COMP 5350 / 6350 - Project #2

The second project for COMP 5350 / 6350 will focus on automating file recovery based on file signatures and analysis of a Windows 10 registry.

Schedule:

Project #2 Assigned: 30 October Project #2 Due: 4 December

Students Project Requirements:

Each team will be provided with a disk image collected during a forensics investigation.

✓ Project2.dd

Automated File Recovery

In Project #1 our focus was on understanding file system structures and recovering user generated files. In this project instead of using a step-by-step process based on file system boundaries, we will instead recover files by making use of file signatures. The objective of Project #2 is to develop a Python script that will take a disk image as an input, locate file signatures, properly recover user generated files without corruption, and generate a SHA-256 hash for each file recovered.

The disk image provided will contain numerous file types including:

- ✓ MPG
- ✓ PDF
- ✓ BMP
- ✓ GIF
- ✓ ZIP
- ✓ JPG
- ✓ DOCX
- ✓ AVI
- ✓ PNG

The following resource will assist with determining file signatures for each file type: https://www.garykessler.net/library/file_sigs.html

The following program is <u>an example</u> of what the kind of information that will be found after the program takes in a disk image. You may configure the output however you would like, but filename, start and end offset, and SHA-256 results must be provided.

Example Output:

./FileRecovery.py Project2.dd

The disk image contains 8 files

File1.mpg, Start Offset: 0x100000, End Offset: 0x200000

SHA-256: 9f86d081884c7d659a2feaa0c55ad015a3bf4f1b2b0b822cd15d6c15b0f00a08

File2.pdf, Start Offset: 0x100000, End Offset: 0x200000

SHA-256: 9f86d081884c7d659a2feaa0c55ad015a3bf4f1b2b0b822cd15d6c15b0f00a08

File3.gif, Start Offset: 0x100000, End Offset: 0x200000

SHA-256: 9f86d081884c7d659a2feaa0c55ad015a3bf4f1b2b0b822cd15d6c15b0f00a08

File4.mpg, Start Offset: 0x100000, End Offset: 0x200000

SHA-256: 9f86d081884c7d659a2feaa0c55ad015a3bf4f1b2b0b822cd15d6c15b0f00a08

File5.pdf, Start Offset: 0x100000, End Offset: 0x200000

SHA-256: 9f86d081884c7d659a2feaa0c55ad015a3bf4f1b2b0b822cd15d6c15b0f00a08

File6.png, Start Offset: 0x100000, End Offset: 0x200000

SHA-256: 9f86d081884c7d659a2feaa0c55ad015a3bf4f1b2b0b822cd15d6c15b0f00a08

File7.pdf, Start Offset: 0x100000, End Offset: 0x200000

SHA-256: 9f86d081884c7d659a2feaa0c55ad015a3bf4f1b2b0b822cd15d6c15b0f00a08

File8.docx. Start Offset: 0x100000. End Offset: 0x200000

SHA-256: 9f86d081884c7d659a2feaa0c55ad015a3bf4f1b2b0b822cd15d6c15b0f00a08

Recovered files are located in ~/RecoveredFiles

Final Report:

Each team will provide a final report that answers the questions from the grading rubric. The format of the final report will include the following sections:

- 1) Executive summary
- 2) Problem description
- 3) Description of analysis techniques utilized
- 4) Tables and screenshots
- 5) Conclusions and Recommendations

A single page report will not adequately answer all questions so be prepared to have an in-depth analysis and description of the methods you used to answer the questions. In the final report ensure you document code utilized from any other sources and describe how the code works!

Grading Rubric:

The grading rubric that will be used to grade each disk image will be based on the following criteria:

Activity	%	Pts
Are the correct starting and ending offsets specified for each file?	10%	50
Are the correct number of files recovered?	10%	50
Is the file recovery process documented in the code?	50%	250
Are the files correctly recovered?	30%	100
Total	100%	500

Project Grading:

Letter grades will be assigned based on a 10-point scale:

90 - 100 = A

80 - 89.9 = B

70 - 79.9 = C

60 - 69.9 = D

< 60 = F