MUHAMMAD EHSAAN KHALIQ

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SUMMARY

My interests lie in strengthen the digital realm, aiming to contribute to the ongoing enhancement of digital security practices. Research revolves around cyber security and network security, particularly in the exploration and exploitation of vulnerabilities.

SKILLS

Languages: C/C++, Java, Javascript, Python, x86-64 Assembly

Tools: GDB, IDA, Git, Tcpdump, Wireshark
OS: GNU/Linux, Windows
Cloud: EC2, IAM, S3, VPC, AWS Fundamentals

EDUCATION

CGPA : 3.18 | **Punjab University College of Information Technology** | **December, 2020 - June, 2024**

Bachelor of Science - Information Technology

Grade : A+ | **Superior College Burewala** | **September, 2018 - July, 2020**

Higher Secondary School Certificate (HSSC)

EXPERIENCE

PUCIT | **Teaching Assistant (Operating Systems)** | **August, 2023 – June, 2024**

· Covered Topics
· Basic Shell Commands, Software Installation, I/O Redirection, IPC, Signals, Process and Task Scheduling, File System Architecture, File Permissions, Linux Log Files, Booting Process etc.
· Designed exam papers for the lab.
· Assisted students in the lab + other TA responsibilities.

PROJECTS

C, Python, x86-64 Assembly | **Linux Kernel Exploitation for Container Escape (Final Year Project)**

Supervisor: Dr. Muhammad Arif Butt
· Formulated the idea and initiated the research project
· Worked on reversing binaries using IDA Freeware
· Worked on Stack & heap based memory errors in binaries.
· Linux Kernel Internals & kernel Level Security Mitigations.
· Analyzed and Exploited **CVE-2022-0185** (Heap based Buffer Overflow in Linux Kernel).

Java, Python | **Socket Programming** | **Github**

· In java sockets Simple java sockets are implemented using streams in java.
· In Python sockets File Transfer Protocol (FTP), Stop and Wait and Go-back-N protocols are implemented in UDP sockets.

Python, x86-64 Assembly | **Exploit Scripts** | **Github**

· Basic Stack Overflow & Shellcode Injection & Buffer Overflow with Mitigations
· Basic scripts that I have written while learning how to solve exploitation challenges

Java, XML | **Basic Android App** | **Github**

· Its a term project implmenting basic app features including recyclerView, retrofit Api, roomdb, fragments, View Binding, Data Binding, Dialog Box, Notifications etc.

Python, Java XML, PHP, MySQL | **Mini Projects** | **Github**

· Linux Utilities (**Github**)
· Student Feedback System (**Github**)
· Spam Mail Prediction Using Python (**Github**)

ONLINE COURSES

· Networking Fundamentals
· AWS Cloud Foundations
· Cisco CCNA 200 - 301

ONLINE CTF PLATFORM

· tryhackme.com/p/meharehsaan
· pwn.college

CERTIFICATES

· PWN CTF Participation **PUCON** '24 (**verify**)
· CTF Participation **NASCON** '24 (**verify**)
· Coordinator Shield **Mini Olympics** '24 (**verify**)

INTEREST

· Computer Networks
· Cyber Security
· Cosmology

EXTRACURRICULARS & VOLUNTEERING

· **Study Coordinator** – Helping Hands (unofficial PUCIT Society)
· **Sports Coordinator** – PUCIT Mini Olympics 2024
· **Collaborative Workshop Organizer** – with GDSC (Google Developer Student Club)