



微信小程序缺陷研究与检测

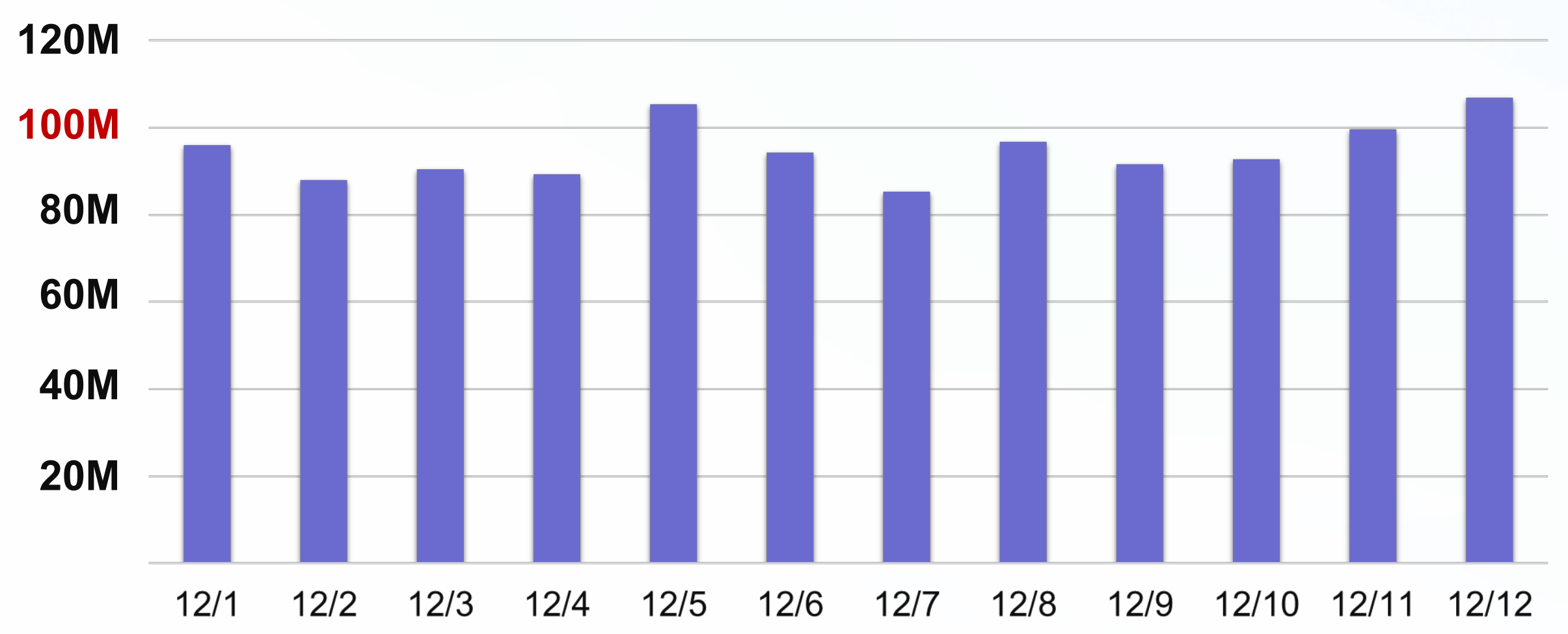
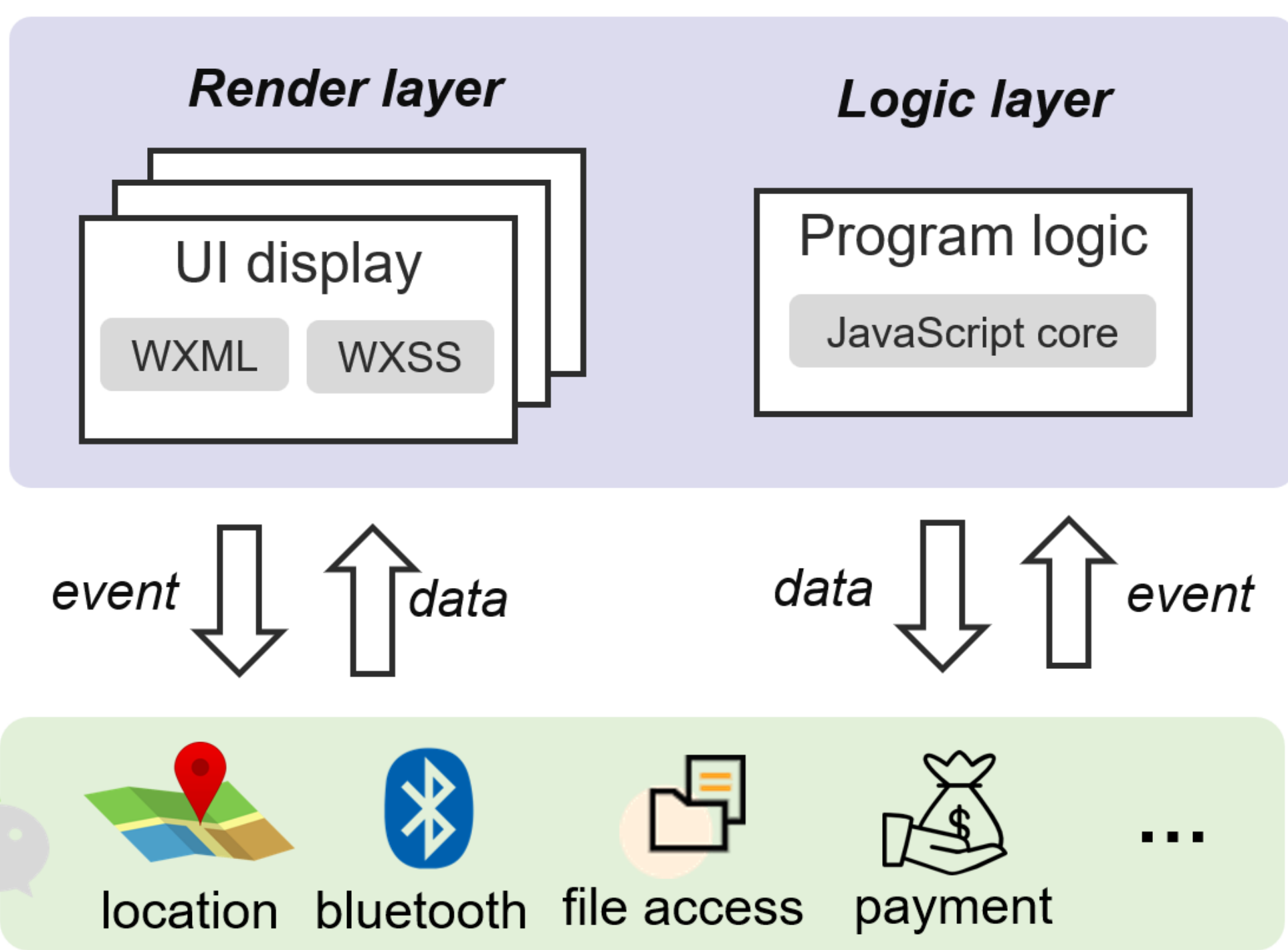
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Characterizing and Detecting Bugs in WeChat Mini-Programs

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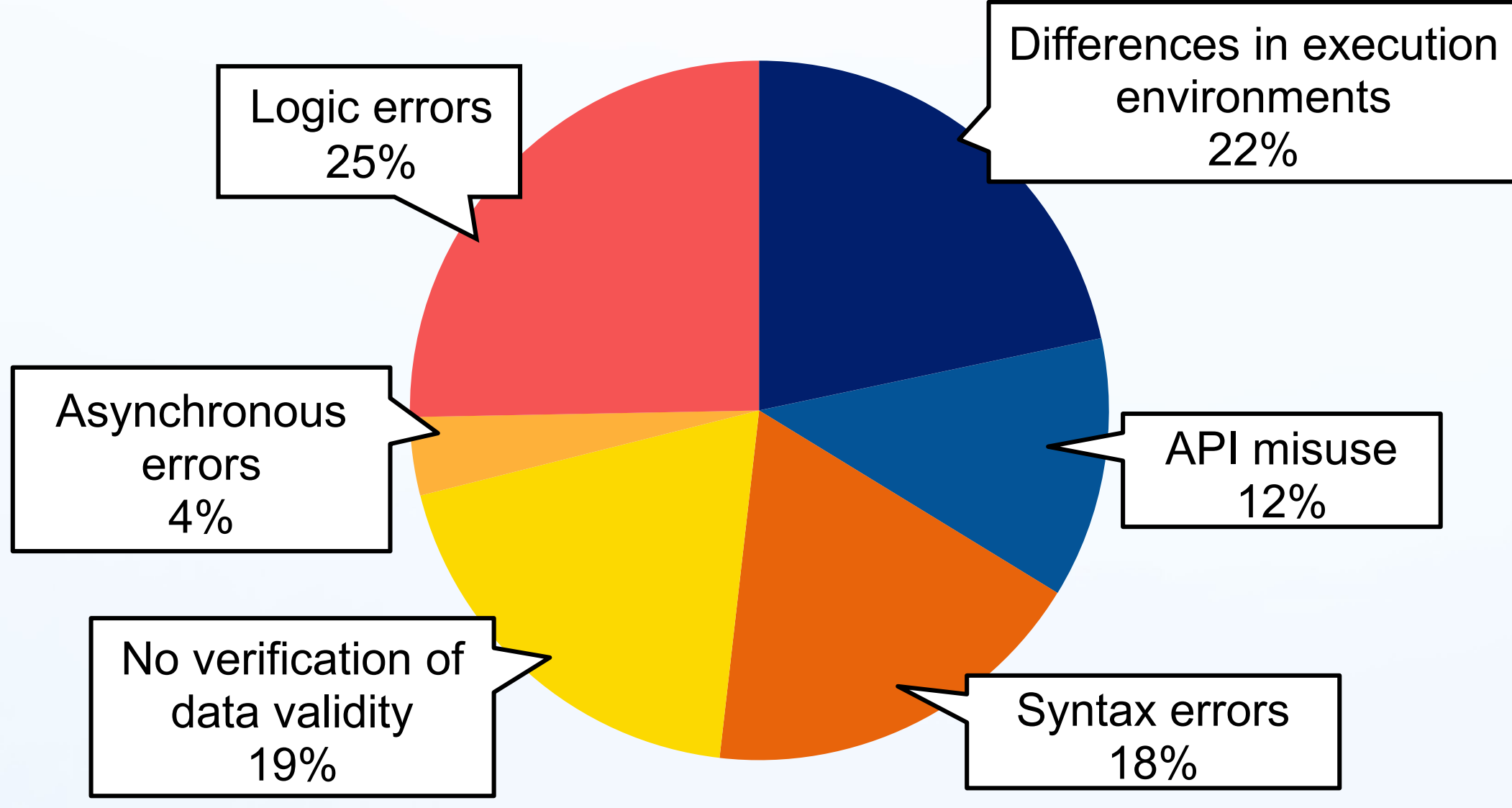
Bugs can occur during the development of Mini-Programs



- ❑ We call WeChat Mini-Program bug as WeBug
- ❑ WeBugs can lead to runtime errors
- ❑ Millions of errors are reported everyday

The first empirical study on WeBugs

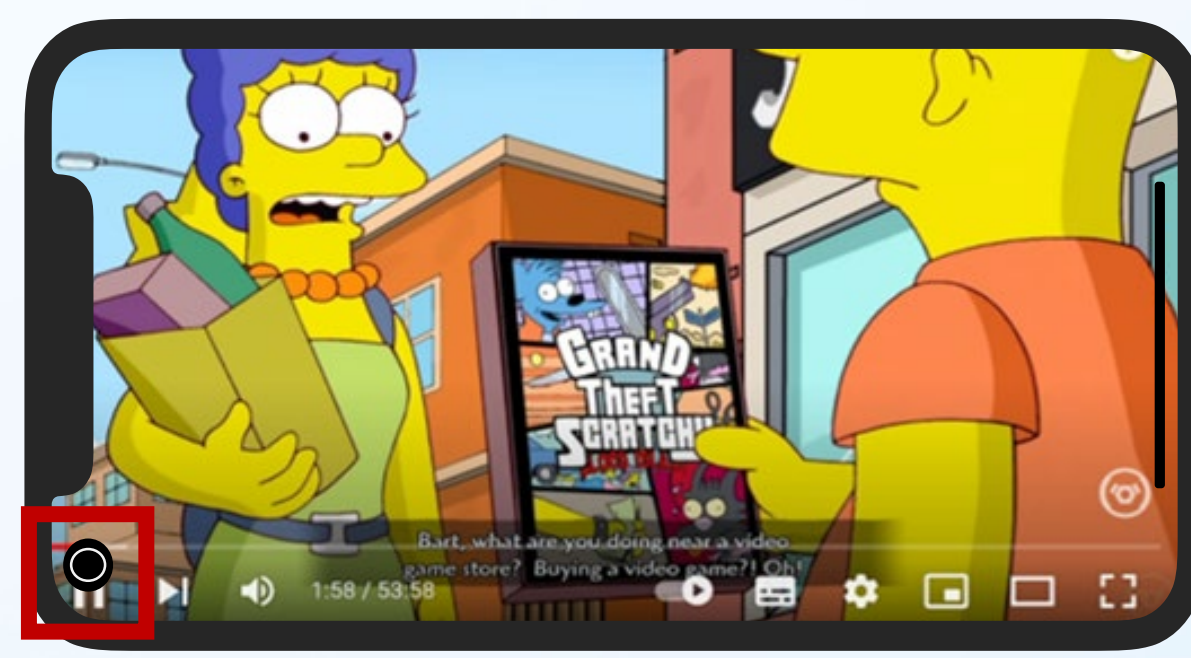
❑ Root cause



The accuracy field in the return data is type of **String**



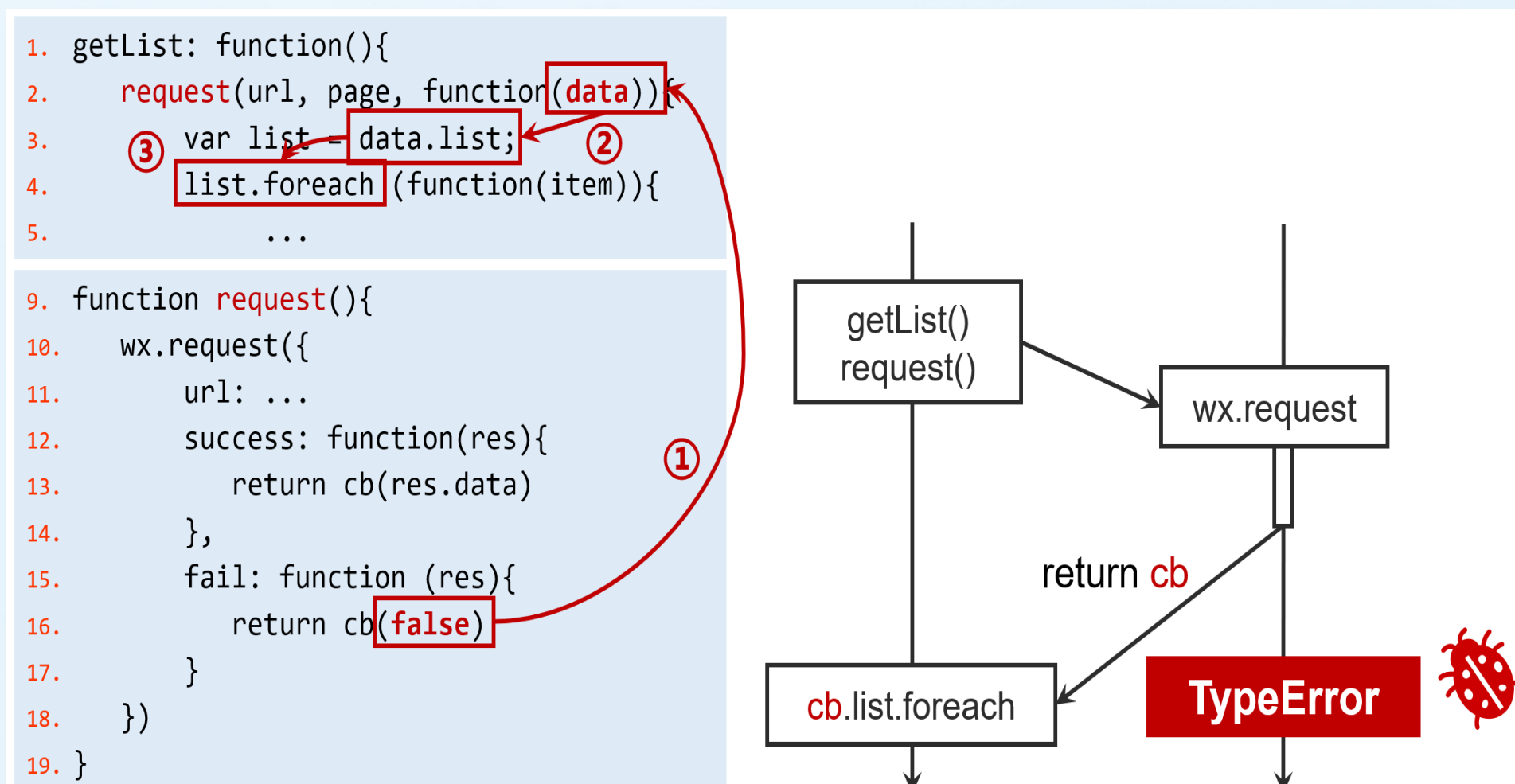
The accuracy field in the return data is type of **Integer**



The play button of the video is obscured by the camera

Detecting WeBugs

- ❑ Bug Pattern 1. Incorrect invocations of platform-dependent APIs
- ❑ Bug Pattern 2. Incomplete layout adaptation to anomalous screens
- ❑ Bug Pattern 3. Improper handling of return data when invoking asynchronous APIs



Project	Category	Detection Results				Total (Conf.)
		P1	P2	P3	FP	
wxchat-mail	Email	0	1	0	0	1 (1)
HITMers	Attendance	0	1	0	0	1 (1)
super	Video	0	1	0	0	1 (1)
leantodo-weapp	Notebook	0	1	0	0	1 (1)
taro-music	Music	0	1	0	0	1 (1)
weapp-mark	Social	0	1	0	1	0 (0)
nideshop	Shopping	2	0	0	0	2 (0)
Gitter	Git	0	1	0	0	1 (0)
pinche	Travelling	0	0	1	0	1 (0)
we-app-ssha	News	2	0	0	0	2 (2)
Total		4	7	1	1	11 (7)

Detect 11 new WeBugs in 25 Mini-Programs, and 7 of them have been confirmed