TABLE 7: The Scamware Access Code Analysis Result.

Type	Category	Number	Access Code(%)
Scamware	Porn	38	21 (55.26%)
	Gambling	77	17 (22.08%)
	Financial	84	31 (36.9%)
	Service	43	2 (4.65%)
	Auxiliary	8	0 (0.00%)
	Total	**250**	**71 (28.40%)**
Benign	**Total**	**250**	**0 (0.00%)**

TABLE 8: The Common Web Classes.

Category	Sub-Category	Class Name
Framework	ImageLoader	com.nostra13.universalimageloader
	Picasso	com.squareup.picasso.Picasso
	Glide	com.bumptech.glide
	Fresco	com.facebook.drawee.view
Okhttp3	-	okhttp3.request
WebView	-	android.webkit.WebView

TABLE 9: The Top 10 Registrars of Domains.

Registrar	Count	Percentage
Alibaba Cloud (Beijing)	279	22.07%
GoDaddy.com, LLC	272	21.52%
Xin Net Technology Corporation	68	5.38%
Alibaba Cloud (WanWang)	51	4.03%
NAMECHEAP INC	37	2.93%
NameSilo, LLC	36	2.85%
eName Technology Co.,Ltd.	34	2.69%
Name.com, Inc	30	2.37%
MarkMonitor, Inc.	21	1.67%
Total	**828**	**65.5%**

Fig. 7: Indirect money mule based payment services with different payment interfaces. (a) Bank transaction interface. (b) Cryptocurrency interface. (c) Third-party payment interface.
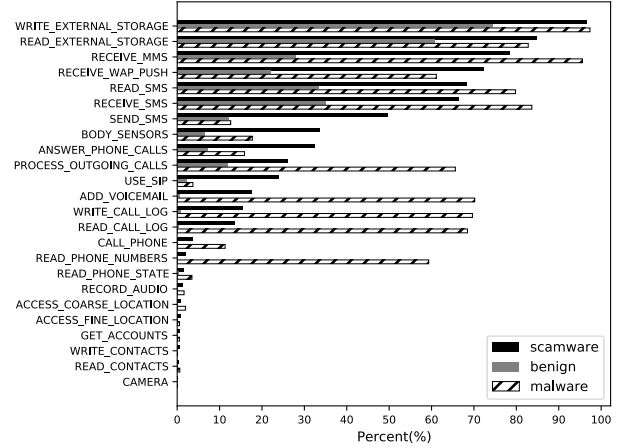
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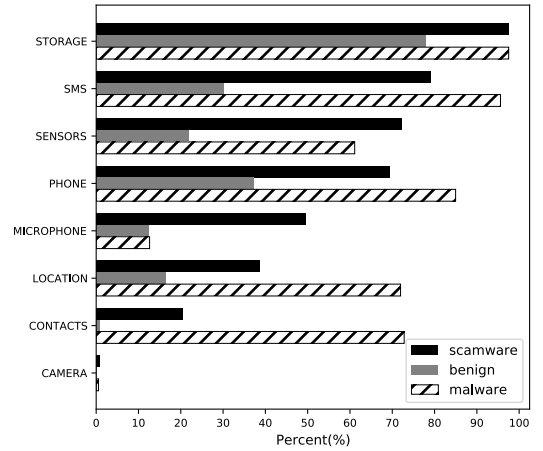
Fig. 8: The dangerous permission required by each dataset.

Fig. 9: The permission group required by each dataset.

TABLE 10: Summary of App Generators in the Ecosystem.

App Generator	Official Website	Local Resources	Remote Services	Prerequisites	Encryption
DCloud	https://dcloud.io/	●	-	-	-
APICloud	https://www.apicloud.com/	●	-	-	RC4 (Java)
BSLApp	https://www.appbsl.cn/	-	●	-	AES.CBC (Java)
Cordova	https://cordova.apache.org/	●	-	-	-
Ionic	https://ionicframework.com/	●	-	AngularJS	-
Onsen UI	https://onsen.io/	●	-	AngularJS	-
Framework 7	https://framework7.io/	●	-	HTML, JavaScript	-
React Native	http://www.reactnative.com/	-	-	React	-
jQuery Mobile	https://jquerymobile.com/	-	-	HTML, jQuery	-
Native Script	https://www.nativescript.org/	●	●	JavaScript	-
Famous	https://famous.co/	●	-	WebGL, AngularJS	-
Intel XDK	https://software.intel.com/	-	-	-	-
Sencha Touch	http://www.sencha.com/	●	-	-	-
Kendo UI	http://www.telerik.com/	●	-	-	-
Mobile Angular	http://mobileangularui.com/	●	-	-	-
Monaca	https://monaca.io/	●	-	-	-
Trigger.IO	https://trigger.io/	●	●	-	-
Seattle Cloud	http://seattleclouds.com/	●	—	-	-
Andromo	http://www.andromo.com/	●	●	-	-
Apps Geyser	http://www.appsgeyser.com/	●	●	-	-
Biznessapps	http://www.biznessapps.com/	-	●	-	-
Appinventor	http://appinventor.mit.edu/	●	●	-	-
AppYet	http://www.appyet.com/	●	●	-	DES.CBC (Java)
Mobincube	http://www.mobincube.com/	●	●	-	-
Appy Pie	http://www.appypie.com/	●	-	-	-
Appmachine	http://www.appmachine.com/	●	-	-	C# (TEA)
Good Barber	http://www.goodbarber.com/	●	●	-	-
Shoutem	http://www.shoutem.com/	-	●	-	-
Apps Builder	http://www.apps-builder.com/	●	-	-	-
Appmakr	http://appmakr.com/	●	-	-	-
appery.io	https://appery.io/	●	-	-	-
Xamarin	https://docs.microsoft.com/	-	—	.NET	-
PhoneGap	https://phonegap.com/	-	-	HTML, JavaScript	-
bufanapp	https://www.bufanapp.com/	-	●	-	RC4 (Java)
AppCan	http://www.appcan.cn/	●	●	-	RC4 (Native)
Dibaqu	https://www.dibaqu.com/	-	-	-	RC4 (Native)
Pgyer	https://www.pgyer.com/	-	-	-	RC4 (Native)
ofcms	https://www.ofcms.com/	-	●	-	-
ChuXueYun	https://www.chuxueyun.com/	-	●	-	AES.CBC (Java)
AppPark	http://www.apppark.cn/	●	●	-	-
SuishouApp	http://www.suishouapp.com/	-	●	-	AES.CBC (Java)
Hema	https://hema.im/	-	-	-	-
Justep	https://www.justep.com/	●	-	-	-
YunDaBao	http://app.yundabao.cn	●	-	-	-
yunedit	https://www.justep.com/	●	-	-	-
apkeditor	https://apkeditor.cn/	●	●	-	-
yimen	https://www.yimenapp.net/	●	●	-	AES.CBC (Java)

[1] For the developer's code encrypted by the app generator, we either use the decryption process in app (Java code) or simulate the decryption process in app (native code) to get the original developer's code..