Kick-off Thesis Wesley

22nd of June 2017, 14:30

EWI HB11.130 or Skype

Research Question

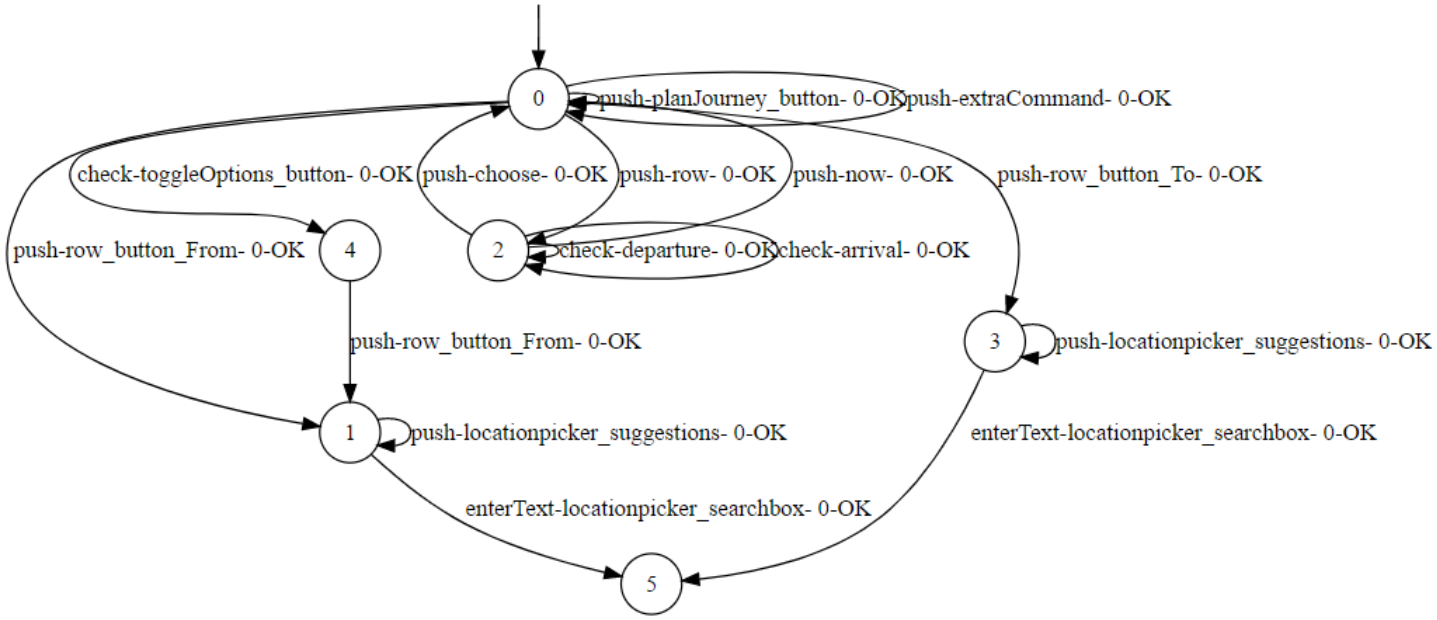
Can one identify weaknesses in Android applications through feasible behavioral model learning?

- RQ1: How can one extend model learning to be applicable to mobile applications?
  Alphabet completeness, mobile parameters, definition of state
- RQ2: How can we improve the feasibility of mobile application learning?
  Learning algorithm, action substitution, event-tree in OT
- RQ3: How can the learned model be used to assess the application's security?
  What vulnerabilities can be identified in a model
  Model enrichment

Validation

- Correctness
  - From a self-made application
  - From a set of known vulnerable applications
- Metrics
  - Time comparison

Current Situation



Main screen model of 9292 application

- Modification of fsm-learner project
- Only UI elements
- >12 hours

- Requires enrichment to assert weaknesses

Planning

RQ1	04/01/17	07/14/17	76d
Be able to model applications based on GUI elements.	04/01/17	06/30/17	66d
Extent the input and output alphabet and deal with learning errors.	07/01/17	07/14/17	11d
RQ2	08/01/17	08/31/17	23d
Increase time feasibility by adoption of: caching/event-filling/other smart techniques.	08/01/17	08/31/17	23d
RQ3	09/01/17	09/29/17	21d
Assess for a set of bugs and vulnerabilities if they can be identified in (enriched) graphs.	09/01/17	09/07/17	5d
Formalize algorithms how they can be derived.	09/08/17	09/29/17	16d
Validation	10/01/17	10/30/17	22d
Correctness	10/01/17	10/13/17	11d
Create application that contains the vulnerabilities	10/01/17	10/06/17	6d
Assert the tool on vulnerable applications and assess results	10/08/17	10/13/17	6d
Metrics	10/14/17	10/30/17	12d
Assert the tool on vulnerable applications and assess results	10/14/17	10/30/17	12d
Documents	11/01/17	12/01/17	23d
Report - Finalization	11/01/17	11/30/17	22d
Presentation	11/19/17	12/01/17	11d