



# SecureSense: A Data-Driven Framework for Phishing Attack Prevention

Tim Huynh – Trinh Phan – Hayley Nguyen  
Computer Science – Data Science - Computer Science

## Introduction

**Text Message**  
Sun, Mar 12 at 09:07  
  
From: Netflix <mailto:customerservice@venmo.com>  
Date: September 14, 2020 at 09:42 AM GMT+2  
To: [REDACTED]  
Subject: Re: Update Payment Subscription - We can't authorize payment September 13, 2020.  
Order Number : 3844246

Your Venmo Account has been locked. We recently received multiple failed login attempts to your account.

Recovery your account immediately click link below:  
<http://venmo.com:9110/s9548372.97.onlinehome.us/ven>

Please take action on your account within 48 hours to avoid permanent suspension.

Regards,  
Venmo Service

**From: Netflix <mailto:customerservice@venmo.com>**  
Date: September 14, 2020 at 09:42 AM GMT+2  
To: [REDACTED]  
Subject: Re: Update Payment Subscription - We can't authorize payment September 13, 2020.  
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NETFLIX

Update current billing information

Hi,

Unfortunately, we cannot authorize your payment for the next billing cycle of your subscription. Netflix was unable to receive a payment because the financial institution rejected the monthly charge.

Obviously we'd love to have you back, if you change your mind, simply restart your membership and update your payment to enjoy all the best TV shows & movies without interruption.

- Netflix Team

**Subject: Black Friday Deals Are Available!**  
Sun, Nov 1, 10:48 AM (4 days ago)

You are viewing an attached message. CyberReady Mail can't verify the authenticity of attached messages.

amazon.com®

Dear Amazon.com Customer,  
2020 Black Friday is here! We have collected this year's best products and lowest prices, as usual!  
**Black Friday Deals Are Here**  
Our Black Friday 2020 store is officially open and the deals are live! This year we focus on deals on our own product such as the Amazon Echo 6 Wi-Fi mesh network routers, Echo Dot and Fire TV. Here are some of our best prices (all prices are correct at the time of publication):  
• Fire TV Stick with Alexa Voice Remote + Echo Dot for \$69.98 (Save \$20) - [product link](#)  
• Certified Refurbished Echo Dot (2nd Generation) (Black) for \$34.99 (\$10) - [product link](#)  
• All-new Echo 6 Wi-Fi mesh network routers - Buy Today, Save \$50 - [product link](#)  
Sign up for Amazon Prime to get free two-day shipping and 30-minute early access to Amazon Black Friday Deals! Sign up now and you will get a free 30-day trial period.

## Methods & Materials

Taken dataset from PhishTank & OpenPhish with 10,000 data points to analyze

Use Spearman Coefficient to measure the strength and the direction of association between pairs of column

Apply Decision Tree Model to train the dataset and get the result

Apply Random Forest Model to train the dataset and get the result

Apply Logistic Regression Model to train the dataset and get the result

Compare the model accuracy result and analyze

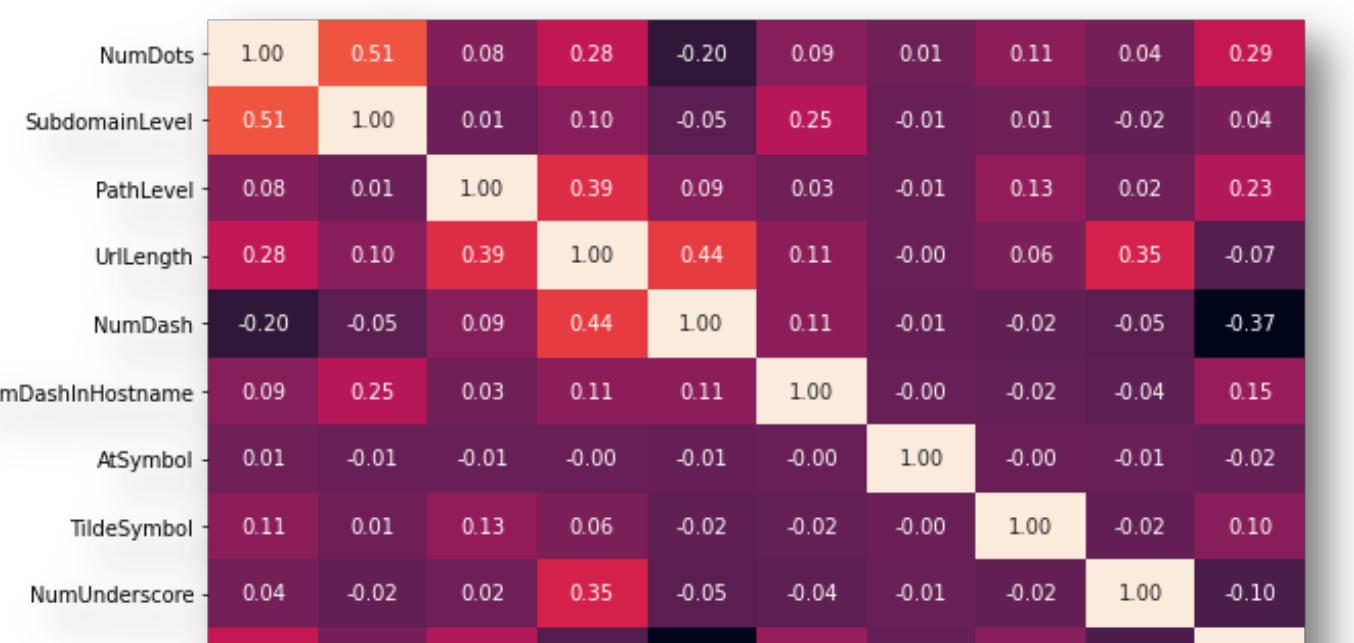
## Results

### Spearman Coefficient

Columns 1-10



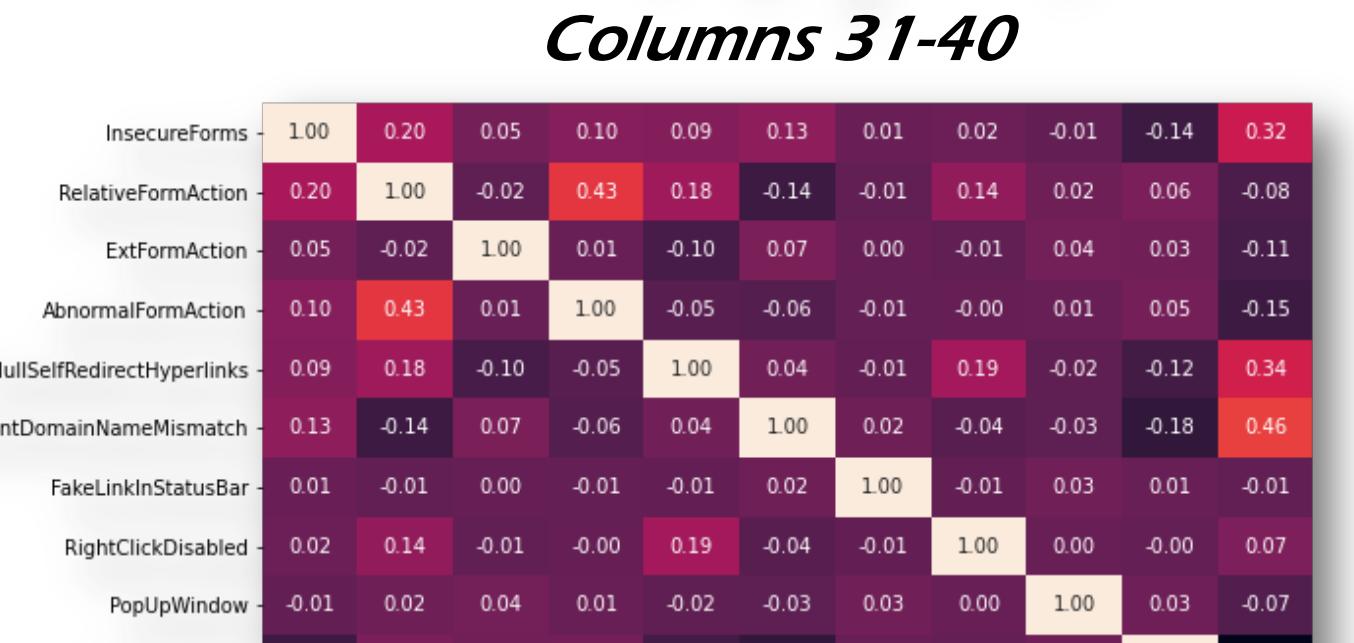
Columns 11-20



Columns 21-30



Columns 31-40



Columns 41-50

