

Go On Android 試作

By Rachael Pai 2016/10/26

為何會對 Gomobile 有興趣？

A series of horizontal lines in teal and white colors, located below the main text.

Q: Go 語言到底有沒有前途?

A series of horizontal lines in teal and white colors, located at the bottom of the slide.

沒有支援 Mobile 的語言前途是有限的(June, 2015)

A series of horizontal lines in teal and light blue colors, located at the bottom right of the slide.

gomobile was released with
go1.5 (Aug, 2015)

First App written by Go - Ivy big
number calculator

所以 ... Golang 是有前途的！

A series of horizontal lines in teal and white colors, extending from the left edge of the slide and partially under the text.

- Gomobile 簡介
- 試做
 - Android Native App
 - Library for Android

Gomobile

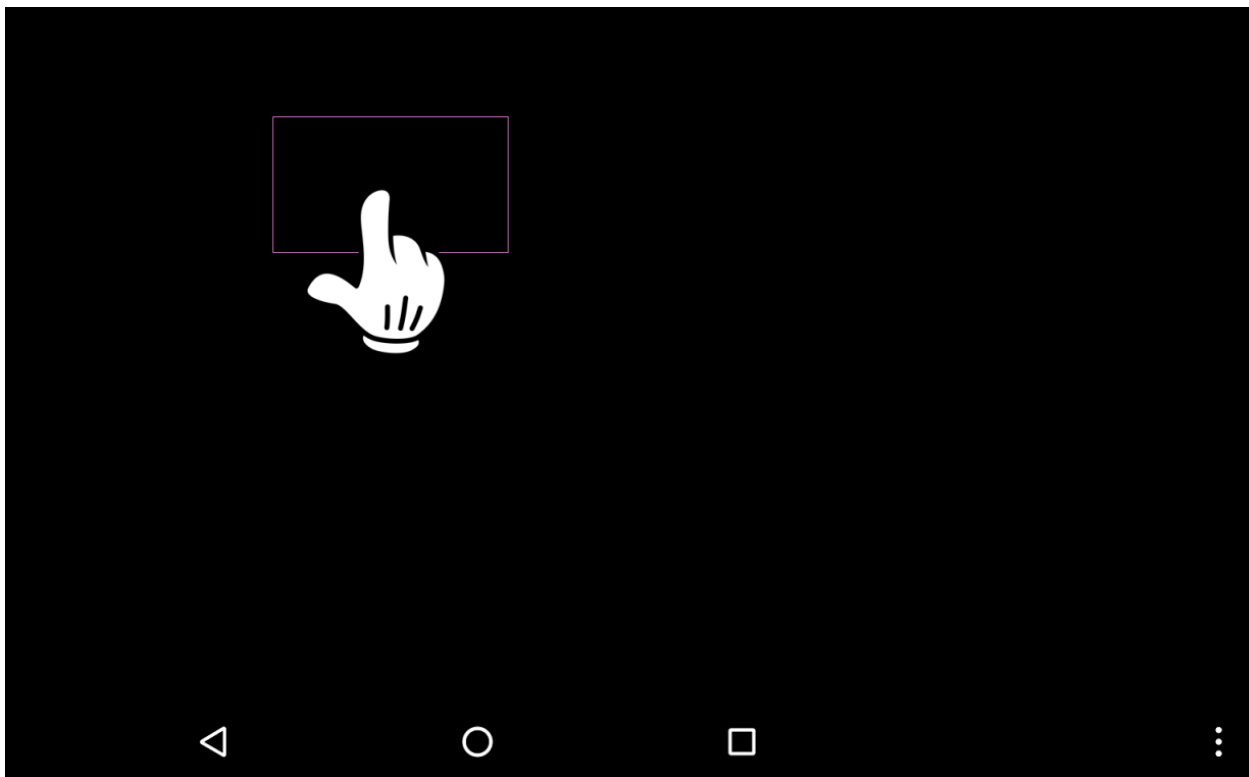
- 提供對 Android 與 IOS Platform 的開發工具
- 可以讓使用者開發 Native(原生的) App
- 開發 Library

Gomobile 的安裝

- go get golang.org/x/mobile/cmd/gomobile
- gomobile init

試做 Native App

- 目的: 使用 Go 試做原生 App，了解架構與流程

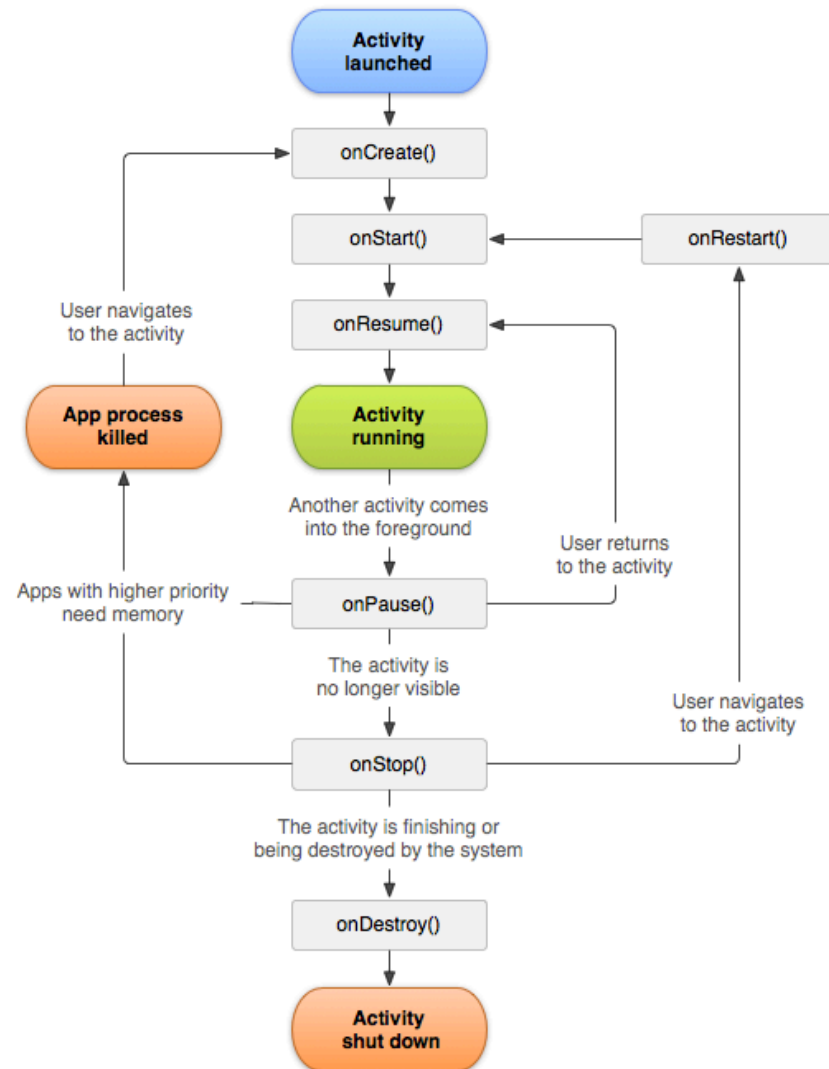


Main - Event Loop

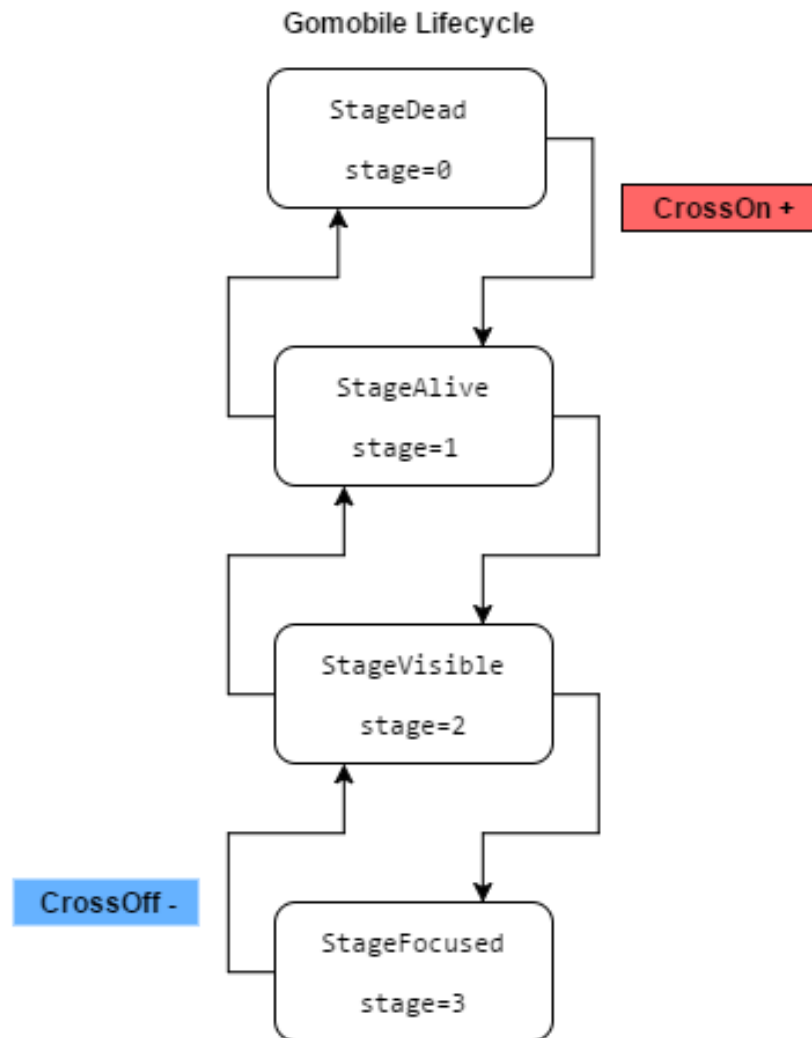
```
func main() {
    app.Main(func(a app.App) {
        visible, sz := false, size.Event{}
        for e := range a.Events() {
            switch e := app.Filter(e).(type) {
            case lifecycle.Event:
                switch e.Crosses(lifecycle.StageVisible) {
                case lifecycle.CrossOn:
                    log.Println("lifecycle.CrossOn")
                    visible = true
                    onStart()
                case lifecycle.CrossOff:
                    log.Println("lifecycle.CrossOff")
                    visible = false
                    onStop()
                }
            case size.Event:
                sz = e
                touchX = float32(sz.WidthPx / 2)
                touchY = float32(sz.HeightPx / 2)
                log.Println("size.Event touchX=", touchX, " touchY=", touchY)
            case paint.Event:
                //onPaint(sz)
                log.Println("paint.Event")
                a.Publish()
                if visible {
                    a.Send(paint.Event{})
                }
            case touch.Event:
                touchX = e.X
                touchY = e.Y
                log.Println("touch x", touchX, " touch y", touchY)
            }
        }
    })
}
```

Event Types : key, lifecycle, mouse, paint, size, touch

Android Lifecycle



Gomobile Lifecycle



- UI
 - OpenGL ES2.0, ES3.0
 - Packages:
 - gl, glutil, sprite
- Sensor
 - Package: sensor
 - Accelerometer (加速度計)
 - Gyroscope (陀螺儀)
 - Magnetometer (磁力儀)

Build and Install Native APP

- Command
 - `gomobile build -target=[android/ios][package]`
 - `gomobile install [package]`
- Build 輸出: package.apk
- Example
 - `gomobile build -target=android golang.org/x/mobile/example/basic`
 - `gomobile install golang.org/x/mobile/example/basic`

AndroidStudio Logcat

The screenshot shows the Android Studio interface with the Logcat window open. The Logcat window displays a list of log messages. A red arrow points to the 'logcat' tab in the top bar, labeled 'Android: logcat'. Another red arrow points to the search bar in the Logcat window, labeled 'Search Keyword'. A third red arrow points to the 'Create New Logcat Filter' dialog box, which is open. The dialog box has a 'Filter Name' field containing 'GoMobile Log'. Under 'Specify one or several filtering parameters:', the 'Log Tag' field contains 'GoLog', and the 'Log Level' dropdown is set to 'Verbose'. The 'Regex' checkbox is checked for 'Log Tag', 'Log Message', and 'Package Name'. The 'OK' button is highlighted. The Logcat window shows the following log messages:

```
10-26 10:45:22.255 21985-22021/? I/GoLog: touch x 649.1071 touch y 1139.1428
10-26 10:45:22.255 21985-22021/? I/GoLog: touch.TypeBegin
10-26 10:45:22.300 21985-22021/? I/GoLog: touch x 649.1071 touch y 1139.1428
10-26 10:45:22.300 21985-22021/? I/GoLog: touch.TypeEnd
10-26 10:45:22.443 21985-22021/? I/GoLog: touch x 533.0357 touch y 987.4286
10-26 10:45:22.443 21985-22021/? I/GoLog: touch.TypeBegin
10-26 10:45:22.494 21985-22022/? I/GoLog: touch x 535.7143 touch y 975.879
10-26 10:45:22.503 21985-22021/? I/GoLog: touch x 535.7143 touch y 975.4286
10-26 10:45:22.503 21985-22021/? I/GoLog: touch x 535.7143 touch y 975.4286
10-26 10:45:22.503 21985-22021/? I/GoLog: touch.TypeEnd
10-26 10:45:22.618 21985-26537/? I/GoLog: touch x 437.5 touch y 845.1429
10-26 10:45:22.619 21985-26537/? I/GoLog: touch.TypeBegin
10-26 10:45:22.661 21985-22021/? I/GoLog: touch x 437.5 touch y 835.3658
10-26 10:45:22.678 21985-22022/? I/GoLog: touch x 437.5 touch y 830.9774
10-26 10:45:22.694 21985-22021/? I/GoLog: touch x 437.5 touch y 827.1428
10-26 10:45:22.704 21985-22021/? I/GoLog: touch x 437.5 touch y 827.1428
10-26 10:45:22.704 21985-22021/? I/GoLog: touch.TypeEnd
10-26 10:45:22.833 21985-26537/? I/GoLog: touch x 371.42856 touch y 790.2857
10-26 10:45:22.833 21985-26537/? I/GoLog: touch.TypeBegin
10-26 10:45:22.887 21985-26537/? I/GoLog: touch x 371.42856 touch y 790.2857
10-26 10:45:22.888 21985-26537/? I/GoLog: touch.TypeEnd
```

configure to receive only GoLog

Gomobile Library: GetRelayLib

- 目的: 讓 android 與 ios App 不用處理與 Relay-Server 連線的問題
- 優點:
 - 同時給 android 跟 ios 使用
 - Go 做併發與網路連線相對容易
 - Relay-Server 由Go開發，對Go開發人員連線部分相對熟稔

Gomobile Binding

- Command
 - `gomobile bind -target=[android/ios][package]`
- `bind` 輸出: `package.aar`
- Example
 - `gomobile bind -target=android`
golang.org/x/mobile/example/bind/hello
- [Build go library for Android using gomobile step by step](#)

Issues

- iPhone 5s 以前不 support
 - Supported instruction set
 - arm, arm64, 386, amd64
- Developing memo
 - Return value
 - Type Limit

Autumn 2014 Edition - v3.2.0
<http://iossupportmatrix.com>
 @isupportmatrix
 English

Autumn 2014 Edition - v3.2.0

<http://iossupportmatrix.com>

▼ iOS support matrix

English

ARMv6

ARMv7

ARMv7s

ARMv8

	iPhone July 2007	iPod touch September 2007	iPhone 3G July 2008	iPod touch 2nd gen September 2008	iPhone 3GS June 2009	iPod touch 3rd gen September 2009	iPad April 2010	iPhone 4 June 2010	iPod touch 4th gen September 2010	iPad 2 March 2011	iPhone 4S October 2011	new iPad March 2012	iPod touch 5th gen September 2012	iPad mini October 2012	iPhone 5 September 2012	iPad October 2012	iPhone 5c September 2013	iPhone 5s September 2013	iPad Air October 2013	iPad mini 2 October 2013	iPhone 6 September 2014	iPhone 6 Plus September 2014	iPad Air 2 October 2014	iPad mini 3 October 2014
Device Compatibility																								
iPhone OS 1.0 Code name: Alpine, Heavenly, Little Bear, Snowbird, Oinkerfest	1.0	1.1																						
iPhone SDK 2.0 Code name: Big Bear, Sugarbowl, Timberline			2.0	2.1.1																				
iPhone SDK 3.0 Code name: Kiriwood, Northstar, Wildcat	3.1.3	3.1.3			3.0	3.1.1	iPad SDK 3.2																	
iPhone SDK 4.0 Code name: Apex, Baker, Jasper, Phoenix, Durango			4.2.1	4.2.1			4.3.5	(GSM) 4.0 (CDMA) 4.2.6	4.2.1	4.3.5														
iOS 5 Code name: Telluride, Hoodoo						5.1.1	5.1.1				5.0	5.1												
iOS 6 Code name: Sundance, Brighton					6.1.6				6.1.6				6.0	6.0	6.0	6.0								
iOS 7 Code name: Innsbruck, Sochi							7.1.2									7.0		7.0	7.0	7.0				
iOS 8 Code name: Okemo, OkemoTails, Okemo2urs, Stowe, Copper								8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
iOS 9 Code name: Monarch								262/495 9.0b	215/408 9.0b	260/493 9.0b	215/410 9.0b	260/491 9.0b	712/1278 9.0b	773/1408 9.0b	698/1249 9.0b	1363/2456 9.0b	1304/2528 9.0b	1418/2568 9.0b	1610/2880 9.0b	1596/2854 9.0b	1794/4441 9.0b	1418/2588 9.0b		
Model ID	iPhone1,1	iPod1,1	iPhone1,2	iPod2,1	iPhone2,1	iPod3,1	iPad1,1	iPhone3,1	iPod4,1	iPad2,1 iPad2,4	iPhone4,1	iPad3,1 iPad3,2	iPod5,1	iPad2,5 iPad2,6	iPhone5,1 iPhone5,2	iPad3,4	iPhone5,3 iPhone5,4	iPhone6,1 iPhone6,2	iPad4,1 iPad4,2	iPad4,4 iPad4,5	iPhone7,2	iPhone7,1	iPad5,3 iPad5,4	iPad4,7 iPad4,8 iPad4,9

Key

Chip generation / Device memory

Accelerometer

Bluetooth LE

GPS (Cellular, iPad only)

Microphone

Still Camera

Retina Display

ARM Version

Camera Flash

Gyroscope

OpenGL ES Version

Lightning Port

M7/M8 Coprocessor

Front Facing Camera

Location Services

Video Camera

TouchID

Auto-Focus Camera

Game Kit

Magnetometer

SMS

WiFi

Apple Pay

Do not support

Full support

4.2.1

Earliest release

Latest release

150/149

Geek Bench rating

Single Core:Multi: Core

Geekbench v2 scores only

結論

- 原生App 開發支援有限， 只合適開發"小型" App
- 使用Android SDK 開發環境 + gomobile – library 可以結合兩者優點



The End

Thank you!