**IT Standards**

**Standards can be defined as a set of obligatory requirements established by a general agreement and maintained by a recognized body to impose a uniform disciplined practice.**

What is ISO? IEEE? CMM? SEI? ANSI?

Many organizations around the globe develop and implement different standards to improve the quality needs of their software. Here we will discuss some of the organizations along with their standards w.r.t Software Development.

* **ISO:** The **International Organization for Standardization (ISO)** having headquartered in Geneva, Switzerland, and works in 164 countries. Over twenty thousand standards have been developed and publish by ISO covering everything from technology, software quality to manufactured product, agriculture, and healthcare.
* **IEEE:**The **Institute of Electrical and Electronics Engineers (IEEE)** having its corporate office in New York City and its operations center in Piscataway, New Jersey.  As of 2018, it has more than 423,000 members in over 160 countries around the world. IEEE publishes tutorials and standards related to electrical and electronics engineering and computer science fields.
* **CMM:** The **Capability Maturity Model (CMM)** is a development model created by the software community in 1986. The US. Department of Defense funded this research.
* **SEI and ANSI:** The **Software Engineering Institute (SEI)** is headquartered in Pittsburgh, Pennsylvania. This project was initiated by the U.S. Defense Department to improve software development processes. The **American National Standards Institute (ANSI)** publishes some software-related standards in conjunction with the IEEE and ASQ. Headquarter of this organization is in Washington, DC, and operations office is located in New York City.

### ****ISO/IEC 9126:****

This ISO standard deals with the following key aspects to determine the quality of a software application –

* Overview of Quality model
* Defining External metrics
* Defining Internal metrics
* Quality standard in use metrics

### ****ISO/IEC 25000:2005:****

ISO/IEC 25000:2005 this standard provides the guidelines for **Software Quality Requirements and Evaluation (SQuaRE)**. SQuaRE replaces **ISO-9126** and **ISO-14598** old ISO Standards.

SQuaRE is divided into sub-parts such as −

* **ISO 2500n** − This standard is known as Quality Management Division
* **ISO 2501n** − This standard is known as Quality Model Division
* **ISO 2502n** − This standard is known as Quality Measurement Division
* **ISO 2503n** − This standard is known as Quality Requirements Division
* **ISO 2504n** − This standard is known as Quality Evaluation Division

**ISO 9001**

* The ISO 9000 family of standards is related to quality management systems and designed to help organizations ensure that they meet the needs of customers and other stakeholders while meeting statutory and regulatory requirements related to the product.
* ISO 9001 deals with the requirements that organizations wishing to meet the standard have to fulfill. A number of major purchasers require their suppliers to hold ISO 9001 certification.

I**SO 9000-3**

* ISO9000-3 is typically considered as an international standard for quality.
* It is the defining standard accepted by almost all European and North American countries.
* ISO-90003 provides special guidelines for implementing ISO-9000, and was created specifically for the software development industry. It is used for system development which is contributed in “guidelines for the development, supply and maintenance of software.

### ISO 27000 Series

It is the family of information security standards which is developed by the International Organization for Standardization and the International Electrotechnical Commission to provide a globally recognized framework for best information security management. It helps the organization to keep their information assets secure such as employee details, financial information, and intellectual property.

The need of ISO 27000 series arises because of the risk of cyber-attacks which the organization face. The cyber-attacks are growing day by day making hackers a constant threat to any industry that uses technology.

The ISO 27000 series can be categorized into many types. They are-

ISO 27001- This standard allows us to prove the clients and stakeholders of any organization to managing the best security of their confidential data and information. This standard involves a process-based approach for establishing, implementing, operating, monitoring, maintaining, and improving our ISMS.

ISO 27000- This standard provides an explanation of terminologies used in ISO 27001.

ISO 27002- This standard provides guidelines for organizational information security standards and information security management practices. It includes the selection, implementation, operating and management of controls taking into consideration the organization's information security risk environment(s).

ISO 27005- This standard supports the general concepts specified in 27001. It is designed to provide the guidelines for implementation of information security based on a risk management approach. To completely understand the ISO/IEC 27005, the knowledge of the concepts, models, processes, and terminologies described in ISO/IEC 27001 and ISO/IEC 27002 is required. This standard is capable for all kind of organizations such as non-government organization, government agencies, and commercial enterprises.

ISO 27032- It is the international Standard which focuses explicitly on cybersecurity. This Standard includes guidelines for protecting the information beyond the borders of an organization such as in collaborations, partnerships or other information sharing arrangements with clients and suppliers.

ISO/IEC 29119

* ISO/IEC 29119-1: This was published in Sep 2013 and deals with concepts and definitions of software.
* ISO/IEC 29119-2: This Standard deals with test processes in a product and was published in Sep 2013.
* ISO/IEC 29119-3: This was published in Sep 2013 and deals with test documentation of the product.
* ISO/IEC 29119-4: This Standard was published one year later in 2014 and deals with testing techniques and strategies used in software testing.
* ISO/IEC 29119-5: This Standard was published in the year 2015 and deals with keyword-based software testing.

There are different standards for different products. For example, Xiaomi Corporation may be following below Standards which are applicable for smartphones

* ISO/IEC 24755:2007 Standard defines screen icons and symbols with their related functions for Redmi phones.
* ISO 9241 standard evaluate the software quality of apps
* In the same manner – ISO / IEC / IEEE with the number 29119 is intended for software testing as a compilation of internationally approved standards in software tests that are followed for any SDLC model in software development for any organization