**Software Requirements Specification**

For

Minor Project

Vulnerability Scanner

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Prepared by

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**Revision History**

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| **Date** | **Change** | **Reason for Changes** | **Mentor Signature** |
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| 1 | INTRODUCTION | |
|  | 1.1 Purpose of the Project | The purpose of this project is to develop a Vulnerability Scanner Tool that identifies, assesses, and prioritizes vulnerabilities such as SQL injection, XSS, and open ports. |
|  | 1.2 Target Beneficiary | students who are interested in cybersecurity |
|  | 1.3 Project Scope | The Vulnerability Scanner Tool is designed for use in cybersecurity environments, targeting website. It is applicable in organizations of all sizes, including educational institutions and small businesses |
|  | 1.4 References |  |
| 2 | PROJECT DESCRIPTION | |
|  | 2.1 Reference Algorithm | State the reference algorithm for the project and identify the required data structure (**Mandatory for Minor1**) Or/Add design algorithm justifying the methodology of the project |
|  | 2.2 Characteristic of Data | Present with the characteristic of the dataset used for the project. Provide the primary and secondary source of the data, along with sampling techniques. Explain the statistical method used for data processing (**if any**). |
|  | 2.3 SWOT Analysis | Present with a justification to support your project. |
|  | 2.4 Project Features | Summarize the major features the product contains or the significant functions that it performs or lets the user perform. (Level 2 USE Case diagram) |
|  | 2.5 User Classes and Characteristics | Identify the various user classes that you anticipate will use this product. |
|  | 2.6 Design and Implementation Constraints | Present hardware boundary conditions (timing requirements, memory requirements); interfaces to other applications; specific technologies, and tools to be used; parallel operations; language requirements; communications protocols; security considerations; design conventions or programming standards. |
|  | 2.7 Design diagrams | Present all the required Diagram (USE –Case, Class Diagram, Activity, Sequence, Data Flow diagram and State Diagram. (Major project should include Collaboration and Deployment Diagram too) |
|  | 2.8 Assumption and Dependencies | List any assumed factors (as opposed to known facts) that could affect the requirements stated in the SRS. Also identify any dependencies the project has on external factors. |
| 3 | SYSTEM REQUIREMENTS | |
|  | 3.1 User Interface | Define the software components for which a user interface is needed. |
|  | 3.2 Software Interface | Describe the connections between modules. Describe the services needed and the nature of communications. Describe detailed application programming interface protocols. |
|  | 3.3 Database Interface | Explain the Database management system used |
|  | 3.4 Protocols | Describe the requirements associated with any protocol deployed in the project. Specify any communication security or encryption issues, data transfer rates, and synchronization mechanisms |
| 4 | NON-FUNCTIONAL REQUIREMENTS | |
|  | 4.1 Performance requirements | If there are performance requirements for the product under various circumstances, state them. Specify the timing relationships for real time systems. State performance requirements for individual functional requirements or features |
|  | 4.2 Security requirements | Specify any requirements regarding security or privacy issues surrounding use of the product or protection of the data used or created by the product. Define authentication, verification and validation of the system. Refer to any external policies or regulations containing security issues that affect the product. |
|  | 4.3 Software Quality Attributes | Explain: adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability. |
| 5 | Other Requirements | Define any other requirements not covered elsewhere in the SRS. |
| Appendix A: Glossary | | Define all the terms necessary to properly interpret the SRS, including acronyms and abbreviations. |
| Appendix B: Analysis Model | | Pertinent analysis models used for this project |
| Appendix C: Issues List | | This is a dynamic list of the open requirements issues. |

1. **Introduction**
   1. **Purpose of the Project**

The purpose of this project is to develop a Vulnerability Scanner Tool that identifies, assesses, and prioritizes vulnerabilities such as SQL injection, XSS, and open ports.

Key objectives of this project include:

* 1. **Target Beneficiary**
* **Students** with an interest in cybersecurity.
* **Small businesses and educational institutions** looking to secure their web environments.

**1.3 Project Scope**

The Vulnerability Scanner Tool is designed for use in cybersecurity environments, targeting website. It is applicable in organizations of all sizes, including educational institutions and small businesses.

### 1.4 References

1. **Project Description**
   1. **Reference Algorithm**

**2.2 Data / Data Structure**

**2.3 SWOT Analysis**

**SWOT analysis**

* Strengths: Ability to automate detection, scalability, integration with other security tools.
* Weaknesses: Potential for false positives/negatives, resource-intensive scanning processes.
* Opportunities: Evolving threat landscape necessitates continuous improvement of scanning tools.
* Threats: Sophistication of attackers who might exploit even minimal security flaws.

**2.4 Project Features**

* **Real-time scanning for vulnerabilities.**
* **Integration with other tools (e.g., exporting data in formats compatible with other security tools).**
* **Customizable scan options for deep or quick scans.**

**2.5 User Classes and Characteristics**

Identify different user groups:

* Administrators who will configure the scans.
* Security professionals/students who will analyze the results.
* Developers for integration and bug fixing.

**2.6 Design and Implementation Constraints**

* Hardware requirements (e.g., minimum system memory).
* Specific language requirements (Python, C, etc.).

**2.7 Design Diagrams**

**2.8 Assumptions and Dependencies**

1. **System requirements:**
   1. **User Interface**

**3.2 Software Interface**

**3.3 Database Interface**

**3.4 Protocols**

Discuss network protocols (e.g., HTTP, HTTPS) and security protocols used for scanning websites.

1. **Non-functional Requirements**