

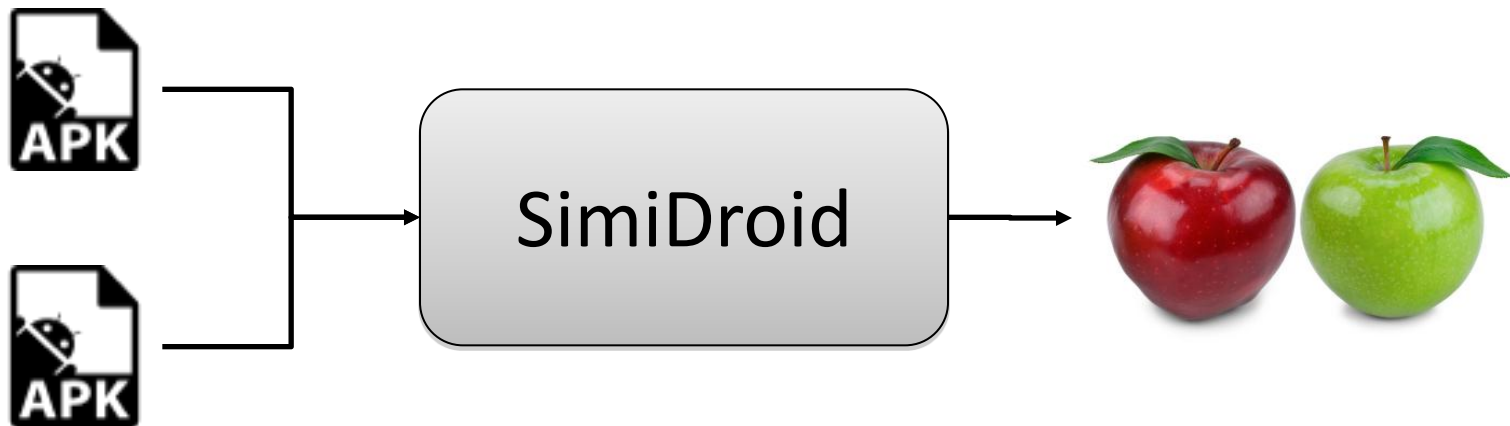
On Identifying and Explaining Similarities in Android Apps

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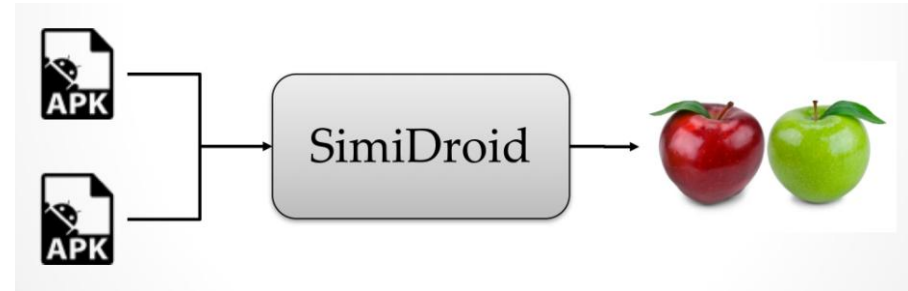
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- Identifying Similar Android Apps
- Explaining Similarities



Plugin-based Framework



Plugin₁



key₁ --> Value₁

... ..
key_n --> Value_n

key/value concrete example:

key: `setSortOrderSummary()`

value: `{InvokeStmt, AssignStmt|0, InvokeStmt|2131099690}`

Method

Component

Resource

Method-based Comparison

```
$r3 = $r1.getEntry();
```

```
$r2[0] = $r3;
```

```
$r4 = $r0.getString(2131099690,$2);
```

```
$r3 = $r1.getEntry();
```

```
$r2[0] = $r3;
```

```
$r4 = $r0.getString(2131034217,$2);
```

| | | |
|------------------------------|-----------|------------------------------|
| InvokeStmt | == | InvokeStmt |
| AssignStmt 0 | == | AssignStmt 0 |
| InvokeStmt 2131099690 | != | InvokeStmt 2131034217 |

Components Comparison

```
activity:bander.fileman.TextViewer
```

```
android.intent.action.EDIT:android.intent.action.VIEW
```

```
==
```

```
activity:bander.fileman.TextViewer
```

```
android.intent.action.EDIT:android.intent.action.VIEW
```

Resources Comparison

```
res/layout/main.xml
```

```
E40448C6ECED431A2FCC20017CCDE920
```

```
!=
```

```
0240F5D10CA2140B9D3866247A2FE5D3
```

```
res/layout/main.xml
```

- We present the design and implementation of SimiDroid, contributing to the community with a reusable tool for detecting similar Android apps and explaining the identified similarities at different levels.
- We have implemented several similarity comparison methods as plugins for the current release of SimiDroid.
- We investigate a number of case studies on real-world apps to demonstrate the suitability of SimiDroid in providing explanation hints for different usage scenarios.