**Android Malware Detection Using Genetic Algorithm based Optimized Feature Selection and Machine Learning**

**Abstract:**  Android platform due to open source characteristic and Google backing has the largest global market share. Being the world’s most popular operating system, it has drawn the attention of cyber criminals operating particularly through wide distribution of malicious applications. This paper proposes an effectual machine-learning based approach for Android Malware Detection making use of evolutionary Genetic algorithm for discriminatory feature selection. Selected features from Genetic algorithm are used to train machine learning classifiers and their capability in identification of Malware before and after feature selection is compared. The experimentation results validate that Genetic algorithm gives most optimized feature subset helping in reduction of feature dimension to less than half of the original feature-set. Classification accuracy of more than 94% is maintained post feature selection for the machine learning based classifiers, while working on much reduced feature dimension, thereby, having a positive impact on computational complexity of learning classifiers.

**Existing system:** **Malware detection** refers to the process of **detecting** the presence of **malware** on a host system or of distinguishing whether a specific program is malicious or benign. In our existing system to find malwares malware is a combination of traditional malicious programs, often including parts of Trojans and worms and occasionally a virus. Usually the malware program appears to the end-user as a Trojan, but once executed, it attacks other victims over the network like a worm.

Many of today's malware programs are considered root kits or stealth programs. Essentially, malware programs attempt to modify the underlying operating system to take ultimate control and hide from antimalware programs. To get rid of these types of programs, you must remove the controlling component from memory, beginning with the antimalware scan.

As of now we have so many malware detection techniques we have but we don’t have proper system to find out malware in android apps

**Disadvantages:**

* Its not useful android apps
* Its have some limitations works only some particular malware

**Proposed System:** This paper proposes an effectual machine-learning based approach for Android Malware Detection making use of evolutionary Genetic algorithm for discriminatory feature selection. Selected features from Genetic algorithm are used to train machine learning classifiers and their capability in identification of Malware before and after feature selection is compared. The experimentation results validate that Genetic algorithm gives most optimized feature subset helping in reduction of feature dimension to less than half of the original feature-set. Classification accuracy of more than 94% is maintained post feature selection for the machine learning based classifiers, while working on much reduced feature dimension, thereby, having a positive impact on computational complexity of learning classifiers.

**Advantages:**

* Its useful for finding malware in android apps
* High accuracy

**SYSTEM CONFIGURATION**

# Hardware Configuration

# Processor - Intel i3 0r i5

* RAM - 4 GB
* Hard Disk - 500 GB
* Key Board - Standard Windows Keyboard
* Mouse - Two or Three Button Mouse
* Monitor - SVGA

# Software Configuration

* Operating System : Windows10 or latest
* Programming Language : Python ( python 3.7.0)