Ed-Tech
AFRICA

FULL STACK
APP DEVELOPMENT

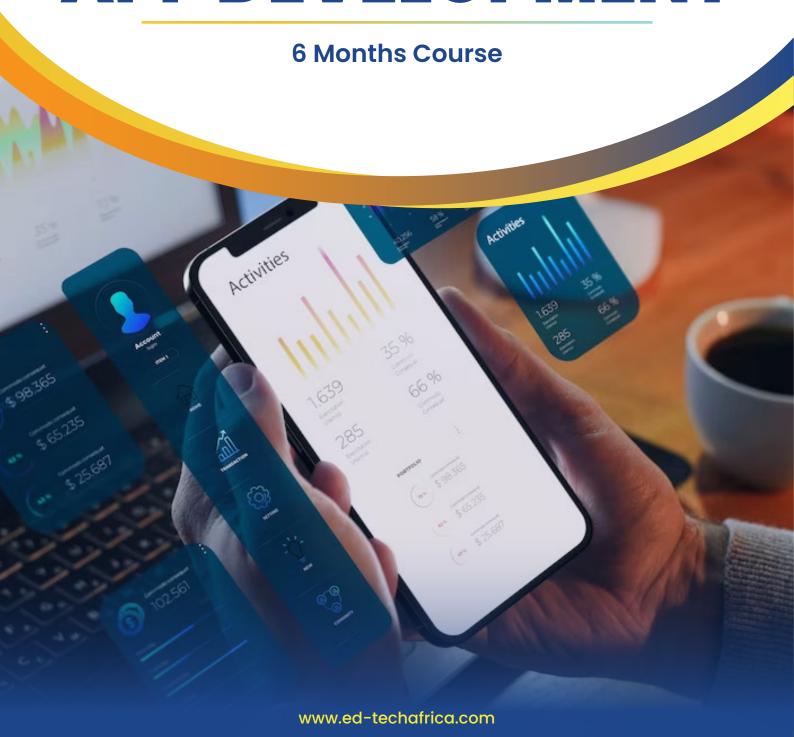## 6 Months Course

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A F R I C A

Transforming education
through technology

FULL-STACK APP DEVELOPMENT

Full-stack app development using Python refers to the development of both the frontend (client-side) and backend (server-side) components of a web application using the Python programming language. A full-stack developer is capable of working on both the user interface (UI) and the server-side logic, allowing them to create a complete and functional web application.

Here's a breakdown of the key components involved in full-stack app development using Python:

Frontend Development
- HTML/CSS/JavaScript
- Frontend Frameworks

Backend Development
- Web Frameworks
- Database Management
- Server-side Logic

Communication between Frontend and Backend
- RESTful APIs

Deployment and Hosting
- Deployment Platforms
- Containerization

Version Control
- Git

A popular combination for full-stack development using Python includes Django on the backend, which provides a comprehensive framework, and a frontend framework like React or Vue.js for building dynamic and interactive user interfaces.

By working on both frontend and backend aspects, full-stack developers have a holistic understanding of the entire web development process, enabling them to create end-to-end solutions.

JOB OPPORTUNITIES

- **Full-Stack Developer**
- **Frontend Developer**
- **Backend Developer**
- **Web Developer**
- **UI/UX Designer**
- **DevOps Engineer**
- **System Architect**
- **Technical Lead**
- **Freelance Full-Stack Developer**

Curriculum Index

Android

Introduction to Android
- Introduction to Android
- Brief history of Android
- What is Android?
- Why is Android important?
- What benefits does Android have?
- What is OHA?
- Why to choose Android?
- Software architecture of Android
- Advantages of Android
- Android features Android market
- Comparing Android with other platform
- Terms and acronyms

Installation and Configuration of Android
- Details about the software requirement
- Download and installation process of Android SDK
- How to select Android version?
- Step to create new project?
- Running your application
- Creation of new AVD
- Android studio

Getting Started
- How to select Android version?
- Step to create new project
- Running Your Application
- Creation of New AVD
- Creating run configuration
- Creating your first Android activity
- List of basic sample programs

Introductions to Application Components Activities
- Services
- Broadcast receivers
- Content providers Intents
- Notifications
- Activating and shutting down components
- Brief idea about manifest file
- Brief idea about activities and Task

Android Component Life Cycle
- Activity Life Cycle with sample program
- Service Life Cycle with sample program

Android Layouts
- What are views, Layouts and there classification?
- How Android Draws views and Layout Classification?
- Table Layout In detail with Example
- Tab Layout In detail with Example
- Frame Layout In detail with Example
- Linear Layout in detail with Example

Android Views
- Grid View In detail With Example
- Map View In detail with Example
- Cont. Sub Topical Views
- Web View In detail with Example
- Spinner In detail with Example
- Gallery In detail with Example
- Google Map View In detail with Example
- Introduction to creating activity user with views
- Different ways of creating views Using xml

Styles and Themes
- Providing resources
- Different resource file location
- Providing alternative resources
- Android finds the best matching resource
- Accessing resources
- Accessing platform resources
- Handling runtime changes
- Introduction to Jquery
- JQuery work in Android

What are Fragments?
- Multipane & Singlepane
- Fragment Life Cycle
- Addition of Fragments
- Fragments Working without U

Introduction to Menus
- How to create menus?
- Types of Android Application Menus
- Option Menu
- Expanded - In detail with Example
- Context Menu In detail with example
- Sub Menu-In detail with example

Introduction to Drawers
- Navigation Drawer
- Simple Side Drawer
- Tab Drawer
- Extra Drawer

Handling User Interaction Events
- Handling user events
- Different types of event listener
- OnClickO
- OnLongClickO
- OnFocusChangeO
- OnKeyO OnTouchO
- OnCreateContextMenuO
- Different types of event handler
- OnKeyDown (int, KeyEvent)
- OnKeyUp (int, KeyEvent)
- OnTrackballEvent (MotionEvent)
- OnTouchEvent (MotionEvent)
- OnFocusChanged (boolean,int,Rect)

Creating Dialogs
- Introduction to dialogs
- Showing and dismissing of dialog boxes
- Alert dialog In detail with example
- Progress dialog In detail with example
- Threading and handler
- Creating running applications-Events
- Creating running applications-Dialogs

Notifications
- Notifying Users
- Status bar Notification
- Toast Notification
- Dialog Notification

Intents, Broadcast Receivers, Adapters and Internet
- Different types of intent?
- Launching sub-activities
- What is intent filter
- Intent objects---In detail with example
- Using intents to take pictures
- Handling sub activity results

Data Storage
- Android techniques for data storage
- Creating and saving shared preferences
- Retrieving shared preferences
- Storing in files
- Loading from files.
- Storing in databases.

Working with SQL Lite
- Introducing SQLite database.
- Working with Android databases.
- Using SQLite OpenHelper.
- Cursors and content values.
- Opening and closing Database

Working in Background
- Introducing services
- Creating and controlling services
- Registering a service in the manifest
- Starting, controlling, and interacting with a service

Using the Camera, Taking Pictures and the Media API
- Controlling the camera and taking pictures
- Playing audio and video
- Introducing the media player
- Preparing audio for playback
- Packaging audio as an application resource
- Initializing audio content for playback
- Preparing for video playback
- Playing video using the video view
- Setting up a surface for video playback
- nitializing video content for playback
- Supported video formats
- Controlling playback
- Managing media playback output

- Multimedia supported audio formats
- Recording audio and video
- Using Intents to Record Video
- Configuring and Controlling Video Recording
- Previewing Video Recording
- Reading and Writing JPEG EXIF Image Details
- Adding new media to media storage Using the Media Scanner
- Inserting Media into the Media Store Raw video manipulation
- Recording Sound with Audio Record
- Playing Sound with Audio Track Speech recognition
- Creating and Running and Testing

Maps, GEO coding and Location Based Services
- Using Location Based Services
- Working with the location manager
- Configuring the Emulator to Test Location Based Services

About ADB (Android Debug Bridge)
- DDMS: Dalvik debug monitor Service
- Trace View

Data Security and Permission
- Security Architecture
- User Ids and File Access
- Using Permissions
- Declaring and Enforcing Permissions

Drawing 2D and 3D Graphics
- Rolling your own Widgets
- Drawables
- Bitmaps
- Paint

Using Bluetooth and Managing and Monitoring Wi-Fi
- Accessing the Local Bluetooth Device Adapter
- Managing Bluetooth Properties and State
- Managing Device Discoverability
- Discovering Remote Devices
- Monitoring Active Connection Details
- Scanning for Hotspots
- Managing Wi-Fi Configurations
- Creating Wi-Fi Network Configurations
- Device Vibration
- Controlling device vibration

Introduction SMS and MMS
- Using SMS and MMS in Your Application
- Sending SMS and MMS from your Application
- Using Intents and the Native Client Sending SMS Messages Manually Tracking and Conforming
- SMS Message Delivery
- Conforming to the Maximum SMS
- Message Size Sending DAT Messages

Content Providers
- What is content provider
- How to access build in Content provider
- Retrieving build - in Content provider data

Android Telephony
- Launching the Dialer to Initiate Phone Calls Replacing the Native Dialer
- Accessing phone and Network Properties & Status
- Reading Phone Device Details
- Reading Data Connection and Transfer State Reading Network Details

Sensor Device
- Using sensors and the sensor manager
- Introducing Sensors
- Supported Android Sensers
- Finding Sensors
- Using Sensors
- Interpreting the sensor values
- Using the compass , accelerometer and orientation sensors
- Introducing Accelerometers Detecting Acceleration Changes Creating a G-Forceometer

Further Advanced Topics
- Binding Activities to services
- Prioritizing Background services
- Binding data with service

Web Services with Architecture
- What are webservices
- Web service Architecture
- Asyn Task
- REST & SOAP
- Parsing Techniques JSON, XML Consuming WebServices CRUD Operations over Server

JSON
- Introduction to JSON
- Advantages of JSON over XML
- Syntax & Structure of JSON
- Why is JSON is preferred for mobile applications Different types JSON Parsers ,simple json ,Jackson , GSON to parse the JSON.

Volley Library
- Introduction Volley Library
- Volley Library Advantages
- Volley Library Components
- How to setup the Environment Creating Volley singleton class Different Types of Requests Adding request headers Handling Volley Cache

FIREBASE
- Realtime Database
- Cloud Storage
- Authentication
- Cloud Messaging
- AdMob
- Crash Reporting

Google Cloud Messaging
- What is GCM ?
- GCM Architecture
- GCM Services

Instant Messaging
- TTL (Time to Live)
- Group Messaging
- Server Communication

Integration
- Facebook Integration
- Twitter Integration
- Google/Gmail Integration
- Payment Gateway Integration

Material Design
- List and Card
- View Shadows/ Custom Shadows
- App Bar /Action Bar
- Matterial Theme
- Adapter view and Recycler View

Animation
- Clockwise
- Zoom
- Fade
- Blink
- Move
- Slide

Debugging and testing Android Apps
- 20g Cat
- Debugger
- Trace View
- Monkey Runner
- UI Automator

Project
- Covering all the concepts

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