



Problem Statement-

Traditional approaches for ransomware and malware detection are failing to provide sufficient level of protection, it is becoming clear that these will have to be substituted or at least enhanced by new, innovative methods.

Technology Used-

In our application, we Perform the **Static and Dynamic Analysis of Android Apk's Using Machine Learning**, a cutting-edge approach that enables intelligent decision-making and enhancements. This technology allows us to offer smarter solutions, predictive capabilities . Through machine learning, our application evolves, ensuring it stays ahead in delivering efficient, accurate, and innovative solutions to our users. **The machine learning model returns a prediction score between 0 and 1 that denote the degree of maliciousness** of the scanned application.

How it Works ?

Ram Antivirus uses permissions and intent-filters to detect malicious apps. While scanning, it loads the machine learning model and extracts permissions and intents from the installed applications on the user's device. These extracted features are then fed to the machine learning model in the form of a vector. The machine learning model returns a prediction score between 0 and 1 that denote the degree of maliciousness

of the scanned application. We use this score to classify the scanned app into one of the following categories:

Goodware: The prediction score is less than 0.5

Risky: Prediction score between 0.5 and 0.75

Warning: Prediction score is greater than 0.75

No Permissions Required: these type of applications not take any Permissions. They are Recommended to Use.

Unsafe : this is the special category for Classifying the Remote Taking Applications.

Methodology of Static and Dynamic Features -

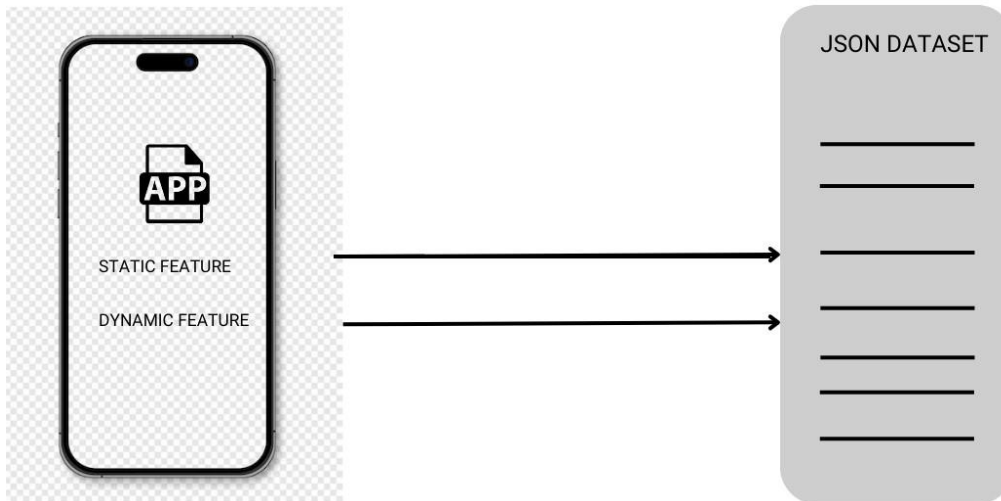
- **Static Analysis -**

The Static Analysis is Responsible for the Analysis of all the Static Features Comparing with Each Value inside the Data Set., i.e., the JSON File

- **Dynamic Analysis -**

The Dynamic Analysis is Responsible for the Analysis of all the Dynamic Features Comparing with Each Value inside the Data Set., i.e., the JSON File

The Image Representation of the Static and Dynamic Features Mapping with JSON Dataset



THE ABOVE FIGURE SHOWS THE MAPPING OF STATIC AND DYNAMIC FEATURES WITH THE JSON DATASET

- **Key Technology Used :-**

- ❖ **Programming Languages:-**

- 1) JAVA

- 2) XML

- ❖ **File Format :-**

- 1) JSON

- ❖ **Development Environment :-**

- 1) Android Studio