Android App Development Workshop

Android powers hundreds of millions of mobile devices in more than 190 countries around the world. It's the largest installed base of any mobile platform and growing fast—every day another million user power up their Android devices for the first time and start looking for apps, games, and other digital content. Android gives you a world-class platform for creating apps and games for Android users everywhere, as well as an open marketplace for distributing to them instantly. This workshop is focused to give the overview of Android and explore its building blocks.

It doesn't matter if you're completely new to Android, we'll work through modules throughout the day, each with a completed project for you to open and work from. Learn to develop applications in the latest operating system with practical implementation and begin managing your own applications like a professional at this workshop. Attendees will be provided with instructions to build and manage new applications. What's more, you can even sell out these applications and earn good money!!

Benefits

- Learn & Interact with renowned Industry Experts
- Two days hands-on practical workshop on Android Applications Development.
- Students will get "Android Application Development Toolkit" free of cost.
- Live Demos, Interactive query sessions and comprehensive material.
- Guidance provided for advance level applications/projects to each participant.
- Receive an unparalleled education on the art of building apps with one-on-one attention.

Who Can Attend:

- Anyone with sheer interest, zeal to learn, an innovative brain and perseverance.
- Has knowledge of how to use computer and mobile phones.
- Has basic knowledge of web & internet.
- Knowledge of any programming language will be an advantage.

2018

Pravega

Indian Institute of Science

Hosted by

IISc
Bangalore

Day 1

Session 1 : Learning and Understanding

Introduction to Android

What is Android Technology?(1 hours)

Open Source? / Operating System? / Development Platform? /Hardware?
Versions of Android
Discussion on right from the first version termed as Android Beta to the latest version
codenamed Lollypop (5.0)
History of Android
Development Concept

OHA (Open Handset Alliance)(0.5 hours)

Open Handset Alliance : 86 corporate Giants work for Android Development
How an Android application and device comes into the market?
Selling an App on an individual or organizational level

Architecture of Android:(0.5 hours)

Basics of the Android Operating system to understand the relation and working of an application
with the compatibility of hardware
• Linux Kernel
• Virtual Machine – Porting Platform of an App
• "Dalvik Virtual Machine" vs "Java Virtual Machine"
• System Layers

Session 2 : Practical Hands-on

Introduction to Android Application Development:

Installation & Deployment(1.5 hours)

Making your system ready to start developing apps is not a hard nut to crack
with us, You don't need internet connection to download the updates of the
software, to disable / un-install any of your anti-virus system, to worry about the
operating system whether it's a Windows, Linux, Mac or any other operating
system. All you need is to use our"Android Application Development Toolkit"
specially designed by our R&D team.

2018
Pra**v**ega
Indian Institute of Science

Hosted by
IISc
Bangalore

Creating development environment in your PC

Android Studio
- Downloading
- Installation
- Updating

What is IDE?
Concept & Benefits of Eclipse IDE

Java Development KIT (JDK)
- What is JDK?
- Why JDK?

Android Virtual Device (Emulator)
Debugging Concepts
- Without tools
- Simulator
- Using Android Virtual Device
- Usage

Pros & Cons of Android Virtual Device

Basic Building Blocks of an Android Application

This session is specially designed by the qualified trainers to make students understandthe knowledge of live visibility of their codes running. Special techniques which will help them create and to innovate the new apps with the advent of their own creativity.

Structure of an application(1 hours)

Constituents of app when we start the development
Predefined folders and files in an app project
Executable file of an Android app
Understanding 'AndroidManifest.xml' File
Concepts of Layout for User Interface

Components of an application

Difference between Apps, Widgets & Services
Activities – Base of an application
Services
Content Providers
Broadcast receivers
Intents
Android-Manifest
Application Resources

Working with Activities and Intents:(1 hours)

Creating an Activity
• MVC framework
• Creating 'Model' (main source code)
• Making 'View' (Visual Appearance)
• Controlling by 'Controller'
• Final Activity
Activity Stack
Concept of Fragment and Task
Intents Concepts
• Declaring the Intent
• Launching an Activity
• Switching between Activities
• Intent Filters
• Handling Rotation
• Other use of Intents
Handling Activity Lifecycle events

Understanding the Aftermath:(0.5 hours)

Let's test what we have learnt for the day

• What components of an app which can be customized?
• What are the codes which we have to remember in our mind?
• How using IDE is different from the command line development?
• Do I have to learn Java first to start off the Android app development?

Day 2

Session 3 : Fire up the Codes

Making Interactive User Interface(3.0 hours)

Apps are 'built' to cater the needs of the users but they should be 'designed' as well to fulfill the ease to use, simplicity and Beauty

Using Common Components
- Button, Labels, Text Boxes
- Radio button, Radio Group, Checkbox
- Slider, Progress Bar, Rating Bar

Different Types of Layouts
- Linear Layout : Horizontal/ Vertical
- Relative Layout, Table Layout
- Views Scroll

Advanced Components
- Date/ Time Picker, Image, Video
- Menus, Zoom in-out

The Eye Candy
- Toast, Alert Messages
- Notification
- Applying Style & Themes

Application Resources(System Apps)
- Types – like image, color list, Animations
- Providing resources
- Accessing Resources

Employing Phone Features in your Apps (1.0 hours)

Search over Internet & internal device search
Embedding the WebKit Browser
- A browser, Writ Small
- Loading it up
- Navigation
- Setting, Preferences & Options
Using service providers in the apps

Pravega
2018
Indian Institute of Science

Hosted by

IISc
Bangalore

- Making Calls(Audio / Video)
- Answering / Decline calls
- Sending SMS /Reading SMS
- Communicating through e-mail

Session 4 : The Core

Getting into Serious Business (1 hours)

Getting User Location (GPS)
Creating Google Map Applications
- Mapping with MapView and MapActivity

Playing with Multimedia
- Listening Mp3(Audio)
- Opening Video files
- Recording Audio
- Browsing Images(Gallery)
- Capturing with Camera

Data store
- Setting Preferences
- Accessing the Files
- Internal Storage (Phone Memory)
- External (SD Card)

Using Database(1.5 hours)

What is Database
- DBMS
- RDBMS
- Benefits

Introduction SQLite
DDL Statements
Modifications Statements
Query Statements
Using SQLite in Android
Using SQLite in Android

Google Play

Followed by the above sessions, the aspirants will be given information about:
* Signing and Publishing applications to the Google Play
* How to be Google Authorized Android Developer
* On Demand Apps Development

Getting Ideas from Participants (1 hour)

As after doing all these stuff all workshop participants are full of ideas & confidence.
* Processing Ideas
* Finding feasibilities, Benefits, Problems
* Implementing ideas(if possible)
* Giving development help on those ideas

Possibilities on Android (Future & Scope of Android)(0.5hours)

* In future in what area the android will have influence
* How we can use this technologies in those area
* What are the capabilities of Android
* Analyzing the similar technologies by other companies
* Understanding the future world.

Application List :

1. Talking App – Will talk with you like robot
2. Audio Player
3. Video Player
4. Browser
5. GPS
6. SMS + Call App
7. Contact App – Database
8. Tree – component explaining theory app (Image, Radio Buttons, Text Boxes, Notiications etc.)