Project Development Phase
DEBUGGING AND TRACEABLITY

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Team ID	NM2023TMID06472
Project Name	Project –Building A Website Using Canva

DEBUGGING AND TRACEABLITY:

1. Debugging:

Debugging is the process of identifying and resolving issues, errors, or bugs in your project's code and functionality. To facilitate effective debugging:

-User Logging: Implement a robust logging system that records important events and errors in your project. USERRR different log levels (e.g., info, warning, error) to categorize messages.

- Error Handling: Implement comprehensive error handling mechanisms, including error messages and stack traces, to quickly identify the root caUSERRR of issues.

- Unit Testing: Write unit tests to automatically check the correctness of individual code units, functions, or modules. This helps catch bugs early in the development process.

- Version Control: USERRR version control systems like Git to keep track of changes and easily identify when and where issues were introduced.

- Code Review: Conduct code reviews with team members to identify and fix coding issues and logic errors.

- Debugging Tools: Utilize debugging tools and integrated development environments (IDEs) with built-in debugging features to step through code and inspect variables.

- Isolation: When a problem occurs, isolate it by reducing the scope of your investigation to a specific section of code or component.

- Reproduce the Issue: Strive to reproduce the issue consistently. Reproducing the problem makes it easier to understand, diagnose, and fix.

- Unit Testing: Implement unit tests and automated testing procedures to identify and catch issues early in the development cycle.

2. Traceability:

Traceability is the ability to trace and document the relationships between various project elements, such as requirements, code, and test cases. To achieve effective traceability:

- Requirement Management: Maintain a clear set of project requirements. Document the source of each requirement and link them to specific features or functionality in your project.

- Traceability Matrix: Create a traceability matrix to connect project components, such as requirements, design specifications, code, and tests. This matrix helps track progress and ensures that all requirements are addressed.

- Documentation: Maintain thorough and up-to-date documentation for your project. Include details about the purpose, design, and intended functionality of components.

- Version Control and Commit Messages: Ensure that commit messages in version control clearly reference the requirements or issues being addressed in each code change.

- Testing and Validation: Link test cases and validation procedures to the specific requirements they verify. This ensures that project elements are consistent with the documented requirements.

- Change Management: Implement a formal change management process to track and approve changes made to the project, ensuring traceability even after alterations.