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Introduction

This analysis defines the quality requirements for the sub-system, known as the USU Student Application, which I am responsible for developing. I have chosen to define the quality requirements based on the functional requirement "FR-ST-5: Initiation of new society". The analysis covers four quality attributes, identified as: security and privacy protection, performance, scalability, and reliability.

Security and Privacy Protection:

The security and privacy quality attribute relates to how secure the subsystem is, so that the information and data being stored stays protected. **(Nechvolod, 2022)** This could be ensured with authorisation levels and encryption.

- This subsystem shall ensure that the data entered into the application form, including the name and contact information (email address, telephone number, etc.), is accessible only to the student who submitted the application. No other students shall be able to view or retrieve this personal data.
- When the union officers receive the requests for new events, the USU operating system should only be able to store the data temporarily during the approval/rejection process and for a maximum of 24 hours. After this process, the data stored within the application should be deleted.

Performance:

This quality attribute defines the subsystem's performance, which includes fast reaction times with high responsiveness and no delays. **(Nechvolod, 2022)**

- When a user decides to fill out an application for a new society, it should transfer to the USU operating system for the officers. It should not take more than 2 seconds for the data to arrive at the subsystem.
- The initial load time for the sub-system to launch should take 2-3 seconds to ensure smooth responsiveness when the students enter data into the application.

Reliability:

This quality attribute refers to the extent that the software sub-system performs the functional requirement under predefined conditions for a specified period of time. **(Nechvolod, 2022)**

- Throughout each year, the USU student app should operate continuously. Any unplanned downtimes should not exceed 12 hours per year overall.
- There will be a lower failure rate at a maximum of 4 times a year, due to updates of security and features during the maintenance stage of the Software Engineering process.
- When maintenance and updates occur, the subsystem (application) should start to return to normal operation after a maximum of 12 hours, so the students can fill forms again to create new societies.

Scalability:

The scalability quality attribute ensures that the subsystem can handle an increased amount of data and processes, without decreasing the performance quality. **(Nechvolod, 2022)** Otherwise, this would have a negative impact on the users of the subsystem, i.e. the students.

- The sub-system should be able to process and manage 300 submissions at the same time without performance degradation, as well as when the data is being transferred over to the USU operating system to be approved.
- As the student population continues to increase, during maintenance the USU student application will be able to maintain an increase from 300 users. Therefore, when more students are attempting to send applications simultaneously, there will not be long delays.

References:

Nechvolod, A. (2022). *12 software architecture quality attributes and their types*. [online] Syndicode - Custom Software Development Company. Available at: <https://syndicode.com/blog/12-software-architecture-quality-attributes/>.