VIETNAM NATIONAL UNIVERSITY – HO CHI MINH CITY

INTERNATIONAL UNIVERSITY

SCHOOL OF COMPUTER SCIENCE & ENGINEERING

A blue and white logo

AI-generated content may be incorrect.

WEB APPLICATION DEVELOPMENT

PROJECT REPORT

CYBERSECURITY ONLINE LEARNING PLATFORM

**Nguyễn Quốc Tuấn - ITITIU22177**

**Date:** May 2, 2025

# TABLE OF CONTENTS

# INTRODUCTION

# Introduction

This report presents the design, development, and features of TS Academy, a cutting-edge online platform focused on delivering comprehensive cybersecurity education. As digital threats continue to evolve rapidly, the need for accessible, practical cybersecurity training has never been greater. TS Academy meets this demand by offering an engaging learning environment that blends foundational theory with hands-on practice.

Catering to learners of all skill levels, from novices exploring digital security fundamentals to experienced users sharpening advanced techniques, TS Academy employs a dual learning approach. Its robust theoretical courses provide a deep understanding of cybersecurity principles, concepts, and best practices, while interactive labs enable learners to apply their knowledge in realistic, simulated environments.

# Project Overview

TS Academy is built on three core pillars:

1. **Theory Lessons**: The platform delivers structured, engaging lessons on essential cybersecurity concepts, principles, and best practices. These lessons provide learners with a strong knowledge foundation to comprehend digital threats and defense mechanisms, designed to be accessible and relevant for users at any stage of their learning journey.
2. **Interactive Labs**: To complement theoretical learning, interactive labs offer a hands-on environment where users can put their knowledge into practice. These labs simulate real-world cybersecurity scenarios, allowing learners to test defensive strategies, detect vulnerabilities, and build practical skills in a secure, controlled setting, reinforcing their theoretical understanding.
3. **Admin Dashboard**: A powerful admin dashboard equips platform administrators with tools to manage operations efficiently. Features include user management, content creation and organization for lessons and labs, progress tracking, and potential report generation, ensuring seamless maintenance and oversight of the learning ecosystem.

# Requirement analysis and design

1. **Functional Requirements**
   1. **User Management**
      * User registration and authentication system
      * Role-based access control (student,administrator)
      * User profile management with customization options
   2. **Course Management**
      * Course creation and publishing
      * Content organization by categories, subjects, and difficulty levels
   3. **Learning Experience**
      * Interactive lesson modules with progress tracking
   4. **Interactive Labs**
      * Hands-on virtual lab environments for practical exercises
      * Sandbox environments for experimentation
      * Lab exercise tracking and progress monitoring
      * Simulated environments for real-world scenario practice
      * Lab result submission and feedback system
   5. **Administration Dashboard**
      * User activity monitoring and engagement metrics
      * Content management and moderation tools
2. **Non-Functional Requirements**
3. **Performance**
   * Page load times under 3 seconds
   * Efficient database queries to handle large datasets
   * Scalable architecture to accommodate growth
4. **Security**
   * End-to-end encryption for sensitive data
5. **Usability**
   * Intuitive, user-friendly interface design
   * Consistent navigation and interface patterns
   * Clear error messages
6. **Compatibility**
   * Support for major browsers (Chrome, Firefox, Safari, Edge)
   * Mobile application versions for iOS and Android
7. **Technical Requirements**
8. **Development Technologies**
   * Front-end: Modern JavaScript framework (React)
   * Back-end: Scalable server-side technology (Node.js)
   * Database: Relational (MySQL)
   * Version control system for collaborative development(Github)
9. **Potential Future Features**
   * AI-powered learning path recommendations
   * Augmented reality/virtual reality learning experiences
   * Advanced analytics with predictive capabilities
   * Blockchain-based credential verification
   * Marketplace for educational resources
   * Peer-to-peer tutoring network
   * Content localization and internationalization

# Design

# IMPLEMENTATION

# DISCUSSION AND CONCLUSION

# REFERENCES