Spam vs Ham Detection

A DS 4002 Case Study by Raj Bhowmic

Imagine that you are relaxing after a long day of classes when you get a notification on your phone. However, the text you receive isn't from a friend or family, but rather from a suspicious number advertising a 20% off the next iPhone if you "click here" today. As a student that relies on text messages for various activities such as group projects, clubs, and friend groups, you know how disruptive such messages can be. Text messaging is one of the most widely used forms of communication today, making it a common target for unwanted spam. Spam texts not only clutter inboxes but also pose risks such as phishing attacks, fraudulent links, and the spread of harmful content. Despite the prevalence of this issue, distinguishing spam from "ham" (valid) messages remains a technical challenge due to the variety of writing style and realistic text in SMS communication.

You are a data scientist that is given the task to distinguish a text message between either a spam or a non-spam (referred to as "ham"). In order to accomplish this task, you will analyze a real-world dataset of SMS messages and create an approach that can reliably identify spam SMS messages and separate them from legitimate texts, and also minimize false negatives to avoid harmful messages slipping through. By the end of this study, you will have proof on how data-driven methods can outperform simple filtering techniques in improving spam detection.

Link to GitHub repo: https://github.com/Raj-B-1/DS4002_CS3

J. M. Gómez Hidalgo, T. A. Almeida, and A. Yamakami, "On the Validity of a New SMS Spam Collection," Proc. IEEE ICMLA '12, 2012.

M. Chaudhary, "Spam SMS detection using Machine learning," Accubits Blog, Jun. 28, 2017. https://blog.accubits.com/spam-sms-detection-using-machine-learning/