Socket Programming Project Paper(Dec’2021)

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***Abstract*—With the ever-increasing demand for cybersecurity and information security awareness, there is an increasing need for education in the information security field. To be specific, hands-on education is the primary way of teaching these valuable skills. One of the ways to actively teach these information security concepts is through educational competitions such as a Capture the Flag (CTF) competition. As a result, we decided to investigate some of the most popular and common tools that have proven to be invaluable during Capture The Flag competitions. We were able to test each tool for ourselves and give our opinions on each tool.**

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# Introduction

What is Socket Programming? It is a way how applications will be communicating with each other over the internet. This is the reason why we need socket programming. It is a way to reach, i.e. in the TCP/IP application layer through an application, a data would be generated, and this would go to another TCP/IP’s application layer. Now, in this a socket is a node or an endpoint. So, we can say to build any networked application the context of the internet we would require socket programming. A good example would be Internet Explorer and Firefox browsers which usually fetch webpages from a server and displays it. Similar are FTP clients which go and fetch data from the FTP servers and one of the popular P2P tools such as LimeWire and Bitcomet. So, in order to understand how these tools actually function, how they communicate, and how data is transferred across the Internet between two entities we need to understand Socket Programming. Throughout this paper, we will discuss and understand the basics and flow of socket programming.