**INTRODUCTION: WHAT IS MALWARE?**

Malware is "malicious software" that hides on your computer, sometimes without you knowing.  It might silently spy on you as you browse websites or type in your password.  It might encrypt all your pictures and make you pay to access them.  It can also connect to other computers to download more malware.

In addition to an antivirus scanner, you can use malware analysis websites, like VirusTotal to protect yourself from malware.  Virustotal will scan a file with dozens of virus scanners, and provide details about what that file might do to your computer.  You can use Virustotal scan websites, documents, or programs.

To use VirusTotal, you can either upload a file or use a "hash". For example, a SHA-256 hash is a mathematical way to make a unique 64-character hexadecimal identifier of a file, like those below.  If you know the hash of a file, you can find the VirusTotal scan results.  From there, you can see how many (and which) antivirus scanners flagged the file as malware.

**TYPES OF MALWARE**

Match the following types of malware with the hashes from the VirusTotal results:

A bot silently infects your computer, then listens for commands from an attacker.  For example, the ZeusBot is a "botnet" of millions of infected computers used by criminals to steal from bank accounts and businesses around the world.

A downloader is a tiny program that retrieves more malware from another computer.  If you notice a VirusTotal tab labelled "Behavior", you can use it to see the address that the file will attempt to download more malware from.

Keyloggers watches what websites you go to and might be used to steal credit card numbers.  They can capture your passwords as well, so some antivirus scanners call them a "password stealer".

Ransomware encrypts all your files, then demands payment before it will (supposedly) decrypt them.  For example, the WannaCry malware encrypts everything, then says you must pay $300 (but there's no guarantee that you'll actually get your data back).

BOT

<https://www.virustotal.com/gui/file/2d8b3ac3dd137e11f4a888b40a0ae6249133966df54c00e85f95444543fc83a2/detection>

KEYLOGGER

<https://www.virustotal.com/gui/file/259b9c181e8071d2fb40abe92e6b09fc18160cfaee04ce5e0b8e01586ec39e7f/detection>

RANSOMWARE

<https://www.virustotal.com/gui/file/7042c6b9fa8d54047a5487eefbab3b53b46f396ff609c2d39849af73d796face/detection>

DOWNLOADER

<https://www.virustotal.com/gui/file/f3e5290db98b892bed1a329faee724e7889ade8e945ad1338b0edd5a46216eed/detection>