Actual Resources used:

S. No.	Name of Resource/material	Specifications	Qty	Remarks
1	Laptop	HP Elitebook 830 g3-Intel(R) Core(TM) i5, 8 GB installed RAM,SSD-256 GB	01	For project work
2	Operating System	Windows 11 Pro x64 bit	01	For project work
3	Other software	Microsoft Office Word	01	For documentation
4	Reference book:	▪ Software Testing and Quality Assurance ▪ Quality Software Management	02	For studying SEN concepts
5	Websites	https://www.sei.cmu.edu/ https://standards.ieee.org/ https://www.sqe.com/	03	For referring sample matrial & concept

8.0 Outputs of the Micro-Project:

Study of Quality Evaluation Standards

Quality evaluation standards in software engineering refer to a set of guidelines or criteria .In software engineering, quality evaluation standards are used to assess the quality of software products, processes, and systems. These standards provide a set of guidelines and best practices to ensure that software products are reliable, maintainable, and meet user requirements.

Principles of Quality Standards

- **ASQ QUALITY STANDARDS**

Topic:	Standard:
Quality Management	ISO 9000 ISO 9001
Auditing	ISO 19011
Environmental Management	ISO 14000 ISO 14001
Risk Management	ISO 31011
Social Responsibility	ISO 26000
Sampling by Attributes	Z1.4
Sampling by Variables	Z1.9
Food Safety	ISO 22000

Here are some of the commonly used quality evaluation standards in software engineering:
ISO/IEC 25010: This standard is used to evaluate the quality of software products based on eight quality characteristics: functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability.

ISO/IEC 12207: This standard specifies the process for software development and maintenance. It defines the activities and tasks that should be performed during the software development life cycle.

ISO/IEC 15504: This standard is used to assess the maturity of an organization's software development processes. It provides a framework for evaluating and improving software processes.

CMMI: Capability Maturity Model Integration is a process improvement framework that provides a set of best practices for software development processes. It is widely used to assess and improve the maturity of software development processes in organizations.

IEEE 829: This standard defines the format for software test documentation. It specifies the documents that should be prepared during the testing process, such as test plans, test cases, and test reports.

IEEE 1061: This standard provides guidelines for software quality metrics. It defines the characteristics that should be measured to evaluate the quality of software products and processes.

IEEE 1471: This standard provides a framework for software architecture. It defines the terminology, concepts, and models that should be used to describe software architecture.

SPICE: Software Process Improvement and Capability dEtermination is a framework for assessing and improving software development processes. It provides a set of best practices for software process improvement.

WHO USES QUALITY STANDARDS?

Organizations turn to standards for guidelines, definitions, and procedures that help them achieve objectives such as:

- Satisfying their customers' quality requirements
- Ensuring their products and services are safe
- Complying with regulations
- Meeting environmental objectives
- Protecting products against climatic or other adverse conditions
- Ensuring that internal processes are defined and controlled

WHY ARE STANDARDS IMPORTANT?

- **For businesses:** Standards are important to the bottom line of every organization. Successful companies recognize standards as business tools that should be managed alongside quality, safety, intellectual property, and environmental policies. Standardization leads to lower costs by reducing redundancy, minimizing errors or recalls, and reducing time to market.
- **For the global economy:** Businesses and organizations complying to quality standards helps products, services, and personnel cross borders and also ensures that products manufactured in one country can be sold and used in another.
- **For consumers:** Many quality management standards provide safeguards for users of products and services, but standardization can also make consumers' lives simpler. A product or service based on an international standard will be compatible with more products or services worldwide, which increases the number of choices available across the globe.

In summary, quality evaluation standards play a critical role in software engineering by providing a set of guidelines and best practices for assessing and improving the quality of software products and processes

By following these quality evaluation standards, software engineers can ensure that the software products they develop meet the desired quality requirements and are fit for their intended purpose.

9.0Skill Developed / Learning outcome of this Micro-Project:

Technical Skills:

1. Understanding of software metrics and measurement techniques
2. Experience with software quality evaluation tools and frameworks
3. Familiarity with programming languages and software development tools
4. Knowledge of software architecture and design principles
5. Understanding of software maintenance and evolution processes

Soft Skills:

1. Leadership and decision making.
2. Working in team.
3. Time management.
4. Presentation and writing skills.

10.0 Applications of Micro Project:

1. Quality Assurance
2. Process Improvement
3. Vendor Selection
4. Risk Management
5. Compliance

11.0 Name of Group Members:

Enrolment No.	Roll No.	Seat No.	Name of Students	Student Signature
2100780077	06	385977	Baldota Kalash Sachin	
2100780081	10	385981	Bhalerao Mukunda Chandrashekhar	
2100780086	15	385986	Dhakane Aditya Arun	

Date: 04/04/2023 Evaluated by: Dated Signature of Guide: _____

Name of Guide: Ms. S.M.Derle