

CS355

Mobile Application Development การพัฒนาโปรแกรมประยุกต์สำหรับอุปกรณ์พกพา



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MA02: Examples of Mobile Applications ตัวอย่างโปรแกรมประยุกต์บนอุปกรณ์พกพา

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- ▶ Mobile Features
- ▶ Limitations for Mobile Application
- ▶ Development Approaches
- ▶ Mobile Application Types
- ▶ Examples of Applications
 - Touch Screen
 - Graphic and Image
 - Check In
 - Google Map
 - Locating: GPS
 - Chat
 - Store Data
 - Get Information from Sensor

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Mobile Features

- ▶ ข้อดี
 - พกพาสะดวก
 - สามารถ รับ ส่ง แชร ข้อมูล ได้ง่าย และทันที
 - แจ้งเตือน เมื่อมี อีเมลเข้า
 - แจ้งเตือน เมื่อมี เพื่อนโพสข้อความ หรือ tag ขึ้นบน Social Media
 - มีอุปกรณ์ Sensor ที่ทันสมัยและหลากหลาย
 - Location: Latitude, Longitude เช่น 14.0771, 100.5935
 - Accelerometer ความเร่งเชิงเส้นตามแกน x, y, z มีหน่วยเป็น m/s^2
 - Gyroscope ความเร็วเชิงมุมตามแกน x, y, z มีหน่วยเป็น rad/s
 - Light: มีหน่วยเป็น lux เช่น 40.0 lux
 - Magnetic Field: x, y, z มีหน่วยเป็น Micro Tesla
 - Orientation ทิศทาง x, y, z มีหน่วยเป็น $^\circ$
 - Atmospheric Pressure: มีหน่วยเป็น mb, mmHg, atm, Pascal
 - Proximity วัดความใกล้: มีหน่วยเป็น cm เช่น 8.0 cm
 - Battery Status: Temperature, Level, Voltage
 - Sound Level: มีหน่วยเป็น dB เช่น 40.233 dB
- ▶ ข้อเสีย
 - ความเป็นส่วนตัว ตำแหน่งที่อยู่ ข้อมูล ภาพ ไฟล์ ที่อยู่ในเครื่อง
 - การป้อนข้อมูล และแสดงผลทำได้ลำบาก
 - การใช้พลังงานจากแบตเตอรี่

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Limitations for Mobile Application

- ▶ Mobile Context
 - Interact with nearby people, objects and environment
- ▶ Multiple devices connectivity
 - Connect to wide area : Telecommunication, GPS, and WiFi services
 - Connect to local area : Bluetooth, WiFi-direct, NFC
- ▶ Limited Processing Capability and Power
- ▶ Data Entry Methods
 - Input : tap, long tap, double tap, swipe, scroll, gesture, shake, software keyboard, sound, or hardware button
 - Navigation : Hierarchy (Navigation bar,) Flat (Tab), Content/Experience-driven (Page Control)
- ▶ Response Methods
 - Display screen
 - Small Screen Size
 - Different Display Resolution
 - Vibrate
 - Speaker
- ▶ Notification : Toast vs Dialog

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Development Approaches

- ▶ Native Mobile Application
 - Access device resources without plug-in installation
 - Best performance
 - Privacy data protection
- ▶ Mobile Web Application
 - Develops one, run any devices
 - Easy to develop (based on web application knowledge)
 - Easy to update contents

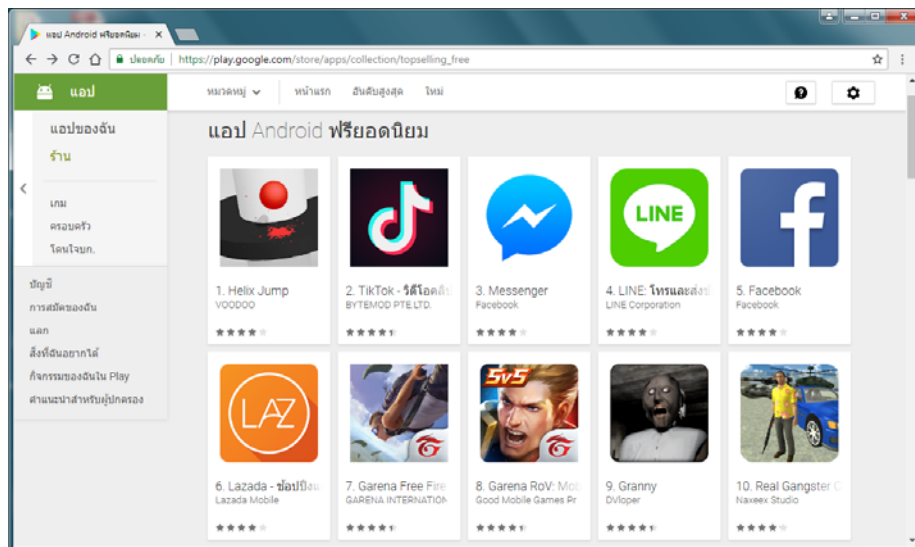
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Mobile Application Types

- ▶ System Architecture Based
 - Stand-alone application
 - Client-server application/ Cloud based application
 - Public storage
 - Private storage
 - Online API services, e.g.,
 - Google Map,
 - Facebook,
 - Google Cloud Message (GCM),
 - Cloud storage, etc.
- ▶ Payment Based
 - Free
 - Paid (Premium)
 - In-app Purchase (Freemium)

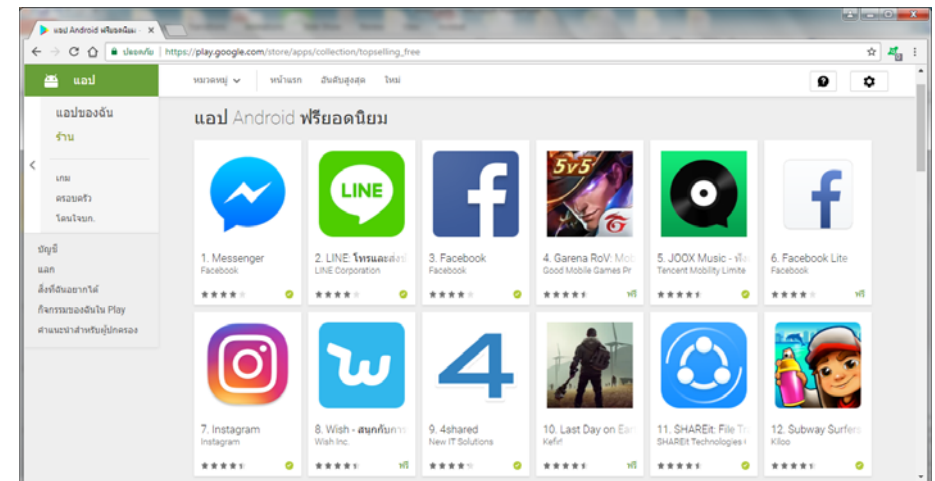
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Top Free in Android Apps



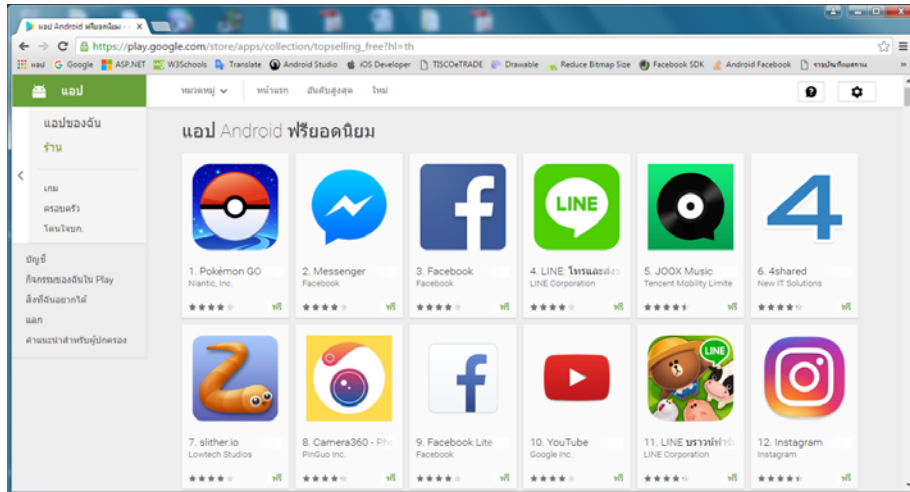
7

Top Free in Android Apps (2017)



8

Top Free in Android Apps (2016)



9



Weather & Clock
Widget



Weather Live

10



Hangman



been



Brain It On! –
Physics Puzzles



Best
Metronome



GnuCash



Sky Map



Star Chart

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Home Design
3D



Flight Pilot
Simulator 3D



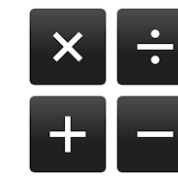
Wifi Analyzer



Land Area
Measure



Accurate
Compass



Scientific
Calculator

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Touch Screen Applications

```
1) public boolean onTouchEvent(MotionEvent event) {
2)     // TODO
3)     return super.onTouchEvent(event);
4) }
```

Super Touch -
Speedy Responds



Ant Smasher



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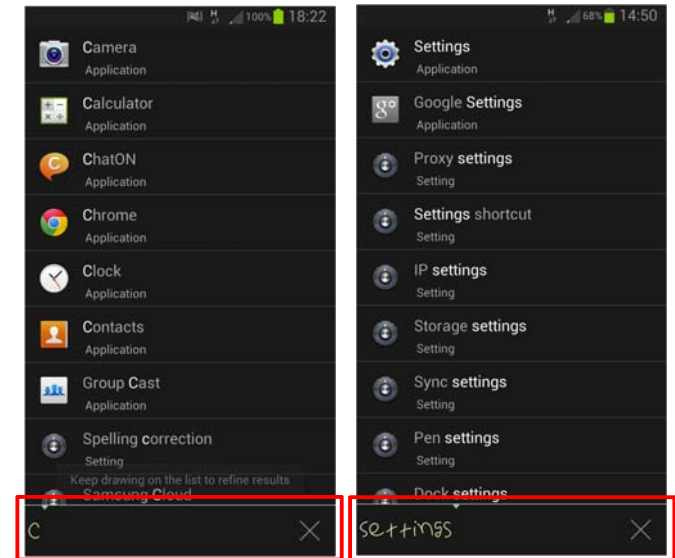
Gesture Search



Google Gesture Search



Google Handwriting Input



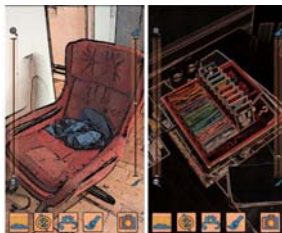
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Graphic Applications

- ▶ Graphics and Animation
- ▶ Image, Video, Audio



Cartoon Camera



AfterFocus



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Graphic Applications (2)

- ▶ Android supports
 - Audio:
 - 3GPP (.3gp)
 - MPEG-4 (.mp4, .m4a)
 - AAC (.aac)
 - MP3 (.mp3)
 - RTTTL/RTX (.rtttl, .rtx)
 - OTA (.ota)
 - iMelody (.imy)
 - WAVE (.wav)
 - Ogg (.ogg)
 - Matroska (.mkv, Android 4.0+)
 - etc.
 - Image:
 - JPEG (.jpg)
 - GIF (.gif)
 - PNG (.png)
 - BMP (.bmp)
 - WebP (.webp)
 - Video
 - 3GPP (.3gp)
 - MPEG-4 (.mp4)
 - WebM (.webm)
 - Matroska (.mkv, Android 4.0+)

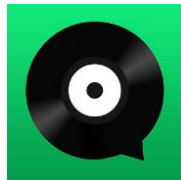
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MX Player



KMPlayer

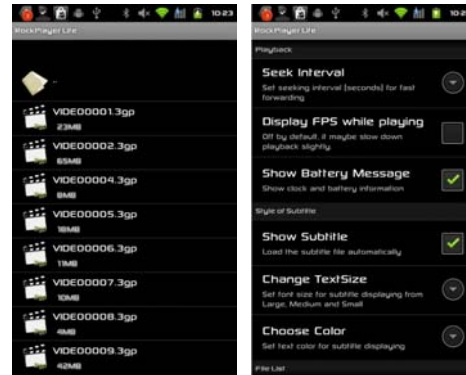


JOOX Music



RockPlayer Lite

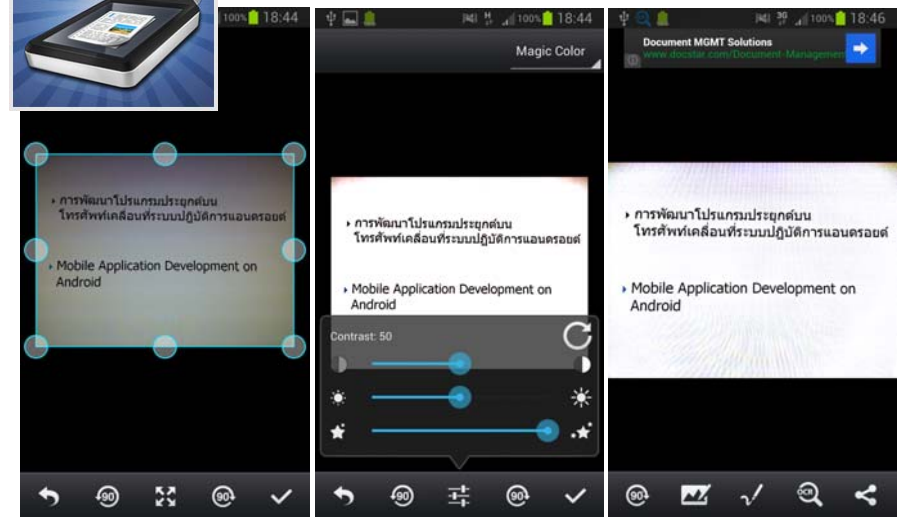
Player



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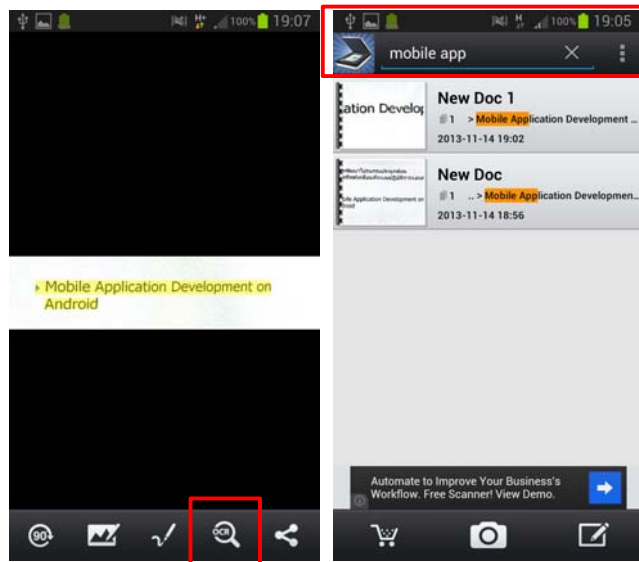


CamScanner



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CamScanner (2)



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Soft Keyboard



Qwerty keyboard



3x4 keyboard



GO Keyboard



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Check In



Swarm
Foursquare

Smart Places Checkin



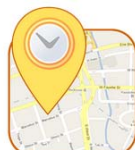
Family Locator



Locate
Family & kids locator



Int'l Online
Check-in



Check-in History



Location History

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Facebook & Twitter Share

- ▶ <https://api.facebook.com/method/links.getStats?urls=http://www.thairath.co.th/content/520321>
- ▶ <http://urls.api.twitter.com/1/urls/count.json?url=http://www.thairath.co.th/content/520321>



Share



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Google Map

- ▶ Maps <https://developers.google.com/maps/documentation/android/>



- ▶ เรียกใช้งานแผนที่
- ▶ ค้นหาชื่อสถานที่
- ▶ ค้นหาเส้นทาง

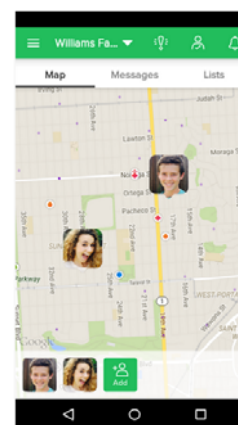


<http://www.javacodegeeks.com/2011/02/android-google-maps-tutorial.html>

<http://mobiforge.com/developing/story/using-google-maps-android> 23

Locating: GPS

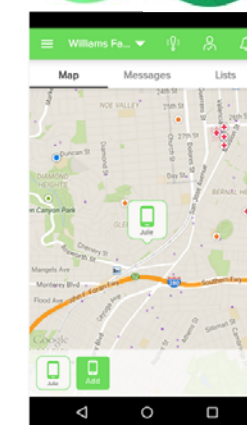
GPS Phone Tracker Pro



Open GPS Tracker



Find My Android Phone Find My Lost Phone



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Chat /Instant Message

Facebook Messenger



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Sensors : Accelerometer and Gyroscope

i Fishing Lite



Penguin Skiing 3D



Real Racing 2



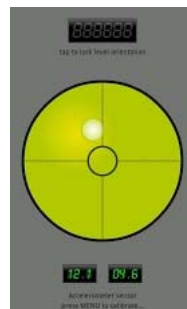
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Sensors : Orientation

Bubble Level



Advanced Bubble Level



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Sensors : Compass



Accurate Compass



3D Stabilized Ball Compass



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Sensors : Light

- ▶ Sensor.TYPE_LIGHT
- ▶ values[0]: Ambient light level in SI lux units

Ambient Light Sensor Lux Auto Brightness



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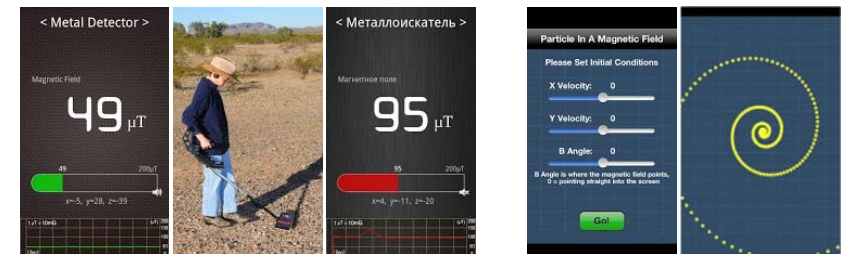
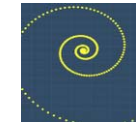
Magnetic Field

- ▶ Sensor.TYPE_MAGNETIC_FIELD
- ▶ Measure the ambient magnetic field in the X, Y and Z axis
- ▶ All values are in micro-Tesla (uT)

Metal Detector



Particle in a Magnetic Field



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Atmospheric Pressure

- ▶ Sensor.TYPE_PRESSURE
- ▶ values[0]: Atmospheric pressure in millibar



Altimeter & Barometer

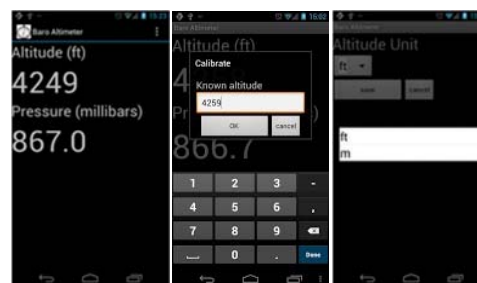
Barometer



Barometric Altimeter



Hectopascals
1003.65997
Atmospheres
0.99054



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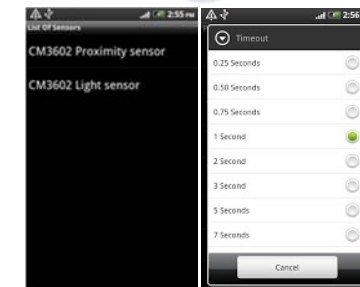
Proximity

- ▶ Sensor.TYPE_PROXIMITY
- ▶ values[0]: Proximity sensor distance measured in centimeters
- ▶ Some proximity sensors only support a binary **near** or **far** measurement.

ProXimity Talk



Proximity Screen Off Lite



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Sound Level

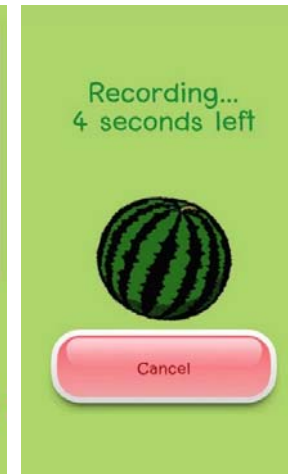
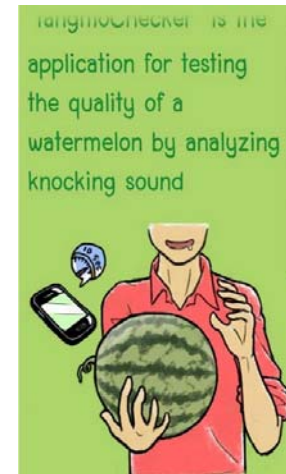
Sound Meter



33

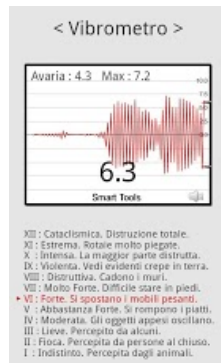


tangmoChecker

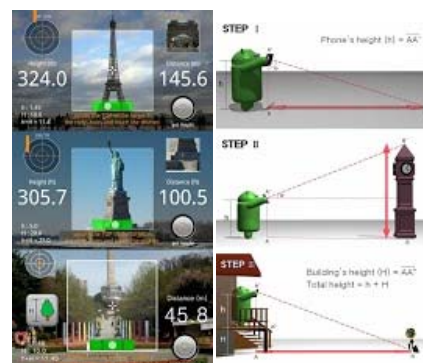


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Vibration Meter



Smart Measure



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Games

Subway Surfers



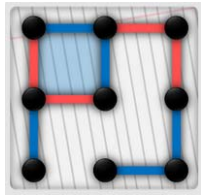
3D Bowling



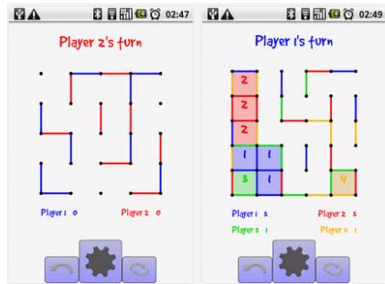
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Games (2)

Dots 'n' Boxes / Squares



Othello Master



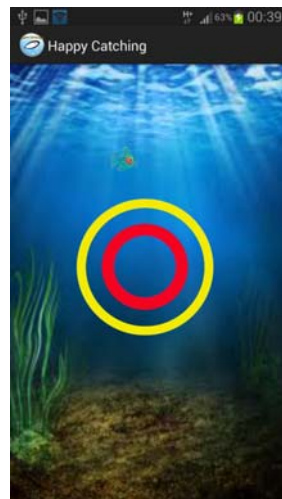
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Petite Petals



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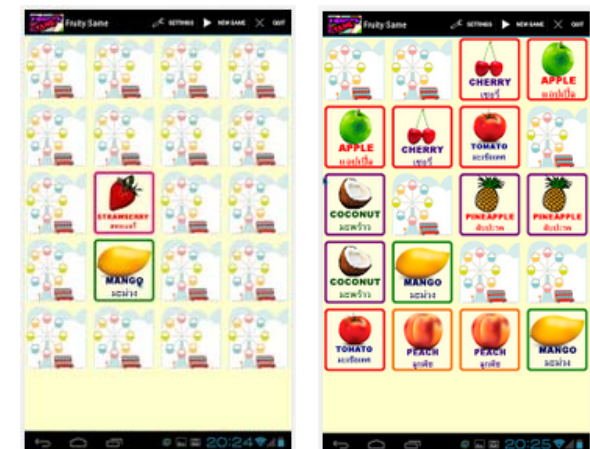
Happy Catching



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Fruity Same

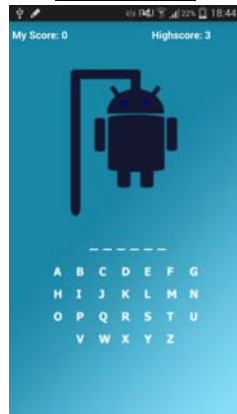
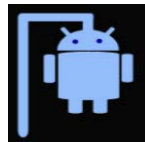
เกมจับคู่ศัพท์ภาษาอังกฤษผลไม้



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Term Projects

- ▶ Video Network
- ▶ Hang Man
- ▶ Plant Game
- ▶ Musis



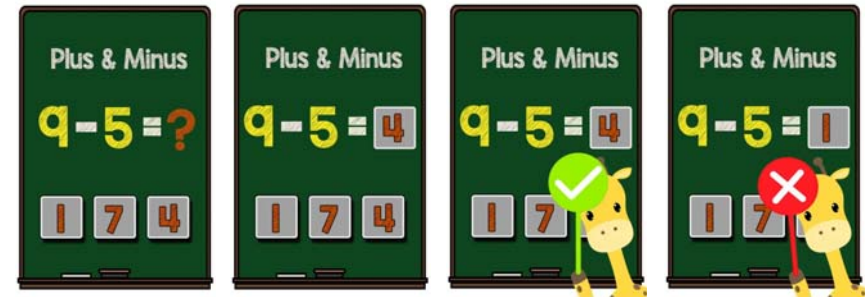
Billion



41

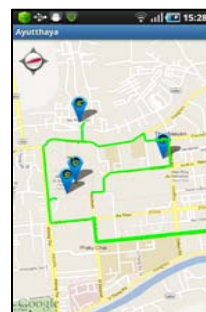
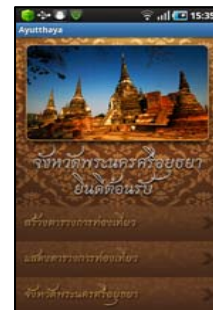
Ju Math Ji

- ▶ Ju Math Ji



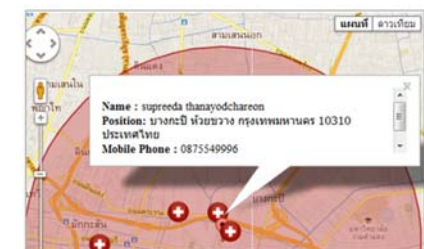
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Travel Guide



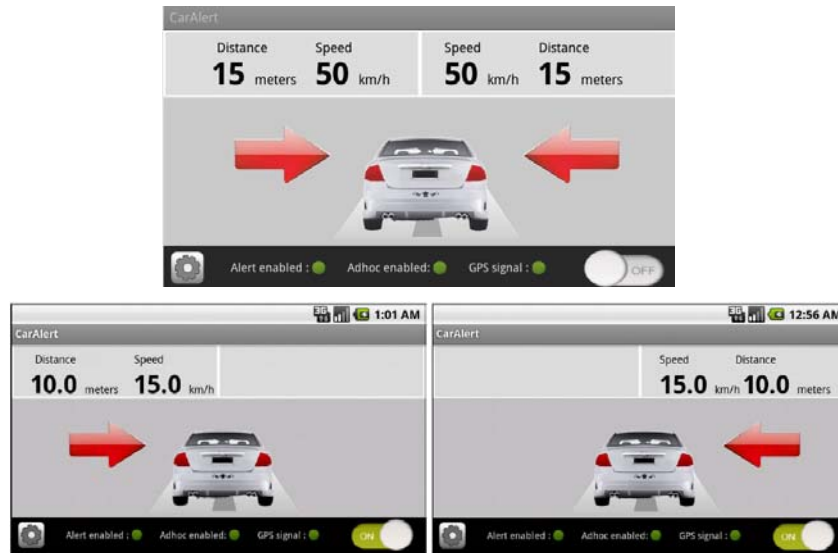
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GPS RAFA



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Blind Spot Alert



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Topics

- ▶ 2556
 - Topics
 - Auto Ringer
 - BlueWA
 - YookYa
 - Term Projects
 - Dontri Thai
 - Dino Teeth
 - Etc.
- ▶ 2557
 - Topics
 - Tutor Board
 - Wi Shout
 - Duckling Bot



- ▶ 2558
 - Topics
 - MyGL
 - Term Projects
 - Hangman
 - Karaoke
 - Hammer
 - BTS Station Finding
 - Tic Tac Toe
 - Weather Me
 - เกมสเตรซึ
 - บุคคลปริศนา
 - รุ้หมือไร
 - Reminder
 - Online Resume

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Term Projects

▶ 2559

- Reminder
- Military Report
- Power Auction
- Star-gate Game
- Air Hockey
- Animal Matching
- Diamond
- Game 24
- Hangman

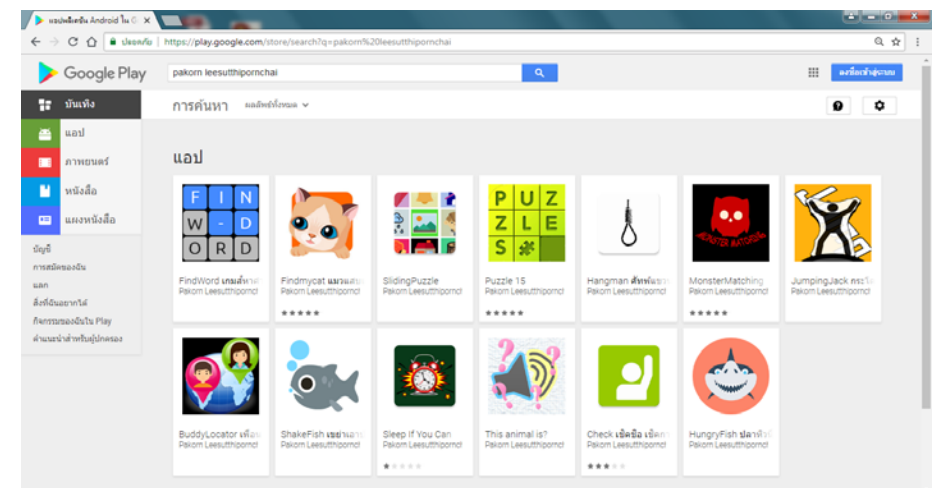


- HM kids
- MedOnTime
- NipMan
- Photo Filter
- Random Number
- Switch Card
- Thai Pray
- Who



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Term Projects 2017



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