Android App Development

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Internet of Things

- Apps are the tools to offer services to end customer
- Customers interact with Apps

Apps Store	Apps Count
iOS App Store	1.5 million
Play Store	1.6 million
Windows Store	0.5 million

Courtesy: http://www.statista.com/statistics/266488/forecast-of-mobile-app-downloads/

App World is getting flooded !

We Consume...

- Average time spent in Apps worldwide is 45 minutes !
- Mostly social media and gaming apps
- Less than 4 minutes in Productivity Apps

Huge Challenges for delivering IoT Services

Courtesy: Nielsen

Challenges

- Native Apps
  - HTML
  - Javascript
  - Web frameworks
- Mobile Apps
  - Own SDK
  - No Standard Programming Language
- UX / UI
- Free / Freemium / Paid

Future of Apps ?

- Motivation of Apps
    - To save our time and increase comfort
    - Not spent so much time in Apps
- Best Apps are preempts your needs and serves you information
    - OMG ! What about my privacy ?
- App Streaming / App Linking

Apps will be ubiquitous

Let's build Apps

- WiFi
  - SSID   : BOLT
  - Password : FORGE958
- MIT APP Inventor 2
  - http://ai2.appinventor.mit.edu
- QR Scanner App
  - Download any QR Scanner App from Play store
- Program Materials
  - https://github.com/selvaraaju
  - Choose Android_App_Development repo to download code and presentation

Program 1

1. Designer / Block / Palette
2. Create a grocery list
   a. Checkbox
   b. Button
   c. Notifier
3. Build -> App (Provide QR code for App)
4. Scan the QR code using QR Code Scanner App
5. Open the url to download .apk file and install the App in your phone

Program 2 : Camera & Video player

1. Use camera to shoot picture and video
2. Components
   a. 2 buttons
   b. Canvas
   c. Videoplayer
3. Create a grocery list
   a. Checkbox
   b. Button
   c. Notifier
4. Build -> App (Provide QR code for App)
5. Scan the QR code using QR Code Scanner App
6. Open the url to download .apk file and install the App in your phone

Program 3 : Text to Speech and Speech to Text

1. App should speak the sentences written in textbox and it also should recognise some text which is spoken to it
2. Components
   a. 2 buttons
   b. 3 labels
   c. 1 textbox
   d. 1 TextToSpeech
   e. 1 SpeechRecogniser
   f. 1 Notifier
3. Build -> App (Provide QR code for App)
4. Scan the QR code using QR Code Scanner App
5. Open the url to download .apk file and install the App in your phone

Program 4 : Send SMS

1. App should send SMS.
2. Components
   a. 1 Texting (Social Tab)
   b. 2 TextBox and 2 Labs
   c. 1 Button
3. You should enter text message and phone number.
4. Clicking on the button should send SMS
5. Build -> App (Provide QR code for App)
6. Scan the QR code using QR Code Scanner App
7. Open the url to download .apk file and install the App in your phone

Program 5 : Sensors

1. App should show readings of Accelerometer
2. Components
   a. 1 Accelerometer (Sensors tab)
   b. Choose labels as necessary
3. You should see the X, Y & Z values of accelerometer
4. Build -> App (Provide QR code for App)
5. Scan the QR code using QR Code Scanner App
6. Open the url to download .apk file and install the App in your phone

Additional Programs : GPS

1. Use LocationSensor (Sensors Tab) to display latitude, longitude and address of your current location
2. Make sure turn on "Location" settings in your smartphone
3. Tip 1: You should enable "LocationSensor"
4. Tip 2: Set ProvideName to "gps"
5. Tip 3: You should set DistanceInterval to 5
6. Tip 4: Use timer to update the atitude, longitude and address of your current location

Program 6 : Home Automation

1. App should communicate with Arduino over WiFi
2. Components
   a. 2 Buttons
   b. 2 Web (Connectivity Tab)
3. Send a GET request to turn on / off the light
4. Build -> App (Provide QR code for App)
5. Scan the QR code using QR Code Scanner App
6. Open the url to download .apk file and install the App in your phone

Program 7 : HC-05 Bluetooth Module

1. HC-05 Bluetooth module is configured as "Slave" mode and will communicate over serial protocol
2. AT commands to configure HC-05 module
3. Arduino is configured to read from HC-05 via serial protocol
4. Send colors names such as red, green, yellow via serial protocol

DEMO

Thank You