

BAIT2073 Mobile Application Development

Week	Lecture	Practical
1	Chapter 1: Introduction to Mobile Application Development	<p>Welcome to the course An introduction to Android Kotlin fundamentals.</p> <p>1.0 Install Android Studio Learn how to install Android Studio. (Optional)</p> <p>Demo 1.1 Get started Create your first mobile app - HelloWorld</p> <p>Practical 1.2 Basic app anatomy Create your first mobile app using Android Studio.</p> <p>1.3 Image resources Learn to use image resources in an app.</p>
2	Chapter 2.1: User Interfaces <ul style="list-style-type: none"> • UI layouts • UI components • Input events 	<p>Demo 2.1: Linear layout using the Layout Editor Learn the basic UI layout and components.</p> <p>Practical 2.2 Add user interactivity Learn to get input from users and display output.</p> <p>10.1: Styles and themes Learn to use attributes, styles, and themes to customize your app</p>
3	Chapter 2.2: User Interfaces <ul style="list-style-type: none"> • Menus • Dialogues and notifications 	<p>Demo 2.3: Constraint layout using the Layout Editor Learn to use the Constraint layout.</p> <p>Practical 2.4 Data-binding basics Learn to set data in UI components.</p> <p>10.2 Material Design, dimensions, and colours Learn to improve the UI of an app using Material components, dimensions, and colour.</p>
4	Chapter 2.3: User Interfaces <ul style="list-style-type: none"> • Fragment • Navigation • Design for everyone 	<p>Demo 3.1 Create a fragment Learn to create a Fragment inside an Activity</p> <p>Practical 3.2 Define navigation paths Learn to create a navigation graph for your fragments using the Navigation library and the Navigation Editor.</p> <p>10.3 Design for everyone</p>

		Learn to make an app work for right-to-left languages and dark mode, and evaluate an app's accessibility.
5	Chapter 3: Mobile Applications Models	<p>Prototype Presentation</p> <p>(Students shall do the following practical exercises at home)</p> <p>3.3 Start an external activity Learn to pass data between fragments and to create implicit intent to start an Activity.</p> <p>4.1 Lifecycles and logging Learn to trace an app execution life cycles using the log tag that is displayed in the Logcat.</p> <p>4.2 Complex lifecycle situations Learn to set up various lifecycle callback methods. Learn to save and restore data automatically when an app is closed by the user.</p>
6	Chapter 4.1: Resources and Data Storage <ul style="list-style-type: none"> • Providing and accessing resources • Shared preferences • Internal storage • External storage 	<p>Demo 5.1 ViewModel and ViewModelProvider Learn to retain UI data through device-configuration changes.</p> <p>Practical 5.2: LiveData and LiveData observers Learn to communicate between UI and data.</p>
7	Chapter 4.2: Resources and Data Storage <ul style="list-style-type: none"> • Database • ViewModel and LiveData • Coroutines 	<p>Demo 5.3: DataBinding with ViewModel and LiveData Learn to integrate ViewModel and LiveData using DataBinding.</p> <p>Practical 5.4: LiveData transformations Learn to use TransFormations with LiveData.</p> <p>6.1 Create a Room database Learn to create an app that store data into a database.</p>
8	Mid Term Test (Chapter 1 - 3)	<p>Practical 6.2 Coroutines and Room Learn to use coroutines to move away database operations away from the main thread.</p> <p>6.3 Record quality and button states Learn to update records of a database.</p> <p>7.1 RecyclerView fundamentals Use a RecyclerView to display a long list of data.</p>

9	Chapter 4.3: Resources and Data Storage <ul style="list-style-type: none"> • Network Connection 	Demo 8.1 Getting data from the internet Learn to connect to a REST web service on the internet using the Retrofit library and get a response in JSON format. Practical 8.2 Loading and displaying images from the internet Learn to use the Glide library to load and display an image format web URL. 8.3 Filtering and detail views with internet data Learn to use complex binding expression in an app layout file and use the Retrofit requests to a web server with query options. 9.1 Repository Instead of fetching data from a server on every launch, learn to improve the user experience for an app by using offline caching.
10	Chapter 5: Location-based Services <ul style="list-style-type: none"> • Maps • Getting location data 	Lab Test (Chapter 1 - 3) 11.1 Map with a Marker (Java) 11.2 Getting location data (Java) 11.3 Using Google Map in your app (Java)
11	Chapter 6.1: Specialised Instruments and Devices <ul style="list-style-type: none"> • Camera 	12.1 Using the Camera
12	Chapter 6.2: Specialised Instruments and Devices <ul style="list-style-type: none"> • Audio capture • Media playback 	13.1 Playing video in a VideoView (Java)
13	Chapter 7: Mobile Application Packaging and Publication <ul style="list-style-type: none"> • Preparing for publishing • Publishing on the market • Updating application 	Assignment Presentation
14	Revision	Assignment Presentation