# Product Overview

## Product Perspective

The product is a model that’s developed to accurately predict the probability that an operating system will be hit by a malware. The subsystems of the product are mainly 2 components. These subsystems are explained in the following subsections.

### The Operating System

We work on an operating systems dataset that has over 7 million recorded operating systems and their various features. We create a model that tries to predict which of those operating systems will be hit with any type of malware.

### The Prediction Model

//Add the type of model and boosting features here

**External Interface Requirements**

**Software Interfaces**

The product will be comprised of interaction between the following software products:

1. **Jupyter Notebook**

The Jupyter notebook application allows client server interactions. It enables running of notebooks via the local browser. The use of Jupyter notebook requires no active internet connection, however since our application is interacting with a real time data hosted on firebase an active internet connection is a must. Jupyter notebooks runs as an interpreter which enables line by line code execution. This makes it very easy to detect errors in the code and correct them. This is especially useful as model construction for classification will often take several minutes to run and using a interpreter will produce faster error detection results.

1. **Python 3.6**

Python is an interpreted high-level programming language for general-purpose programming. Python provides a large number of libraries and a variety of inbuilt functions. Utilization of these functions is key to the development of the model we intend to use of the classification. Furthermore, python also provides easy methods to read into csv files and JSON files both of which are file formats that will be commonly used during the course of this project.

1. **Google Colab**

Google Colab is a free cloud service. Just like Jupyter Notebook, it enables running of notebooks via the local browser. It runs as an interpreter which enables line by line code execution. This makes it very easy to detect errors in the code and correct them. This is especially useful as model construction for classification will often take several minutes to run and using a interpreter will produce faster error detection results.

The most important feature that distinguishes Colab from other free cloud services is **Colab**provides GPU and is totally free. *It helps* develop deep learning applications using popular libraries such as**Keras**, **TensorFlow**,**PyTorch,**and **OpenCV**.

1. **Windows OS**

Basic operating system requirement that is required to detect possible Malware that might affect it and to interact with the above mentioned softwares.