Weekly Progress

Monday, 23 May, 2022   10:53 PM

Friday, 1 October, 2021

7:43 PM

Semester 1

Week 0

- Watched Dr. Richard Harvey's public lecture on Cyber Security

https://www.gresham.ac.uk/lectures-and-events/computer-security

- Further research on Cyber Security Subjects
  - Bitcoin, Crypto Currencies hash
  - Malware, worms, ransomware

- Decided on ransomware as the main subject

- Worked on Project Proposal
  - Research Ransomware and current threats
  - Produced section 1 Description
  - Started on section 2 Research and section 3 Approach

Week 1

- Continue working on Project Proposal

  - Finished section 2 Research and section 3 Approach
  - Started section 4 Risks

- Research machine learning and related subject including coding, ML algorithms, etc.

- Considered the approach for the project

- Thought about the possible issue

Week 2

- Completed Project Proposal
- Continued research on machine learning and programming libraries
- Started on Literature review
  - Introduction

Week 3

- Continued Literature Review
  - Ransomware
  - How ransomware works
  - Currently known ransomware
  - Countermeasures

- Reviewed project proposal

- Research ransomware behavior

- Continue working on Project Proposal
    - Finished section 2 Research and section 3 Approach
    - Started section 4 Risks
- Research machine learning and related subject including coding, ML algorithms, etc.
- Considered the approach for the project
- Thought about the possible issues

Week 4

- Continued working on Literature Review
  - Machine learning
  - Dormant and Dynamic Malware
  - Malware data collection
  - Hardware based malware detection

- Reviewed material on hardware based malware detection

Week 5

- Submitted Literature Review
- Reviewed Literature Review
  - Focus on sensor based detection

- Further research into hardware based detection

Week 6

- Reviewed revised Literature Review

- Research on hardware monitoring tools
  - Open Hardware Monitor

Week 7

- Research Process Monitoring and monitoring programs
  - Process Monitor

- Looked into logging with process monitor

- Submitted Literature Review
- Reviewed Literature Review
  - Focus on sensor based detection
- Further research into hardware based detection

Week 8

- Come to the conclusion that logging processes is not efficient

- Moved on to monitoring hardware activity

Week 9

- Used burner machine to monitor hardware
- Monitored hardware activity while
  - No applications running
  - Gaming
  - Encrypting

- Reviewed data

Week 10

- Learnt to use MatLab

- Produced graphs using monitored data

- Review temperature data on two components
  - Hard drive
  - CPU

Week 11

- Produced graphs on
  - CPU Load
  - CPU Power Consumption
  - RAM Load
  - RAM Memory Usage

- Review graphs data

- Started on Progress Report

- Used burner machine to monitor hardware
- Monitored hardware activity while
  - No applications running

Winter Break

- Data collection of various programs:
  - Powerpoint
  - Excel
  - Word
  - Games
  - Adobe photoshop
  - Adobe reader
- Analysis of collected data
- Evaluation of collected data

Semester 2

Week 1

- Finish writing Experiment Finding on LaTex
- Reviewed programming libraries to use

Week 2
- Pythonnet + OpenHardwareMonitor.dll used to extract Hardware Sensor Information

Week 3
- Finish sensor data collection system for the program
- Started on Machine learning classifier

Week 4
- Continued working on classifier

Week 5
- Start of data collection (Monitoring Intervals)
- Continued work on classifier

Week 6
- Worked on back end of program
- Continued work on classifier
- End of data collection (Monitoring Intervals)

Week 7
- Finish work on classifier
- Worked on back end of the program

Week 8
- Finish work on back end of the program
- Started front end work

Week 9 (Post Easter Break)
- Finish program
- Finish of System activity test section of dissertation
- Finished Data collection and Machine learning section of dissertation
- Started on Program Development and Planning section of dissertation
- Started optimizing Classifier

Week 10
- Finished final version of classifier
- Started recording program performance
- Continued working on Program Development and Planning section of dissertation

Week 11
- Finished recording program performance data
- Finished Program Development and Planning section of dissertation
- Started Program Effectiveness section

Week 12
- Finish writing Conclusion
- Finish writing Future Works
- Finish writing Abstract
- Rewrote parts of Literature Review
- Read and corrected dissertation

Week 13
- Continue Correcting Dissertation
- Submit Project Portfolio