

How many years of experience do you have developing Android apps?				
		Frequency	Percent	Valid Percent
	Less than 1 year	33	8.3	8.3
	Between 1 to 3 years	91	23	23
	Between 3 to 5 years	95	24	24
	Between 5-10 years	115	29	29
	More than 10 years	62	15.7	15.7
	Total	396	100	100

How knowledgeable do you consider yourself regarding Information Security?				
		Frequency	Percent	Valid Percent
	Extremely knowledgeable	25	6.3	6.3
	Very knowledgeable	87	22.00	22.0
	Moderately knowledgeable	179	45.2	45.2
	Slightly knowledgeable	88	22.2	22.2
	Not knowledgeable at all	17	4.3	4.3
	Total	396	100	100

Please select your role(s) for the Android app that you have worked on most recently.				
		Frequency	Percent	
	Developer	336	84.8485	
	Tester	114	28.7879	
	Project Manager	163	41.1616	
	Other	29	7.32323	
	Answered By	396		

OTHER	All of them. I freelance
	All roles
	Application Security Analyst
	Architect
	Blogger
	Client
	Codeveloper
	CTO
	Designer
	Designer and Low-Code Developer
	Designer, everything till publishing and advertising
	Engineering Manager
	Engineering Manager for an Android team
	Frontend and Backend
	Gestor y consultor
	Hobby project so I did everything
	My own apps, all done by me
	No
	Product Manager
	support
	Support
	Teacher
	Team Lead
	User
	Writer, designer
	CTO

What categories of Android apps did you most recently work on? Select all that apply				
		Frequency	Percent	
	Art \& Design	30	7.57576	
	Auto \& Vehicles	29	7.32323	
	Beauty	11	2.77778	
	Books \& Reference	27	6.81818	
	Business	74	18.6869	
	Comics	6	1.51515	
	Communication	54	13.6364	
	Dating	15	3.78788	
	Education	120	30.303	
	Entertainment	111	28.0303	
	Events	26	6.56566	
	Finance	50	12.6263	
	Food \& Drink	30	7.57576	
	Health \& Fitness	49	12.3737	
	House \& Home	9	2.27273	
	Libraries \& Demo	19	4.79798	
	Lifestyle	49	12.3737	
	Maps \& Navigation	49	12.3737	
	Medical	53	13.3838	
	Music \& Audio	29	7.32323	
	News \& Magazines	22	5.55556	
	Parenting	8	2.0202	
	Personalization	24	6.06061	
	Photography	10	2.52525	
	Productivity	92	23.2323	
	Shopping	51	12.8788	
	Social	50	12.6263	
	Tools	96	24.2424	
	Travel \& Local	31	7.82828	
	Video Players \& Editors	21	5.30303	
	Weather	12	3.0303	
	Answered By	396		

For the app that you have worked on most recently, please rate your level of concern for the following:

[illegible]

Do you know what Trusted Execution Environments (TEEs) are in Android devices?

		Frequency	Percent	
	Yes	130	32.8283	
	No	127	32.0707	
	Not Sure	139	35.101	
	Answered By	396		

Please select what you think a Trusted Execution Environment is.				
		Frequency	Percent	
A platform where only trusted users can access sensitive data		12	9.23077	
A secure area within a processor that ensures code and data integrity during execution		94	72.3077	
A virtual environment for running untrusted applications safely		11	8.46154	
A hardware-based encryption mechanism for securing communication channels		11	8.46154	
None of the above		2	1.53846	
	Answered By	130		

Select all Android features that, you think, use a Trusted Execution Environment.

		Frequency	Percent	
	App Sandboxing	52	40.0000	
	Protected Confirmation	48	36.9231	
	Play Integrity	55	42.3077	
	SSL/TLS	48	36.9231	
	Biometric Authentication	103	79.2308	
	Permissions	46	35.3846	
	Credential Manager	86	66.1538	
	Remote Key Attestation	43	33.0769	
	StrongBox-backed Keymaster	48	36.9231	
	Hardware-backed Key Storage	86	66.1538	
	Digital Rights Management	63	48.4615	
	Camera \& Microphone Indicators	33	25.3846	
	Answered By	130		

Please rate your knowledge regarding the following Android features:

	I haven't heard of it		I have heard of it but haven't used it		I have used it in an app	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Android Protected Confirmation	179	45.202	144	36.364	73	18.434
Biometric Authentication	17	4.2929	215	54.293	164	41.414
Digital Rights Management (DRM)	84	21.212	244	61.616	68	17.172
Hardware-backed Key Storage (KeyStore)	90	22.727	157	39.646	149	37.626
Play Integrity	111	28.03	162	40.909	123	31.061
Remote Key Attestation	192	48.485	157	39.646	47	11.869
StrongBox-backed Keymaster	251	63.384	121	30.556	24	6.0606
Answered By						
	396					

Under which of the following scenarios does <feature> protect your app?															
Feature		Android Protected Confirmation		Biometric Authentication		Digital Rights Management (DRM)		Hardware-backed Key Storage (KeyStore)		Play Integrity		Remote Key Attestation		StrongBox-backed Keymaster	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
	When your app is being used on an Android phone that has been rooted by its user.	117	53.917	182	48.021	178	57.051	172	56.20915	170	59.64912	112	54.90196	78	53.7931
	When your app is being used on an Android phone for which a malicious actor has root access	129	59.447	231	60.95	180	57.692	189	61.76471	177	62.10526	121	59.31373	90	62.06897
Answered By		217		379		312		306		285		204		145	

Which of the following are true for <feature>?															
Feature		Android Protected Confirmation		Biometric Authentication		Digital Rights Management (DRM)		Hardware-backed Key Storage (KeyStore)		Play Integrity		Remote Key Attestation		StrongBox-backed Keymaster	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
	It prevents cryptographic keys from being exposed	19	8.7558	18	4.7493	22	7.0513	185	60.458	26	9.1228	33	16.176	84	57.931
	It protects keys against side-channel attacks	17	7.8341	16	4.2216	22	7.0513	158	51.634	43	15.088	32	15.686	73	50.345
	It stores keys in tamper resistant hardware	10	4.6083	32	8.4433	11	3.5256	191	62.418	25	8.7719	24	11.765	74	51.034
	It can inform the developer if app is running on device with bootloader unlocked	16	7.3733	13	3.4301	10	3.2051	10	3.268	124	43.509	65	31.863	7	4.8276
	It can inform the developer if app has been tampered with or modified	12	5.53	8	2.1108	17	5.4487	17	5.5556	178	62.456	98	48.039	13	8.9655
	It strives to guarantee that the user is aware of what action is being authorized	102	47.005	189	49.868	16	5.1282	8	2.6144	30	10.526	20	9.8039	7	4.8276
	It strives to guarantee that the legitimate user authorized an action	121	55.76	281	74.142	19	6.0897	20	6.5359	33	11.579	25	12.255	5	3.4483
	It can securely display sensitive information to the user	73	33.641	123	32.454	21	6.7308	13	4.2484	18	6.3158	17	8.3333	10	6.8966
	It can display copyright-protected content	13	5.9908	15	3.9578	159	50.962	18	5.8824	24	8.4211	14	6.8627	10	6.8966
	It ensures raw data of copyright-protected content in your app is not accessible	15	6.9124	18	4.7493	190	60.897	12	3.9216	27	9.4737	23	11.275	14	9.6552
	It allows safe transfer of copyright protected content between Android devices	16	7.3733	16	4.2216	140	44.872	17	5.5556	23	8.0702	29	14.216	10	6.8966
	Answered By	217		379		312		306		285		204		145	

Please rate the usability of <feature>.															
Feature		Android Protected Confirmation		Biometric Authentication		Digital Rights Management (DRM)		Hardware-backed Key Storage (KeyStore)		Play Integrity		Remote Key Attestation		StrongBox-backed Keymaster	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
	Extremely Easy	2	2.8169	47	29.193	7	10.606	10	7.2464	15	12.5	4	9.0909	1	4.7619
	Somewhat Easy	18	25.352	52	32.298	11	16.667	30	21.739	31	25.833	10	22.727	9	42.857
	Neither Easy nor Difficult	29	40.845	33	20.497	28	42.424	49	35.507	45	37.5	17	38.636	6	28.571
	Somewhat Difficult	17	23.944	26	16.149	17	25.758	42	30.435	24	20	11	25	5	23.81
	Extremely Difficult	5	7.0423	3	1.8634	3	4.5455	7	5.0725	5	4.1667	2	4.5455	0	0
Answered By		71		161		66		138		120		44		21	

Which of the following challenges or problems did you face while using <feature>?															
Feature		Android Protected Confirmation		Biometric Authentication		Digital Rights Management (DRM)		Hardware-backed Key Storage (KeyStore)		Play Integrity		Remote Key Attestation		StrongBox-backed Keymaster	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
	It wasn't compatible with all devices	18	24.658	62	37.805	16	23.529	30	20.134	29	23.577	8	17.021	6	25
	The documentation was unclear	23	31.507	39	23.78	23	33.824	42	28.188	41	33.333	13	27.66	8	33.333
	I was unable to get it to work	13	17.808	6	3.6585	8	11.765	16	10.738	13	10.569	8	17.021	1	4.1667
	It didn't work as expected	5	6.8493	15	9.1463	11	16.176	19	12.752	15	12.195	8	17.021	3	12.5
	Other	10	13.699	24	14.634	6	8.8235	20	13.423	18	14.634	7	14.894	4	16.667
Answered By															
	73		164		68		149		123		47		24		

Gender				
		Frequency	Percent	
	Male	365	92.1717	
	Female	20	5.05051	
	Prefer not to say	6	1.51515	
	Other	5	1.26263	
	Answered By	396		

Age Range				
		Frequency	Percent	
	18-25	72	18.1818	
	26-35	156	39.3939	
	36-45	107	27.0202	
	46-55	39	9.84848	
	56-65	12	3.0303	
	>65	2	0.50505	
	Prefer not to disclose	8	2.0202	
	Answered By	396		