

# Mobile App Development

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## Summary

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# Content

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- Application Component
  - ❖ Activity
  - ❖ Service
  - ❖ Broadcast receiver
  - ❖ Content Provider
- Intent
- Notification
- Data and File Storage
- Network Connectivity
- Location and Map
- Graphics and Multimedia
- Web service

# Application Component

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- Activity
  - ❖ Combination of a view and business logic
  - ❖ Multiple activities can come together to create application
- Activity Lifecycle
  - ❖ onCreate(), onStart(), onResume(), onPause(), onStop(), onDestroy(), onRestart()
- Fragment
  - ❖ Behavior of a portion of a user interface with own lifecycle and input events
  - ❖ Must always be embedded in activity
- Tasks & Back Stack
  - ❖ Task – Collection of activities created during operation
  - ❖ Back stack – Tasks organized into a stack
  - ❖ Started activities are added to back stack

# Application Component

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## ➤ Services

- ❖ Component to perform long-running operations, often in background
- ❖ No user interface
  - ✓ Foreground Services
  - ✓ Background Services
  - ✓ Bound Services
- ❖ Service lifecycle

# Application Component

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## ➤ Broadcast & Broadcast Receiver

- ❖ Broadcast – Event message to convey information to receiving objects

## ➤ Content Provider

- ❖ Consistent access to a central repository of data

# Intent

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- Intent
  - ❖ Messaging object and wiring components
- Types of intent
- Intent filter

# Notification

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- What is notification
- Creating notification
- Notification UI
  - ❖ Status bar
  - ❖ Toast
  - ❖ Snackbar
- Alarms

# Data and file storage

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- Shared preference
- File storage
- Database
  - ❖ Room
  - ❖ SQLite

# Network Access

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- Android check connectivity
- Connection information
- Internet access
- Network access efficiency

# Location service and map

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## ➤ Location Service

- ❖ Location important because user is mobile
- ❖ Location API and Google Play Services location
- ❖ Location object has Longitude/Latitude
- ❖ Converting from address to long/lat = Geocoding
- ❖ Converting from long/lat to address = Reverse Geocoding
- ❖ Geofencing – Combine user's location with area of interest
- ❖ Composed of a longitude/latitude/and radius

## ➤ Maps

- ❖ Pictorial method for displaying location information
- ❖ GoogleMaps API is most common interface for Maps in Android

# Multimedia and animation

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- Graphics and Multimedia
- Performance and Multi-threading
- Graphics and UI Performance
- Android Graphics
- Android Multimedia

# Web service

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- RESTful web service
- HTTP/s protocol
- Methods/verbs
- Consume rest API
- Using http client library

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