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## Port Scanning App

*SurajMaskar*<sup>\*1</sup>, *Sanket Bhosale*<sup>\*2</sup>, *Pranav Dubey*<sup>\*3</sup>, *Vikas Kamble*<sup>\*4</sup>, *ShubhraTonge*<sup>\*5</sup>

<sup>\*1,2,3,4</sup>Final Year Students, Department of Computer Engineering, Vivekanand Education Society's Polytechnic, Chembur, Mumbai, Maharashtra, India.

<sup>\*5</sup>Senior Project Mentor, Department of Computer Engineering, Vivekanand Education Society's Polytechnic, Chembur, Mumbai, Maharashtra, India

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### ABSTRACT

port scanner is a method used to determine which ports are open on a network. Port scanner can vary complexity from using a port scanner, an attacker could use the information received from the port scan to target an open or unused port. Use the programming language of your choice to write a simple port scanner to identify which ports are open on the network

Keywords: Port Scanning app, android application, android SDK java

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### 1. Introduction

Identifying open ports on a system is the next part to define the attack surface of a target. Open ports which are consistent with the networked services that are running on a system. Programming errors or some action flaws can make these services vulnerable to attack and can sometimes lead to total system crash. To determine the possible attack vectors, one must first check the open ports on all the remote systems within the project's scope. These open ports correspond to services that may be addressed either will be UDP or TCP traffic. Both TCP and UDP are transport protocols. Transmission Control Protocol (TCP) is the most commonly used and the two and provides connection-oriented communication. User Datagram Protocol (UDP) is a non-connection-oriented protocol that is sometimes used with services for which speed of transmission is more important than data integrity. The penetration testing technique used to accept these services is called port scanning. Similarly, to host discovery, which was discussed, these techniques contain enough information to identify whether a service is associated with a given port on the device or server.

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### 2. Literature Review

Port Scanning on a computer occurs frequently on the Internet. An attacker performs a port scans of IP addresses for finding vulnerabilities of hosts to compromise. However, port scanner is also useful for the system administrators and other network defenders to detect port scans as possible preliminaries to more serious attacks. It is a very difficult task to recognize instances of malicious port scanning. In general, a port scan maybe an instance of a scan by attackers or an instance of a scan by network defenders. In this survey, we present research and development trends in this area. Our presentation includes a discussion of common port scan attacks. We provide a comparison of port scan methods based on type, mode of detection, mechanism used for detection, and other characteristics. This survey also reports on the available datasets and evaluation criteria for port scan detection approaches. Provides a review of the literature on both the nature of, and responses to significant Disruptions to the movement of freight through U.S. ports. For the purposes of this Study, the following definitions are used:

- Ports are defined as deep-draft coastal facilities and terminals capable of handling Both international and domestic marine cargo.
- Disruption is defined as any significant loss of a port's regular cargo handling Capacity.

\**SurajMaskar*. Tel.: +91 8356010317.

E-mailaddress: [co2020.suraj.maskar@ves.ac.in](mailto:co2020.suraj.maskar@ves.ac.in)

### 3. Experimental Setup

For this project HTML/CSS, JAVA, JavaScript and Kotlin programming language and for android application we have used Android Studio. For the database we have used SQL to store user details and item information. Their short information is noted below:

- **JavaScript**:- JavaScript is a scripting or programming language that is used to implement complex features on web pages. Every time a web page does more than just sit there and display static information for you to look at, JavaScript allows it in displaying timely content updates, interactive maps, animated 2D/3D graphics, scrolling video jukeboxes, etc.
- **HTML and CSS**:- HTML is the standard markup language for web pages used for creation of website or web pages and Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML
- **JAVA**:- Java is used as the server-side language for most back-end development projects, including those involving big data and Android development.
- **KOTLIN**:- Kotlin can be used for any kind of development, be it server-side, client-side web and Android. It allows developers to write more concise, expressive, and safer code.

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### 4. Proposed Details Methodology

- Developing the project was considered very important to get protection from hackers so after considering the scope and discussing with the group members we decided to create an port scanner.
- Then we will make our app in such a way that the user will have a convenient and efficient experience and we will also provide a review option for the users to give their reviews and opinions on how to improve our app.
- After getting our project designed by group members and with guidance of our mentor we will be starting the development process of the actual project.
- For webpages we will be using web development languages like **HTML**-used for creation of website or webpages, **CSS**-which can add design to the website or webpages, **JAVASCRIPT/PHP**-used for the website to be functional. And for our application we will use **JAVA**-used as the server-side language for most back-end development, **KOTLIN**-used for functioning of the application, which will be implemented within **ANDROID STUDIO** or any other Development Software.
- After getting our work done, we will perform several tests on our application and website to see if they are safe from being attacked, check if any bug appears and if it is vulnerable to any hacker.
- So after launching process there is no problem in our app or site this is our methodology of the project there can be certain changes in case of any problem

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### 5. What is Android Studio

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems or as a subscription-based service in 2020. It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development. Android Studio supports all the same programming languages of IntelliJ (and CLion) e.g. Java, C++, and more with extensions, such as Go and Android Studio 3.0 or later supports Kotlin and "all Java 7 language features and a subset of Java 8 language features that vary by platform version." External projects backport some Java 9 features. While IntelliJ states that Android Studio supports all released Java versions, and Java 12, it's not clear to what level Android Studio supports Java versions up to Java 12 (the documentation mentions partial Java 8 support). At least some new language features up to Java 12 are usable in Android.

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## 6. What is Kotlin Programming Language

Kotlin is a cross-platform, statically typed, general-purpose programming language with type inference. Kotlin is designed to interoperate fully with Java, and the JVM version of Kotlin's standard library depends on the Java Class Library, but type inference allows its syntax to be more concise. Kotlin mainly targets the JVM, but also compiles to JavaScript (e.g., for frontend web applications using React) or native code via LLVM (e.g., for native iOS apps sharing business logic with Android apps). Language development costs are borne by JetBrains, while the Kotlin Foundation protects the Kotlin trademark.

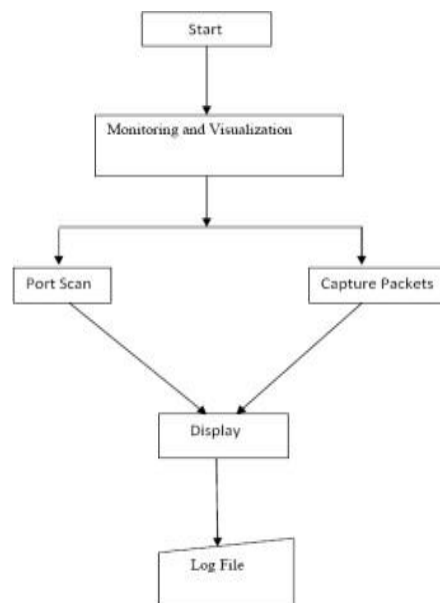
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## 7. What is JAVA Programming Language

Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible. It is a general-purpose programming language intended to let programmers write once, run anywhere (WORA), meaning that compiled Java code can run on all platforms that support Java without the need to recompile. Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of the underlying computer architecture. The syntax of Java is similar to C and C++, but has fewer low-level facilities than either of them. The Java runtime provides dynamic capabilities (such as reflection and runtime code modification) that are typically not available in traditional compiled languages. As of 2019, Java was one of the most popular programming languages in use according to GitHub, particularly for client-server web applications, with a reported 9 million developers.

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## 8. Basic Flow of Applications



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Algorithm for using the software:

- Start i.e Open the app.
- Click on Start Scan.
- Start Scanning of port are open or close.
- Display the result.

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● Stop

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## Scope of the Application

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Port scanning is a method attackers use to scope out their target environment by sending packets to specific ports on a host and using the responses to find vulnerabilities and understand which services, and service versions, are running on a host. Port scanning is used for many legitimate purposes, necessitating the ability to differentiate between benign and malicious scanning activity. Simple approaches look for patterns like the number of ports scanned by a single IP address. If one IP address is running a lot of scans on different ports, it can be an indicator of malicious activity. The project develops a TCP port scanner with Python and Scapy. The tool would analyze if a corresponding TCP port is open or closed on the destination.

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## Conclusion

We were successful in capturing packet and scanning all active ports with help of network visualization. The other part of the paper was able to successfully deliver good results about web server information related to administrator. In future we look for some other facilities in this paper that are:

- More User Familiar graphical interface that will help novice user.
- Addition functionality by exploring system registry.
- Implementation of Security.
- Simulate Same concept of this paper on other OS also

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## Reference and Bibliography

Google

[http://en.wikipedia.org/wiki/Port\\_Scanner](http://en.wikipedia.org/wiki/Port_Scanner).

<http://ieeexplore.ieee.org/search/searchresult.jsp?newsearch=true&queryText=Research+and+Implementation+of+Multithread+Port+Scanning+technology&x=0&SSS>

<http://en.wikipedia.org/wiki/sniffer>

SoftwareTestingbooks(usecase,DFD, UMLDiagram)