**Team 8**

**Undergraduate Project**

**Software Quality Assurance Plan (SQAP)**

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# 1. Purpose

The Software Quality Assurance Plan (SQAP) is necessary in ensuring a quality approach to Team 8’s project and that we are thorough and consistent throughout the project’s life cycle. It defines the approach we have used throughout the project, and makes sure our team assesses and monitors software development processes and products to provide insight into the maturity and quality of the software.The systematic monitoring of Team 8’s software and processes will be evaluated to ensure they comply with the requirements of the professor and/or user and comply with the Institute of Electrical and Electronic Engineers (IEEE) standards.

# 1.1 Scope

The scope of this document is to describe the software processes and documents used in maintaining the quality assurance of data visualization systems. This plan lists the roles and responsibilities of each member, outlines the activities and work that will be reviewed, and identifies the product that is being developed. The product is a data visualization system that generates various diagrams and charts out of user-specified JSON data. It is intended to be used in analyzing statistical data and being able to visualize the data sets.

# 2. References

* IEEE Standard for Software Quality Assurance Plans - IEEE Std 730-2002
* Braude, E. J., & Bernstein, M. E. (2016). *Software engineering: Modern approaches*. Long Grove: Waveland Press.

# 3. Management

Our team is made up of eight undergraduate students with five separate roles so some roles are used more than once depending on what areas we deemed needed more attention. These roles include Project Manager (PM), Requirement Engineer (RE), Software Architect (SA), Integration Engineer (IE), Testing Engineer (TE), and Code Developer (CD).

The students roles are as followed:

* Arjun Agrawal - Project Manager
* Ekenechukwu Nwannunu - Requirement Engineer
* Adam Richard - Requirement Engineer
* Ben Miloshoff - Software Architect
* Christian Schubert & Geonhyuk Im - Integration Engineer
* Brett Malmquist & Joe Cullinan - Testing Engineer

[[1]](#footnote-0)

# 3.1 Tasks

Everyone on the team has specific tasks pertaining to their role and those tasks vary by everyone’s role. Collectively as a team we all decided to take on the role as a CD to not put the burden all on one team member so we can all work on the project as a whole. The coding aspect is not the only responsibility each member has taken on, each role will be described in the next section and what each member is required to contribute.

# 3.2 Responsibilities

* **Project Manager**: The PM is responsible for keeping the team on track and oversees every single team member to make sure everyone is playing their part. The PM is also responsible for assessing each team member to make sure they are understanding and timing their goals in a consistent and timely manner.
* **Requirement Engineer**: The RE’s responsibilities are to communicate the User/Product Director’s requirements to the team. The role is required to translate the requirements set by the User and translate that to the team as functional requirements. This is necessary for the team to be able to meet the criteria set by the user.
* **Software Architect**: The SA is responsible for translating the functional requirements set by the RE into high level design specifications. As the development continues, the SA is required to meet with the RE in order to make sure that the criteria set out by the user is met within the prototype.
* **Integration Engineer**: The IE is responsible for module interfaces and integration. This includes the transfer of data between modules and producing the integrated source code. They report with the code developers and requirement engineer to carry out the prototype demonstration in accordance with the criteria standards set by the RE.
* **Testing Engineer**: The TE is responsible for the product’s functional testing and quality assurance. They are to overlook all the source code to make sure there are no bugs in the code, testing the system to make sure it works adequately and to the RE’s standards, and accepting the product before it is prototyped.
* **Code Developer**: The responsibilities of the CD are to produce detailed high-functioning source code with detailed design specifications in conjunction with the software architect. They are responsible for the quality and functionality of the delivered product and they report with every position on the team.

# 4. Documentation

# 4.1 Software Requirements Specification (SRS)

The SRS is a list of requirements for the system and should accurately portray how the system should perform. It should describe the functionality of the product for the User and also the non-functional requirements. This document establishes a basis between the customer and the developers on how the software should function.

# 4.2 Software Verification & Validation

This document will be designed to record and develop rigorous procedures for the verification and validation of the data visualization system.

# 5. Standards, Practices, & Conventions

# 5.1 Documentation Standards

The Institute of Electrical and Electronics Engineers (IEEE) standards were observed when designing the SRS, SQAP, Software Testing Plan, and SVVP.

# 5.2 Coding Standards

All source code will follow the guidelines of JavaScript coding standards.

# 6. Reviews & Audits

Quality assurance is what the team is aiming to provide. After the source code was written it is the job of the Testing Engineer to formally test the code for functionality and smoothness within the code to make sure it meets the standards of the user and free of bugs.

# 7. Test

A software test plan has been developed alongside the SVVP and SQAP to ensure the quality of the product.

# 8. Tools, Techniques, and Methodologies

* Visual Studio Code serves as the IDE tool for the web application
* Plotly is used for the data visualization models within the application
* BeluahWorks, LLC provided the wireframe for the web application

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