Evaluation of Traceability Management Tools for Student Software Development

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Overview
In the software development lifecycle, traceability refers to the ability to trace artifacts - anything developers produce - back to one or more requirements.

As software projects grow in size and complexity, it becomes an increasing challenge to coordinate [1]:

- Work Requirements
- Artifacts
- Stakeholder
- Developers

Because of this, establishing a system of traceability is vital in ensuring features are designed, tested, and implemented in accordance with the agreed upon requirements.

Student developers often struggle to employ traceability in their own projects, due in part to a lack of understanding its importance and a lack of experience using tools that provide a system for traceability.

To combat this, our project set out to find ways for students to:
1. Include traceability practices in their projects.
2. Minimize the burden of evaluating and configuring traceability tools.

Methodology
After researching the concepts involved in employing traceability systems and surveying traceability tools, we developed a list of tools to be evaluated and tested.

This list was created with the purpose of selecting 3-4 tools to be used in future UAH software development classes.

Key Findings
While testing and evaluating tools, key features that must be present in the final selection of tools were identified.

These features include:
- Git integration
- Support for agile methodology
- Project roadmap or other visual timeline
- Documentation management
- Test management
- Version management

Impact
In-depth users guides were created for each selected tool. These guides will be used by future UAH Computer Science students taking CS 499. Each guide instructs the student on how to best configure the tool for use in their projects, potentially saving them time and allowing them to jumpstart development.

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<th>Collaborative</th>
<th>Agile Methodology</th>
<th>Git Integration</th>
<th>Project Roadmap</th>
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References