Sathya Ramanathan

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Education

Oregon State University | Sept 2015 – Sept 2019

- Bachelor of Science (BS), Computer Science
- Specialization in Cybersecurity

Projects

Personal Website | https://satcom237.github.io/website

Google Authenticator | C++

- Developed an application that uses a Time-Based One Time Password (TOTP) algorithm to generate One Time Passwords (OTPs) every 30 seconds
- Improves device security by 76% by incorporating two-factor authentication
- Implemented in C++ utilizing the HMAC-SHA1 function (OpenSSL Library)

Huffman Coding | C++

- Developed a lossless data compression algorithm that utilizes a binary tree
- Shrinks file sizes on average by 20% through finding the optimal character frequencies
- Implemented in C++ including the compression and decompression components

Caesar Cipher | C

- Security program that takes user input as a message via command line or by file and either encrypts/decrypts it using a substitution-shift cipher with desired key
- Implemented in C

Secure User Web-App | PHP

- Created a web application for entering, storing, and retrieving information about users of a sample website
- User passwords are salted then hashed using the MD5 algorithm before being stored into the database – rendering it less vulnerable to lookup attacks
- Implemented in MySQL, PHP, and HTML/CSS

Skills

Languages: (*Proficient*): C, C++, Python, SQL (*Familiar*): Bash, Java, PHP, JavaScript

Security: Malware & Threat Detection, Network/Web security, Digital Forensics, and TCP/IP. Experience using: YARA, OpenSSL, FTK Imager, and VMware

Cryptography: RSA, Diffie-Hellman, AES/3DES, CBC/CTR, SHA-2, MITM, One-Time Pads, Digital Certificates, Key Management, and HMAC concepts

Courses

Cryptography, Network Security, Digital Forensics, Defense Against the Dark Arts, Introduction to Security, Computer Networks, Operating Systems I/II, Software Engineering I/II, Linux System Administration, Data Structures, Algorithms, Database Management Systems, Cloud/Web Development, and Theory of Computation