

SMS Phishing and ROSCAs

Lecture 16: CSE 490c



Announcements

- New Homework Available
 - Paper on Low Literate user interfaces
- Lecture Schedule

Lecture 15	Monday, October 29	DFS and Gender workshop
Lecture 16	Wednesday, October 31	SMS Fraud and ROSCAs
Lecture 17	Friday, November 2	Low Literate UIs
Lecture 18	Monday, November 5	Data Collection
Lecture 19	Wednesday, November 7	Task Support
Lecture 20	Friday, November 9	Mobile Wallet Applications

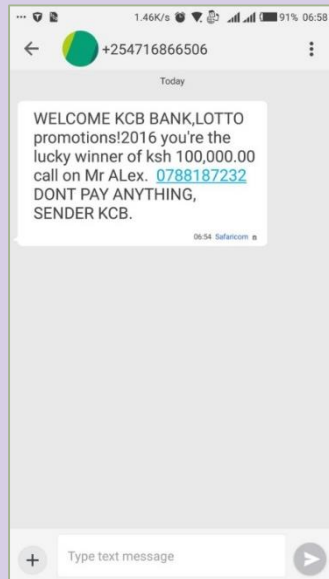
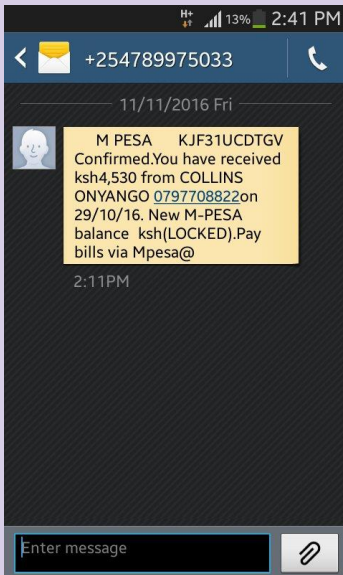
Trip Report, Information Technology University, Pakistan

- Meetings with Faculty
 - Lubna Razaq, Umar Saif, Maryam Mustafa, Agha Ali Raza, Faisal Kamiran
- Round table discussions
 - FinTech and MFI
 - Community health
- Multiple talks
- Digital Financial Services class



SMS Phishing

- Fraudulent SMS are observed around the world



Waseela-e-haq
program ki taraf
se apkay Rs.25200
rupay aya
hain.apka ye
number03314311169
BISP mein
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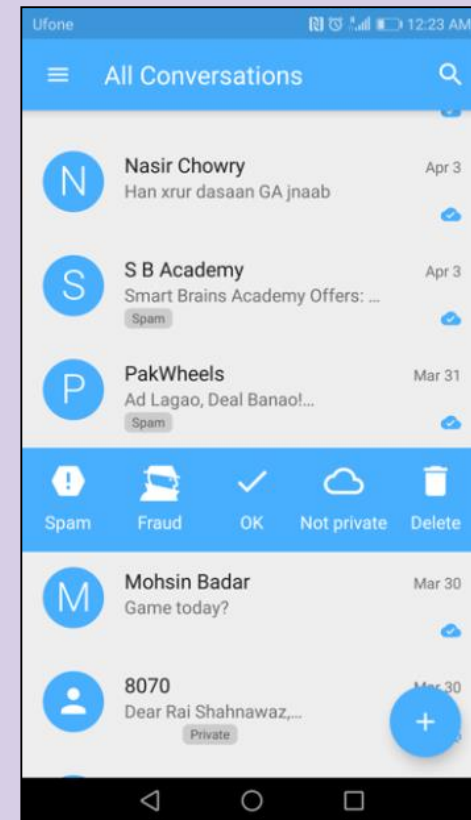
Research Question: What is the prevalence of SMS Fraud in Pakistan?

- Perception of a very high rate of SMS fraud in Pakistan
- What is the actual prevalence?
- What are the range of fraud types?
- How do the frauds take place?
- Can we develop a recognizer for fraudulent messages?
- Are people susceptible to fraud?
- What are the mitigation steps?

Methodology

App based collection

- Create an Android App to allow users to submit SMS messages
- Engineering the App turned out to be challenging
- Successful collection from college students
- Decided against funding incentives for message submission



Methodology

Visits to field

- Interview people and have them install App on phones
- Low density of Android phones
- Suspicion about installing App or forwarding SMS



Methodology

Send us your spam



Press Release

ITU ASKS CITIZENS TO SEND FRAUD SMS FOR “SMS FRAUD DETECTION IN PAKISTAN” PROJECT

Lahore, August 17, 2018

The Fintech Center of the Information Technology University (ITU) is conducting a Data Science Research project regarding, “SMS Fraud Detection in Pakistan” to detect fraudulent SMS texts by developing an algorithm to protect consumers from frauds so the low literate population does not fall prey to these scams. ITU’s Fintech Center is in data collection phase, and need to collect actual fraudulent SMSs that people receive.

Presently, people receive fraud messages such as ARY Jeeto Pakistan, Benazir Income Support Program, Waseela-e-Haq Program, Banking related fraud SMS asking for PIN Codes or any other kind of fraud.

The Citizens across Pakistan have been advised to forward such SMS on WhatsApp: +92-314-4362352 or add "forwarded from: ..", so their number is not identified as the sender or share the screen shot of the message in addition to the forwarded text indicating the real sender and the content of the message.

Distribution of Fraud Messages

- Surprisingly few fraud messages were found
 - Maybe this is not bad news!
- Vast majority of fraud messages were the lottery scam
 - Jeeto Game Show (75 %)
 - BISP (20 %)
 - Mastercard Lottery
- Request for a small amount of money from a women's name
- Did not encounter PIN fraud
- Did not encounter direct mobile money fraud
- Some disagreement on what a fraud SMS is



Field Interviews

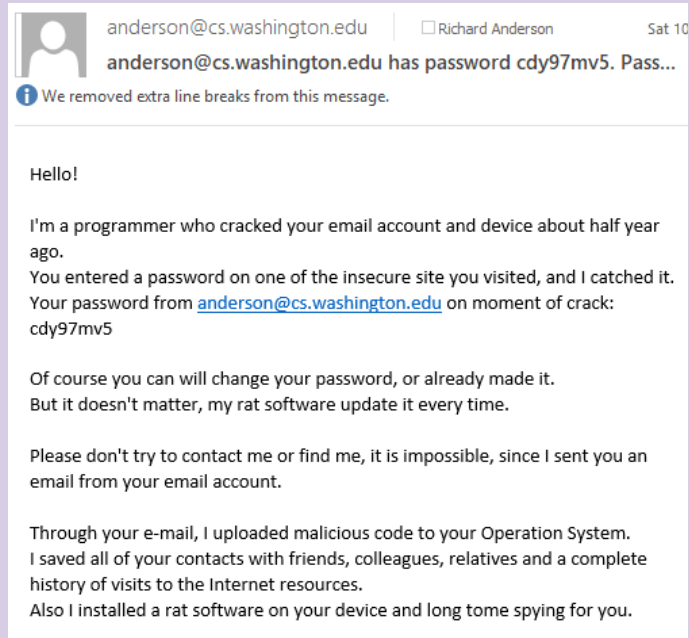
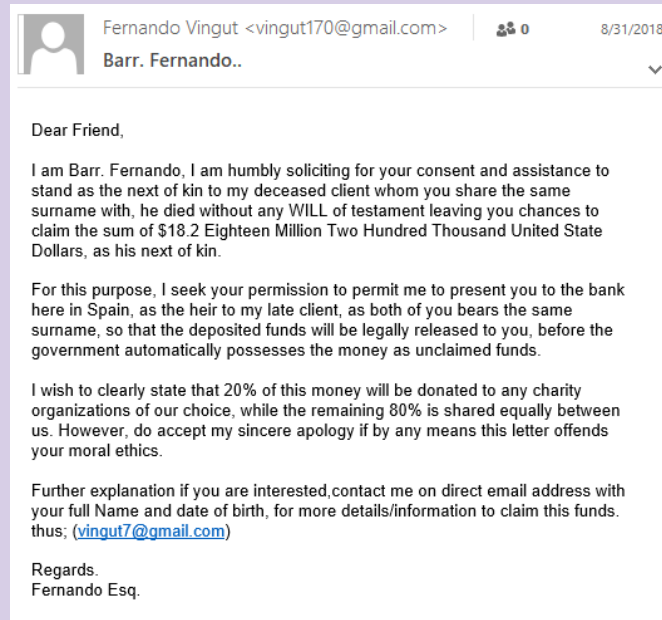
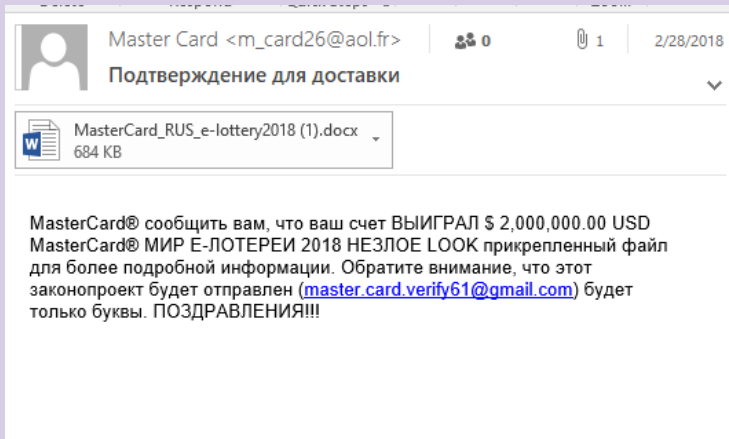
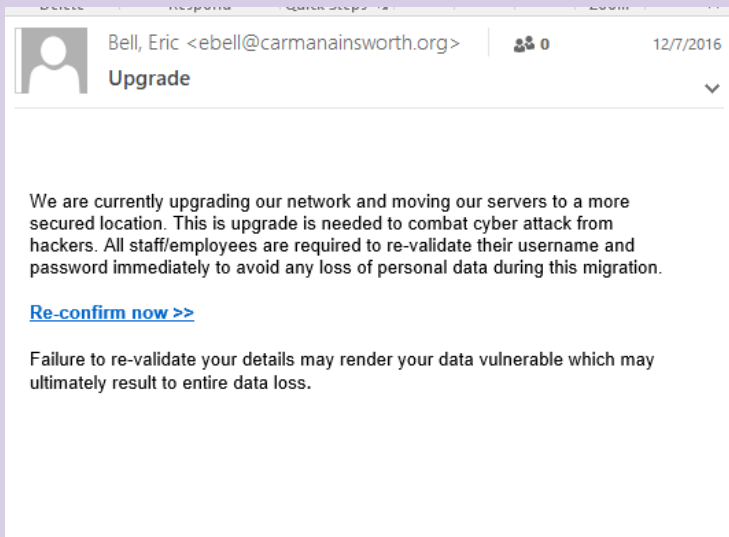
- Method for Lottery Scam – call phone number and discover that a certain fee is needed to process winnings
 - Approximately USD 50, on USD 500 winnings
 - Sent using mobile top ups. Text the numbers from the scratch cards
- Middle class recognized these were fraud messages and were just annoyed
- Lower income people fell for these frauds
 - Multiple people reported thinking they were real or knowing people defrauded
 - Setting where these messages were rare
 - People in authority (mobile shop owners or people at the mosque) would sometimes identify these

Fighting Fraud SMS

- Fraud messages appear to go to random numbers
- Spam messages thought to go to harvested numbers
- Call back and source numbers on Fraud messages rarely repeated
- Phone numbers are a scarce commodity in Pakistan
 - Limit of five sims per national ID
- Anti-fraud recommendation
 - Establish monitoring of Fraud messages
 - Rapidly disable numbers through CTA

eMail Fraud

How does SMS Compare ?



ROSCA

- Committees, Tandas, Chama, Ekub, Cundinas, Pandeiros, Juntas, Tontine
- Regular Payments into a shared Pot
- Very common in Pakistan at all income levels



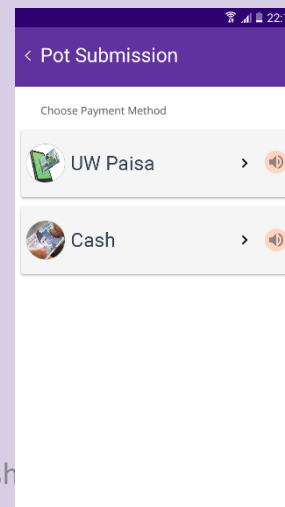
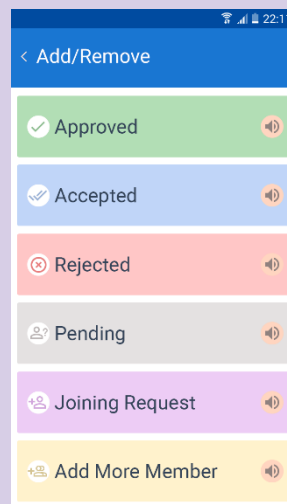
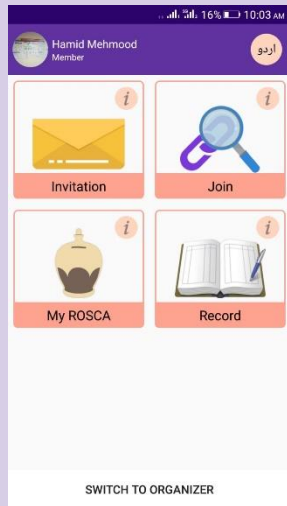
Digital ROSCA

- Develop digital support for ROSCA
- Multiple different ways this could be done
 - Web-based implementation to allow remote participation
 - Direct implementation inside a mobile money product
 - App based system to support ROSCA organizer
- Interesting problem in digitizing traditional finance

Formative Work

- ROSCAs very common in Pakistan across different income groups
- Most common in Pakistan are “non-interest” ROSCAs
 - Islamic prohibition of interest
 - Some interest bearing ROSCAs are available
- ROSCAs are initiated by an organizer
 - Most interactions are organizer-member
 - Little interaction between members
- Multiple concerns on integration with mobile money
 - Transaction costs
 - Official tracking
- Biggest needs around managing ROSCA for organizer
- Many variations and details on Turn Distribution

ROSCA App



ROSCA Payments

- App designed to support both CASH and Mobile Money
- API Integration with UW-Pesa
- In principle, this could be adapted to other mobile money systems

Current work: Evaluation

- Basic questions
 - Does it work?
 - Is it usable
 - What is the feedback from users
- Deeper question
 - Does the app provide sufficient value to the ROSCA provider to be useful