Capture Replay Testing

endtest

Web

and many others…

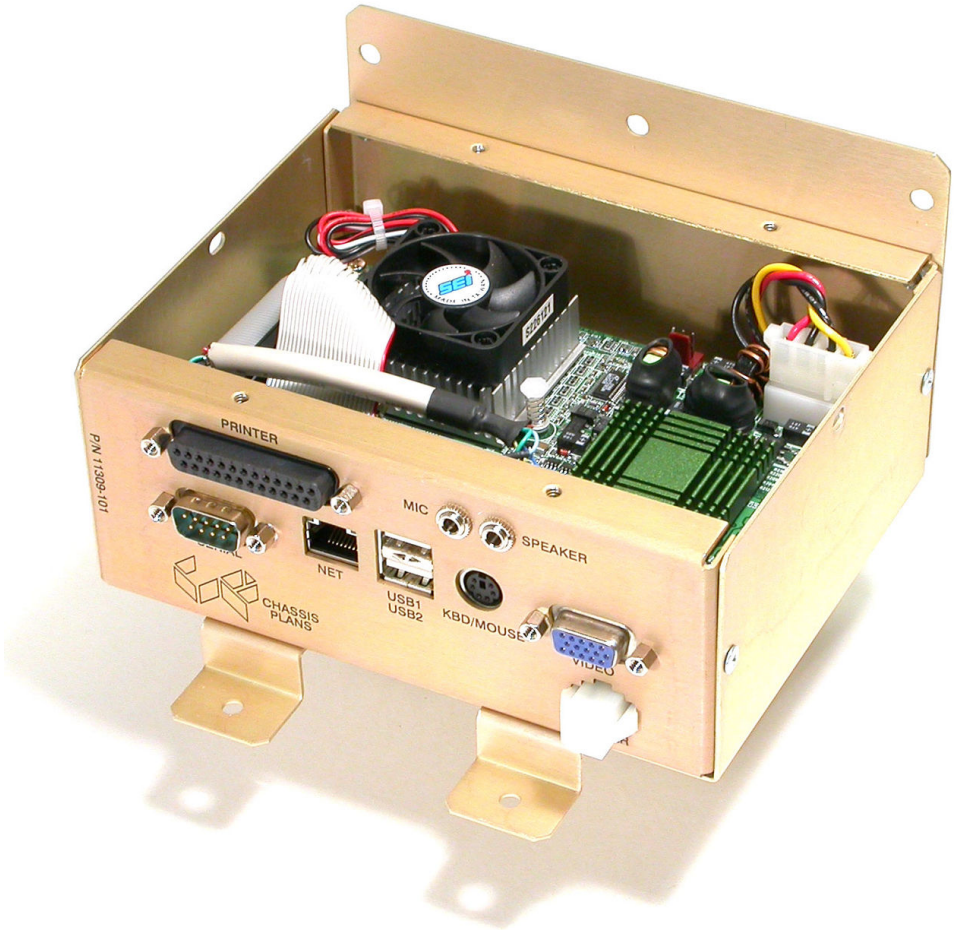
UI TESTING FOR ANDROID
espresso

Mobile

Robotium

appium
mobile automation made awesome

Origins



Nowadays

- GUI testing
- Mobile device testing
- Web application testing
- …

Basic idea (1)

- Record interactions with the system
  - User perspective interactions mostly

Basic idea (2)

- Play the previous recording

Easy and great?

- Easy: absolutely!
  - Popular for web and mobile development
  - Easy for non-experts as well!

- When I look around: not much other types of testing going on
  - But these capture/replay tests are extremely brittle!
  - Tiny changes in the UI or in the functionality break them
  - They are typically slow…
  - How much feedback do they really give? (what if you were to throw mutation testing against these tests?)

2nd testing assignment (1)

- Use a capture/replay tool on at least one software system (Selenium, Espresso, Appium, Robotium, … all are fine!)
  - Capture your own scenario *or*
  - Use an existing scenario

- Describe at least 1 instance of brittleness of the tests
  - Look at the history of the system and what the test does

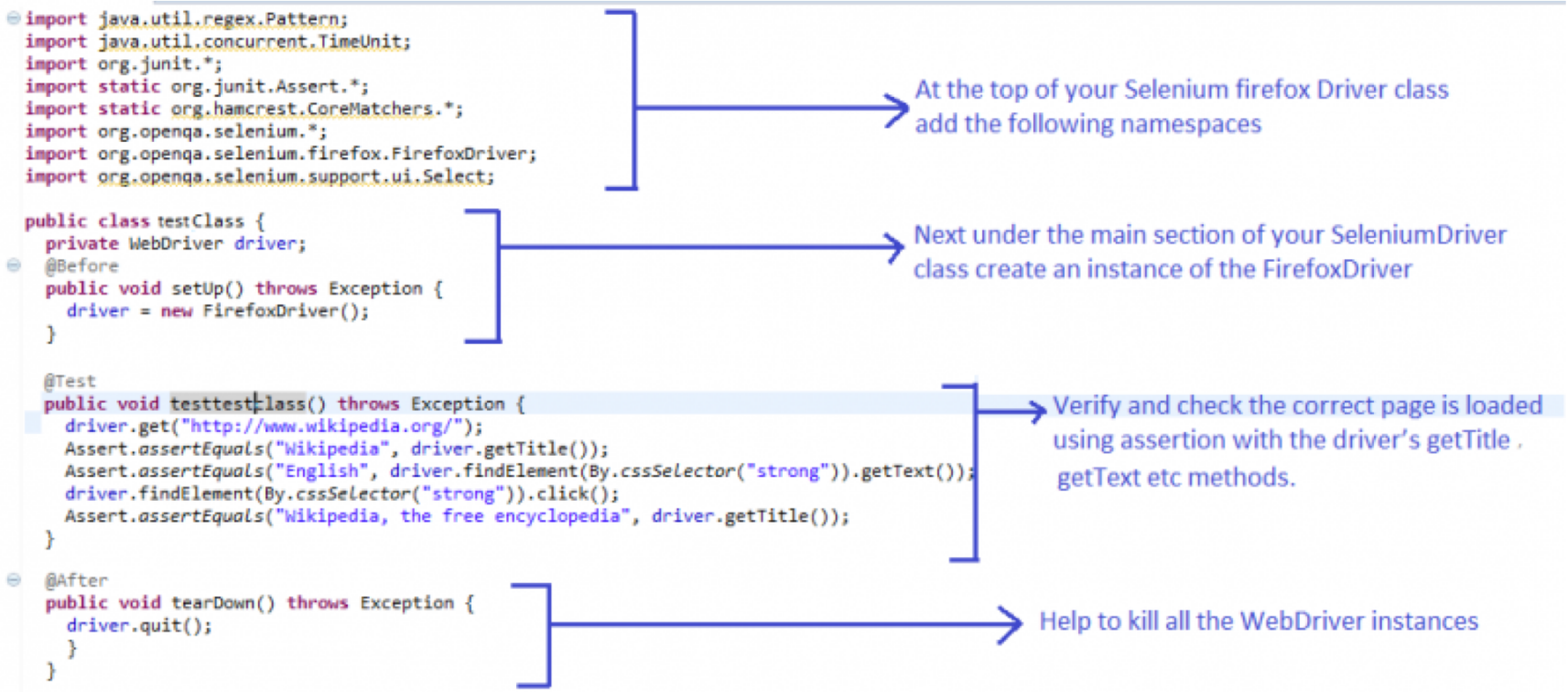
2nd testing assignment (2)

- Read the paper(s) mentioned in the assignment
- Optional: read blog post(s) on pros/cons of capture replay

- Write a 4-page report explaining to your manager why your fictive company should (not) use capture/replay tools. Argument your decision as well as possible.
  - Think: software engineering experience, bugs, brittleness, type of application, etc.

Not only “capturing” works…

- Linear scripting
  - You “script” tests at a very high level
  - And then replay them



Linear scripting pros/cons

- Fast to create
- Flexible

- Requires programming skills
- Fragile
- Hart to maintain (not really modular, number of scripts, …)

Improved scripting approaches

- Modular scripting → build a library with most common scripting tasks that can be reused
  - E.g., Selenium

- Data driven testing

	A	B	C	D	E
1	Test Case	Number 1	Operator	Number 2	Expected
2	Add 01	1	+	2	3
3	Add 02	1	+	-2	-1
4	Sub 01	1	-	2	-1
5	Sub 02	1	-	-2	3
6	Mul 01	1	*	2	2
7	Mul 02	1	*	-2	-2
8	Div 01	2	/	1	2
9	Div 02	2	/	-2	-1
10					