Comparison of different types of SRS templates

In this document, we intend to compare different types of SRS templates with the IEEE SRS template. We weigh in on the various advantages and disadvantages of using each template.

1. **ACM SRS format** - The ACM SRS format does not include a few sections present in the IEEE SRS format such as the Intended audience and Reading Suggestions. As both developers and end users might read the SRS, this is an important section as it tells you which section is important to read for which audience. Also, we do not consider Design and Implementation constraints in the ACM SRS template. This is a section which can be skipped in the IEEE SRS as well.

   Product scope and features remain the same in both the SRS templates. Purpose, Product perspective and Scope are consistent in both the templates.

   The ACM SRS follows a similar format to IEEE except when specifying the system features. Each system feature is subdivided into :

   a. Description and Priority: Describes the feature to be added along with the priority and in which phase of Software development it is to be added.
   b. Stimulus/Response Sequences:A real-time system must able to respond to stimuli that occur at different times. Therefore, architecture should be designed so that, as soon as a stimulus is received, control is transferred to the correct handler. This describes why the user would want to use the specific feature. It also describes how the system will respond when the user uses this specific feature.
   c. Functional Requirements: It is a high level statement of what the feature should do. Functional requirements specify particular results of a system.
   d. Security Requirements (Optional): Describes the various cryptographic and security primitives to be implemented for the feature. Eg: Login page might use sha-1 hashing.

2. **IBM SRS format** - As compared to the IEEE format, there are only few sections that are covered but it covers all the essential aspects of the project. This format mainly focuses on the use-case modeling. The differences in the sections are:
   a. Overall description section unlike the IEEE format does not aim to state specific requirements but instead provides a background for those requirements. The sub-sections include:

i. The use-case model survey which contains a list of names and brief descriptions of all use cases and actors, along with applicable diagrams and relationships.
ii. Architecture diagram and database design- The application architecture diagram and database design schema are added which hep give a clearer picture of what the structure of the project would look like as well as to be able to identify the requirements.

b. Supporting Information: This section makes the SRS easier to use as it contains the table of contents, index and appendices. These may include the use-case storyboard or user-interface prototypes.
c. Specific Requirements - This section should contain all the software requirements to a level of detail sufficient that the designers and testers would be able to easily understand the system requirements. The sub-sections are:
    i. Use-case reports: For each use-case in the use-case model survey a report on it must be filled out in this section.
    ii. Supplementary Requirements: This section aims to capture the requirements which haven't been mentioned in the use-case survey.

3. **TCS SRS format** - The TCS SRS format differs from the IEEE format in a lot of ways. The general structure and content is different. The following features from TCS format can be added in the IEEE format :-

a. Deliverables :- This helps an external entity to understand what features are expected with given timeframe.
b. Configuration Control :- During the software coding, testing and integration process, maintain the Labview version control tool shall be used whereby each software module has a revision number reflecting changes. This will help in maintaining a copy of work at each stage of production.
c. Software design and code reviews :- This improves efficiency and helps in providing best inputs for development

The TCS SRS does not contain many features which is quite crucial for Software Engineering like External User interface and Use case diagrams. These features help users interact with the system and the way in which they interact needs to be defined and documented.

TCS SRS also contains details like unused code, I/O synchronisation, measuring units and self changing code which are not so important and can be skipped while defining SRS. This is because they do not make a considerable change to the project and does not help the developer in any ways. The TCS format contains Man-Machine interface while the IEEE format includes user, hardware, software and communication interfaces .

The IEEE format has a well defined introduction including purpose and scope while the TCS format just describes the product to be developed.

4. **BeliSoft SRS format** - The BeliSoft SRS contains custom information which is an extension of the IEEE format. The BeliSoft SRS contains the following extensions :-

a. Memory Constraints - Specify any applicable characteristics and limits on primary and secondary memory. **This is an important constraint as it can be a limitation factor for production.**

b. Site Adaptations - The site adaptation requirements include:

- Definition of the requirements for any data or initialization sequences that are specific to a given site, mission, or operational mode (e.g., grid values, safety limits, etc.).
- Specification of the site or mission-related features that should be modified to adapt the software to a particular installation.

c. Operations - Specify the normal and special operations required by the user :

- The various modes of operations in the user organization (e.g., user-initiated operations);
- Periods of interactive operations and periods of unattended operations;
- Data processing support functions;
- Backup and recovery operations.

d. Verification - Provide the verification approaches and methods planned to qualify the software. **Verification is important to the efficiency of the project and should be considered in the SRS.**

e. Limitations - Provide a general description of any other items that will limit the supplier's options. **This helps in understanding the bottlenecks and innovation solutions can be derived.**