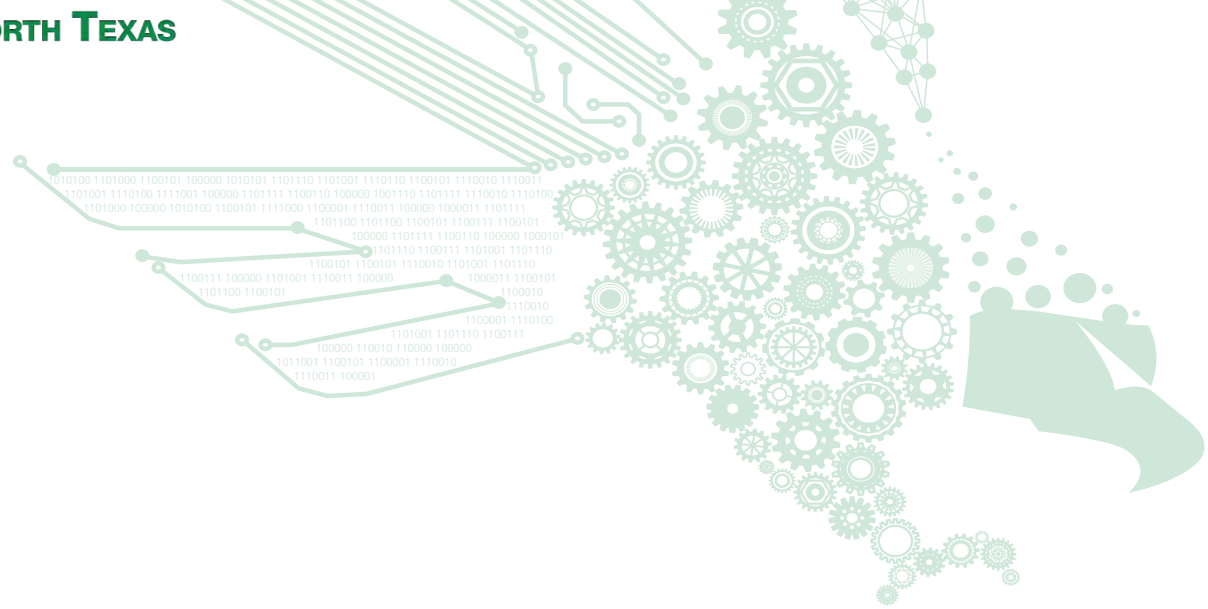
College of Engineering

R&D Expo

University of North Texas

SENIOR DESIGN



Spring 2025

COLLEGE OF ENGINEERING
Department of Computer Science & Engineering

CYBERSECURITY
Senior Design Abstracts
Spring 2025

UNT COLLEGE OF ENGINEERING

EZFileShare by Team 472

Team Members

Dalton Baughman
Blake Grubbs
Jacob Stephens
Robert Romero
Adesina Tijani

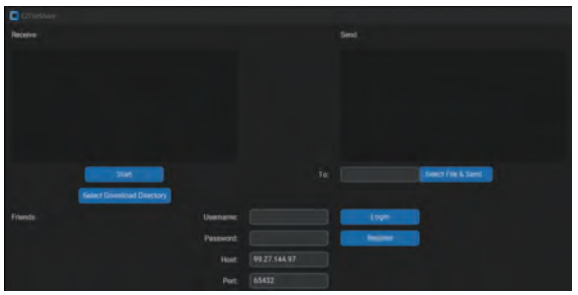
External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Pradhumna Shrestha

Abstract

Many people who own a computer want to send their friends files. And while modern applications let you send files, almost all of them have annoying file size limits. Our group wants to provide people with an alternate method of file transfer which is not limited by file size. We decided to opt for a hybrid server/peer-to-peer system where the server handles login information and authentication as well as the friends system, and the file transfer is executed via a peer-to-peer connection. Our goal with EZFileShare is to provide a simple, secure way to share large files with your friends without going through the hassle of setting up your own server.



Hacker's Path - by team [test]

Team Members

Marcus Heins, Jeremy Chan, Jackson Giddens, Rohan Taneja

External Sponsors/Mentors

Sheldon Carmichael - Mentor

Internal Sponsors/Mentors

Pradhumna Shrestha - Sponsor/Professor

Abstract

Hacker's Path is an educational cybersecurity web application designed to help high school and college students build a strong foundation in security concepts through interactive, beginner-friendly lessons. Inspired by platforms like TryHackMe, Zybooks, and Duolingo, it combines gamified quizzes, simplified labs, and repetition-based learning to make complex topics more accessible. Lessons cover essential areas such as XSS, phishing, and password security, all presented in a modern, engaging format.

The platform is built using JavaScript and Node.js, with Supabase providing user authentication and database functionality. Deployed on Vercel, Hacker's Path ensures a fast, seamless experience while supporting features like progress tracking and a user scoreboard. By focusing on clarity, interactivity, and a user-centered approach, the app aims to lower the barrier to entry for students interested in cybersecurity and provide a structured, motivating path to hands-on learning.

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NJGL Security

Team Members

Grayson Rosequist
Johnathan Spore
Lam Nguyen
Nomnso Chas-Nwam

External Sponsors/Mentors

Internal Sponsors/Mentors

Dr. Pradhumna Shrestha

Abstract

The best way we could think of to apply our cyber security skills while making a product that can fill a niche in the market, was to build a web app from the ground up, securing it every step of the way. For our web app we created the project management system Team Builder Clash. Our goal with team builder clash was to allow for employers and employees alike to have a great, fluid experience navigating their project hubs. We put an onus on the human part of projects, Requiring the user to fill out skill forms and personality traits in order to help find the most compatible group for a job. It will allow for an overhead view of personal projects and help remove the clutter and confusion a busy employee can face. Team Builder Clash will provide a central hub where you can see your projects, updates on them, who you're working with, a comprehensive calendar and when they are due. Team Builder Clash aims for the perfect balance of organization, scheduling, and team building. Our emphasis on security for this app starts from the very bottom, providing secure log in and sign up features, along with encrypted group chats where company can be discussed without worry.

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Phishnet

phishnet

Team Members

Faiza Al Amoodi
Zoha Raja
Nife Teye
Sowmya Reddy Tukakula

External Sponsors/Mentors

N/A

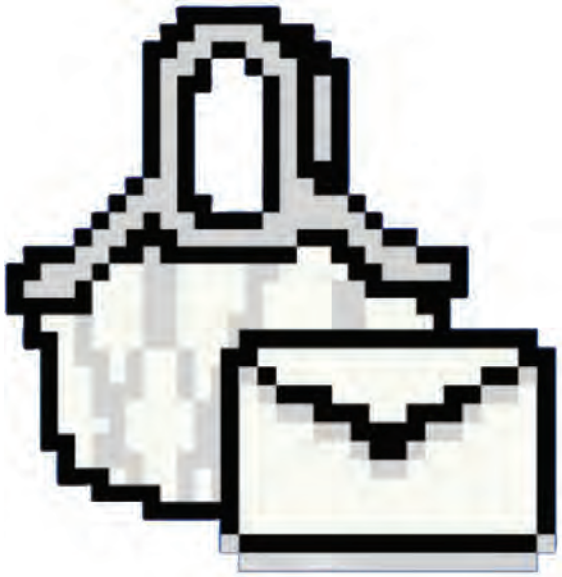
Internal Sponsors/Mentors

Dr. Pradhumna Shrestha
Engineering Dean’s Senior Design Fund

Abstract

Phishing scams have been plaguing email inboxes since the inception of the internet. An estimated 3.4 billion phishing emails are sent out each day. With increasingly sophisticated and pervasive attacks, the identification of phishing scams proves laborious and tedious.

PhishNet aims at streamlining phishing detection by employing email content analysis using machine learning models to eliminate the need for individuals to manually process emails. It provides intuitive visual feedback, categorizing emails as 'safe' or 'unsafe' directly in the inbox. With PhishNet, individuals can be better protected against identity theft and fraud. PhishNet's approach enhances personal security, allowing users to navigate their emails with confidence.



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The Superb Security Specialists

Team Members

Shankar Saikia
David Schildgen
Samuel Scoles
Krishna Tiwadi
Gavin Garcia

External Sponsors/Mentors

Internal Sponsors/Mentors

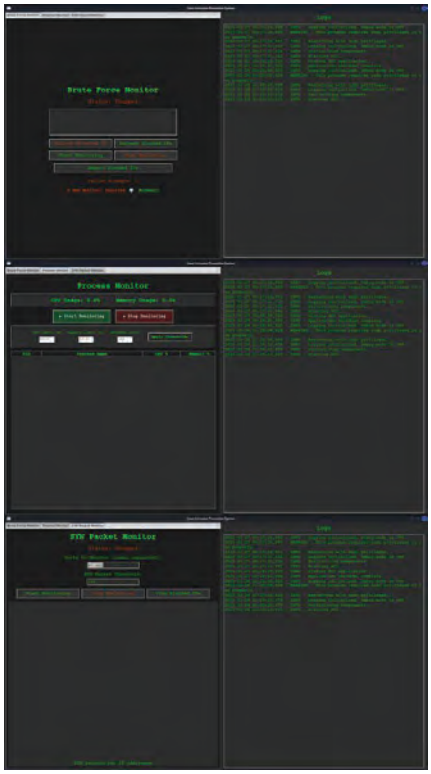
Dr. Pradhumna Shrestha

Abstract

Computers, and the networks they use to communicate, are incredibly important in today's digital world. Many people and organizations use computers and networks every day to process and exchange information. However, there are also risks associated with them: cyber-attacks can limit or prevent the functionality of computers, potentially leading to bad outcomes for businesses and people.

Our solution is an intrusion prevention system, which helps defend against cyber-attacks on a computer by detecting and blocking attacks on it. The software monitors the machine, detects a host or network-based attack, and stops it. It features a SYN packet monitor to detect and block SYN flood attacks, an SSH brute force monitor to prevent brute force attacks on SSH connections, and a process monitor to sandbox and/or terminate malicious system processes.

Overall, this solution can help protect individuals and businesses by defending the machines they work on. In doing so, it contributes to a safer cyber world for all.



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Team 1

Team Members

Austin Reece
Micah Wolfson
Nickolas Baird
Taha Al Obaidi

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Dr. Pradhumna Shrestha
Engineering Dean's Senior Design Fund

Abstract

Cyber Safe Alert is a cutting-edge Cyber Threat Intelligence (CTI) platform designed to keep professionals informed on the latest and most pressing cybersecurity threats. This website offers a comprehensive collection of articles focused on emerging risks, vulnerabilities, and threat trends, helping users stay up to date with the rapidly evolving cyber threat landscape. Key features include the ability to save articles for future reference, engage with content through likes and comments, and navigate topics with a robust search function. The platform also includes a unique accountability score system to evaluate the credibility of articles, ensuring that users can trust the sources they rely on. Additionally, Cyber Safe Alert offers a personalized email alert system, notifying users when new articles on their preferred topics are published. By delivering timely, relevant, and reliable threat intelligence, Cyber Safe Alert is dedicated to equipping cybersecurity professionals with the information they need to stay ahead of the curve.

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@UNTEngineering

engineering.unt.edu
940-565-4300