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In this section of lab 11, I will describe one case of port scanning that is unethical, and another case that I believe to be ethical— using arguments by analogy to justify my reasoning.

To begin, an example of unethical port scanning is when a hacker uses it as a tool to gather intelligence and reconnaissance for more serious attacks. For instance, they might scan many ports to gather information on the software running on each port, which they can then use to exploit its known vulnerabilities. Continuing with the house robber example from class, this is analogous to a robber that knocks on each door in the neighborhood and runs away, to see if the owner is usually home. They'd then use this information to plan robberies, which we have established is obviously unethical. Since this example of a house robber is considered unethical, we can then use the same reasoning to conclude that port scanning, which is very similar in intent, is also unethical.

An example of ethical port scanning might be for software maintenance from ethical hackers looking to patch software vulnerabilities. For instance, a company might hire someone to scan all ports in a controlled environment for any unused open ports, or security vulnerabilities. This is analogous to building management testing the alarm systems in a building, and checking the locks on each door to make sure that they are functional. Since this is a routine practice considered to be ethical, we can use the same reasoning to conclude that port scanning used in this context is also ethical.