ACIT 4850 – Enterprise System Integration – Winter 2024

Lesson 3 – Tool Evaluations, Integration and Security

For Lesson 3, one topic we will be discussing are best practices for selecting a tool for a capability within your Enterprise Software Development Environment when there are multiple choices available. In smaller companies, it may be a low risk option to try out a new tool and switch if it doesn't work out. For larger companies, you want to do up-front due diligence on your choice as the cost of introducing a new tool can be high (tools costs, migrating data, onboarding and training users) and the switching costs even higher.

Before we can systematically compare multiple tools, we need to know what the requirements are for the desired capability so we can identify which features and characteristics we need to assess. There are two types of requirements that are important to consider: functional requirements and non-functional requirements.

Please read the following Wikipedia articles on functional and non-functional requirements:

- Functional Requirements: https://en.wikipedia.org/wiki/Functional_requirement
- Non-Functional Requirements: https://en.wikipedia.org/wiki/Non-functional_requirement

You should be able to identify functional and non-functional requirements from a set of system requirements.

The following are examples of functional requirements that describe a feature or function of the system:

- The system shall require that users authenticate with a valid username and password before they can access the source code repositories.
- The system shall allow users with administrator privileges to create new source code repositories.

The following are examples of non-functional requirements that describe a characteristic or quality of the system:

- The system shall store all personally identifiable user information (i.e., private data) in an encrypted format in the database.
- The system shall support the Chrome, Firefox and Safari web browsers.
- The system shall be capable of handling 200 concurrent orders with an average page load time of less than 5 seconds.

Typically you are able to verify functional requirements by exercising the functionality of the system. Verification of non-functional requirements may require exercising the functionality of the system (i.e., checking cross browser support) but often times requires inspection of the system configuration or data (i.e., verifying data is encrypted in the database) or creating complex scenarios like load or performance tests (i.e., checked number of concurrent users)