Using LLDB in iOS

Custom Summaries

Type Summary

- Extracts information from classes, structures and arranges the data it in a user-defined format

- Two types of summaries: a summary string and a python function

Summary String

⚙ Contains plain text, variables, and formats

⚙ ${ } contain variable that you need to reference

⚙ ${var} refers to the current values being inspected

⚙ Formatters are added as %format_type

```
(lldb) type summary add CGRect –s "width = ${var.size.width}, height = $
{var.size.height%x}"
```

```
(CGRect) $0 = width = 320, height = 0x43e60000
```
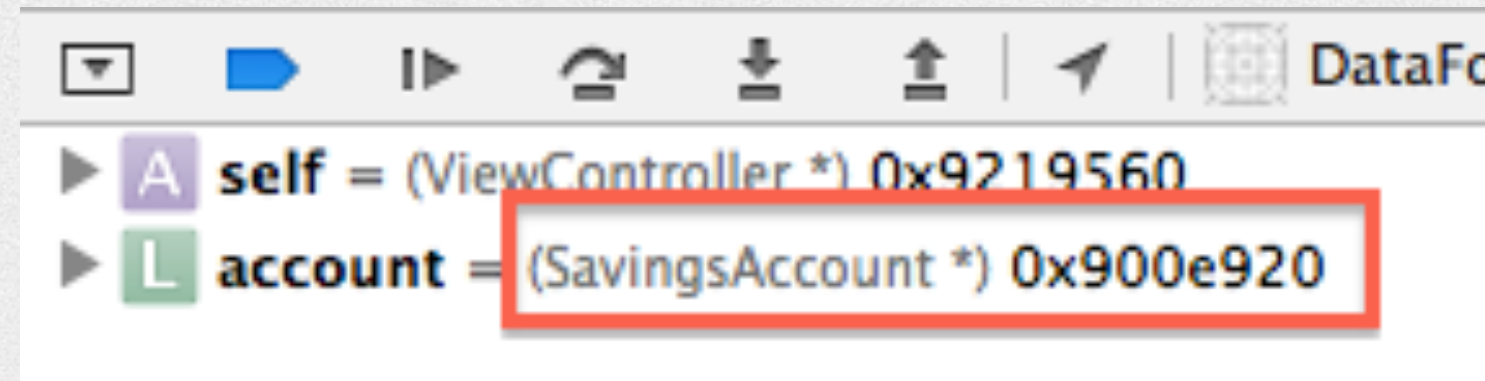
Type Summary (cont'd)

⚙ Use scripting to do realtime computation inside of summaries

```
(lldb)  type summary add –P CGRect
Enter your Python command(s). Type 'DONE' to end.
def function (valobj,internal_dict):
    (...)
    width = valobj. valobj.GetChildAtIndex(1).GetChildAtIndex(0).GetValue()
    height = valobj. valobj.GetChildAtIndex(1).GetChildAtIndex(1).GetValue()
    area = width * height;
    return "width=" + str(width) + ",height=" + str(height) + "area=" + str(area)
    DONE
```

```
(CGRect) $0 = width=320,height=480,area=153600
```
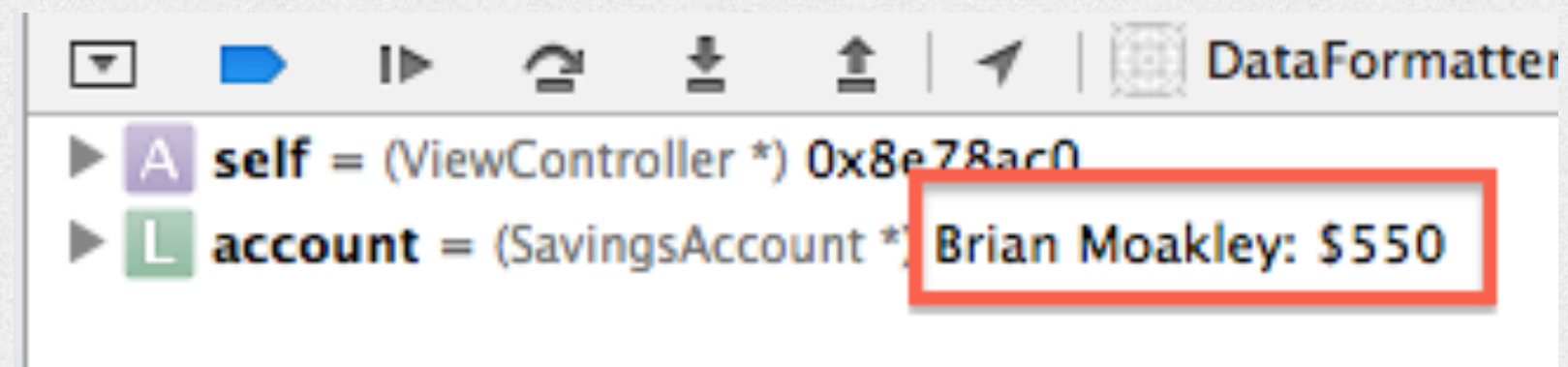
Type Summary (cont'd)


```
def account_summary (valobj,internal_dict):

    firstName = valobj.GetChildMemberWithName("_firstName").GetSummary()
    lastName = valobj.GetChildMemberWithName("_lastName").GetSummary()
    balance = valobj.GetChildMemberWithName("_balance").GetValueAsUnsigned(0)

    firstName = firstName[2:-1]
    lastName = lastName[2:-1]

    return firstName + " " + lastName + ": $" + str(balance)
```

Type Summary (cont'd)

```
(lldb) command script import ~/account.py
(lldb) type summary add -F account.account_summary SavingsAccount
```

Type Format

- Enable you to quickly override the default format for displaying primitive types

```
(lldb) type format add ——format b int
```

- To see a list formatting values, you can find them here:

  http://lldb.llvm.org/varformats.html#formatstable

Filters

⚙ Filters out member variables without having to use any scripting

```
(lldb) type filter add SavingsAccount --child _firstName
```

▶ A **self** = (ViewController *) 0x8f538b0
▼ L **account** = (SavingsAccount *) 0x8c5bec0
  ▶ **_firstName** = (__NSCFConstantString *) @"Brian"

Categories

⚙ Categories are a way to group formatters

⚙ LLDB searches categories in enabled order when looking for formatters.

⚙ Categories are created by assigning formatters to a category that doesn't exist

⚙ Categories can be enabled and disabled

Categories (cont'd)

⚙ LLDB's rules for applying formatters can be a little complicated. When in doubt, check the documentation:

http://lldb.llvm.org/varformats.html

Demo: Create Custom Summaries

- Create a custom summary once using a summary string and another using python
- Demonstrate how to delete summaries

Challenge Time


```
▼ _videoGames = (__NSArrayI *) @"5 objects"
    ▶ [0] = (RWTVideoGame *) Minecraft – Rating: 5
    ▶ [1] = (RWTVideoGame *) Day Z – Rating: 4
    ▶ [2] = (RWTVideoGame *) Infamous: Second Son – Rating: 3
    ▶ [3] = (RWTVideoGame *) Dance Central – Rating: 2
    ▶ [4] = (RWTVideoGame *) Dungeon Keeper iOS – Rating: 1
```