Computer Security Fundamentals – Spring 2023

Spam/scam text messages, NumVerify in Android (Team warmup project) Total: 10 points

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Q1. NumVerify (2 pts)

Let's do some experiments in NumVerify!

Please check the slide NumVerify.pdf and follow the source code in NumVerify.zip

You need to go to their website to register an account and get the API Key.

Now, you will need to copy and paste the API Key into the MainActivity to replace my "place holder" string, the "access_key"

Then, please use the Google to look for "any" of a foreign phone number to input into the string variable "phone_number". See if NumVerify supports the query against foreign phone numbers?

I can tell you it supports such a kind of query, if you can correctly input the nation code, followed by a phone number.

[Submission]

All I want is the screenshot (in your Android emulator), not your source code for this Q1. I only want you guys to practice this kind of RESTful API in Android about the telephony services from 3rd party providers.

Q2. ReadSMS (8 pts)

There is a file "Spam_Scam_Dictionary.csv".

You will need the following source code: ReadSMS.zip and SendNotification.zip

Try to understand the related PDF files: "Reading the SMS.pdf" and "Send Notification.zip"

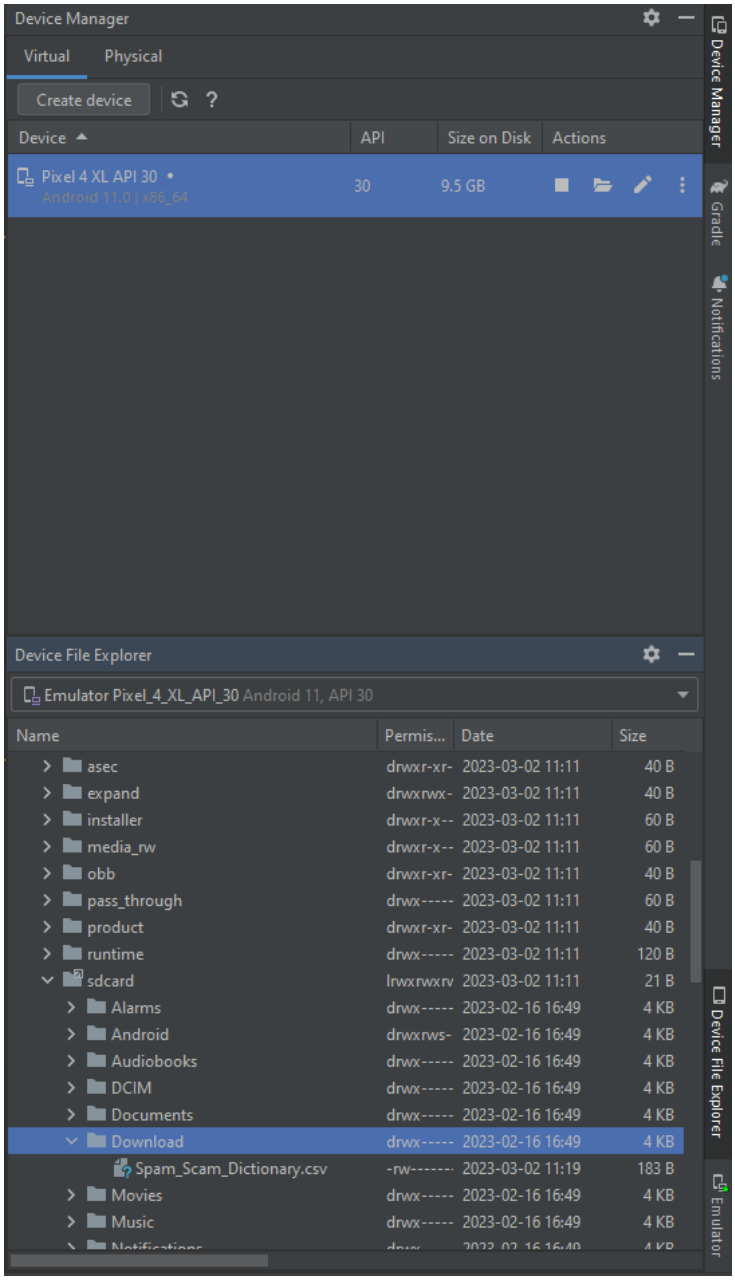
You might need to work based on the source code of ReadSMS.zip

Step1: You need to "drag and drop" the "Spam_Scam_Dictionary.csv" file into the folder.

- **Either in this one: /sdcard/Download**
- **Or, this one: /storage/emulated/0/Download**

The way to use the drag-and-drop is to use the "Device File Explorer" in your emulated Android.

(See the next page for the detail)



Step2: You need to read the .csv file in the Android (by using Java) and there are lots of keywords in there.

You might need to do some research on "how to read the file from a specific folder"? Does it need some run time access right requests setting in the code or maybe not?

I hope this link could be helpful in reading the files in Android.

https://stackoverflow.com/questions/7908193/how-to-access-downloads-folder-in-android

Finally, you can populate the keyword strings into an ArrayList (Optional, if you have some other idea?).

[Hint] The timing of the reading of the spam/scam keywords is important. You can make it happens in the beginning of the MainActivity and pass the populated ArrayList into SmsReceiver?

Or? You can read it in the onReceive(), in the beginning scope of:

if (intent.getAction().equals("android.provider.Telephony.SMS_RECEIVED"))

This one would be "less effective" because you will need to read spam/scam keywords every time when there is an arrival of text message (SMS). But if it is working, it is not a big deal!

Step3: Inside of the "for loop" of the source code (SmsReceiver.java), because the incoming SMS message comes in sporadically, there is only one "SmsMessage[] msgs" element will be executed in the for loop. Say, msgs[0].

However, in this step, you need to parse the whole msgBody first and to read it into another container. It could be another ArrayList?)

Step4: Based on Step2 and Step3, all you need to do is to have your populated spam/scam keywords ArrayList "matching" against your another ArrayList, whose content is originally from the SMS message body "String msgBody". Yes! Another looping is needed (either a for loop or a while loop)

Step5: If you find there is a match, you will need to issue a Notification to the phone user. So, you might need to understand the code in this SendNotification.zip

You can put the Notification title as "Warning!" and the Notification content as "SPAM/SCAM" SMS detected. This is very similar to what I have done in the SendNotification.zip

Step6: Testing

Go into the Android Emulator, the Extended Controls. You can find a "tab" called "Phone"

You need to put some made-up SMS message, pretending there is a scammer who is trying to send the SMS. Once you finished, click the [Send Message] button. See if the Notification is triggered and is sent to the phone user?

[Submission]

All I want is to have is your source code + other screenshots in the process of testing. Please zip this the project folder (source code) into a zip file.

As for the screenshots in the process of testing, I want it as detail as possible.

Please getting ready on all of these (source + pictures) and have it uploaded by your team captain.

There is an "additional job" for your team captain!

Before your submission onto the Blackboard, you need to run it by yourself and make sure everything is working!

Because all of your team members will get "the same score" based on this assignment, if it is not working, all your team members (including you) will get "some minus" ☹