

CSI Student Chapter

Workshop on Cyber Security

On September 14th, students of CSE-B organized a workshop on cyber security, under the banner of CSI student chapter. Topics covered include Cryptography, Reverse Engineering, Binary Exploitation and Web Exploitation. The speakers are C.V.Jyothishmathi, Nimish&Nitin A.B, Kanishq&Pratheep and Mohanasundar.

The session started with Cryptography. Students were introduced to all major Ciphers. These include Caesar Cipher, ROT13, Vigenere Ciphers, RSA and AES. Hands on demonstration on how to build and crack them were presented. Students were excited to learn new techniques to secure data. At the end of the session many students asked doubts on how to tackle the flaws present in the ciphers.

Next session was conducted by Nimish. He interacted with the students to introduce them to the concepts of CTFs(Capture The Flag). He enlightened them on the importance of cyber security with the explosion of technology. The need to learn techniques to locate and handle vulnerabilities were stressed. Then forums to participate in CTFs and its importance were discussed.

After a small recess students came back with full energy to attend the next session, Reverse Engineering. Nitin and Nimish introduced students to basic assembly language and solved real-life crackmes to illustrate concepts such as ROP chaining. Many found it hard to keep up with assembly language but the speakers put in a lot of effort to clear everyone's doubts. Others even asked their doubts after the session ended.

The next session was Binary Exploitation. Speaker of this session was me and Pratheep. We faced a few set-backs. Our OS did not support the projector for some reason. We were forced to show on a new laptop. We wrote our own code and demonstrated concepts like binary overflow, format vulnerabilities and stack overflows. A keen insight on stacks, heaps and registers were given. Students were astonished to find ordinary C code, which they write, to have vulnerabilities which can be exploited. They were particularly interested in buffer overflow vulnerability and asked a lot of questions on the same. Since Nimish and Nitin had shared their knowledge on assembly just before the session, we were able to comfortably help students see overflows with the help of assembly code using GDB.

We broke for lunch around 1:00PM. The next session was Web Exploitation to be held at 2:00PM. When all assembled for the next session, we faced yet another problem, Mohan's laptop also did not support the projector. So he sat with the students, who were ready to support us during such a crisis. He was able to easily address all the students in the new setup. Concepts such as Slow-Morris attack, CSRF, Sql Injection and lot more were covered. Sample sites were attacked to showcase their vulnerabilities. Techniques to patch these exploits were also shown live. At the end of the session students had a new perspective on how to securely create websites.

The workshop came to an end with the final thanking speech by me. I encouraged students to take up cyber security as a challenge and start tackling CTFs to hone their skills on the field. Also thanked all the volunteers who played a crucial role in smoothly running the

event. Many sites for resources and courses were provided. In the end, our honourable HOD graced the event with her presence, thus bringing the event to an end.

Kanishq, III year CSE B