

## **Final Topics:**

All topics we have covered in this course might appear on the exam. Below you will find all the key points summarized.

### Lecture 1:

- What is Kotlin?
- Advantages of Kotlin over Java
- Basic syntax: variables, data types, functions
- Primitive data types
- Any
- Type Inference
- val, var, const
- Null safety
- Strings
- Multiline and string templates
- String comparison and referential equality
- String pool memory
- Control flow: if/when statements and expressions

### Lecture 2:

- Converting data types
- Arrays
- Lists
- for
  - step
  - downTo
- while
- foreach
- break, continue
- Ranges
- ++/--
- Input
- Elvis operator

## Lecture 3:

- Unit
- Function scope
- Named and default arguments
- Return
- Single expressions
- Pairs and Triples
- Deconstructing multiple data types
- Maps and Sets
- First class functions
  - Assigning to variables
    - Anonymous and lambda functions
  - Higher order
    - Functions as parameters
      - Trailing lambda syntax
    - Functions as return types
- Function references
  - Double colon operator

## Lecture 4:

- Classes and objects basics
- Properties and Methods
- Constructors
  - init
  - Parameters
- Encapsulation
  - getters, setters
- Visibility modifiers
  - private
  - public
  - protected
- Inheritance
- Abstraction
  - Interfaces
  - Abstract classes
- Anonymous classes

## Lecture 5

- Interface delegation
  - Delegation vs Inheritance
- Standard delegates
  - Lazy, Observable, Vetoable
- Generics basics
- Extension Functions
- Extension Properties
- Lambda with Receiver
- References vs values
- Pass by value
- Data class
- Scope functions
  - let, run, with, apply, also

## Lecture 6

- Activities
- Activity Lifecycle
- onSaveInstanceState
- Logging tags and priority levels
- Bundles vs Maps
- What is Jetpack Compose?
- Composable functions
  - Parameters, modifiers
- Box, Row, Column
  - BoxScope, RowScope, ColumnScope
- Alignment vs Arrangement
- fillMaxSize, fillMaxWidth, fillMaxHeight

## Lecture 7

- R class
- String resources
- Composables
  - Image, Card, Button
  - Remember
- Lazy Column & Lazy Row
- Composable Lifecycle
  - Composition, recomposition
  - Recomposition Scope
- State
  - MutableState, SnapshotStateList, delegated properties

## Lecture 8

- Navigation
  - Navigation Controller
    - Navigate, popBackStack
  - Navigation Host
  - Navigation Graph
- Routes & Destinations
  - Passing arguments
- Composables
  - IconButton, Icon
  - NavigationBar, NavigationBarItem
  - Scaffold
  - TopAppBar
    - NavigationIcon, actions
- Callback

## Lecture 9

- State hoisting
  - Single source of truth, stateless vs stateful
- State holder
  - UI and business logic state holders
- UI logic vs business logic
- Application data
- UI layer
- Data layer
  - Repository, data sources, data models
- SQLite DB (Room)
  - Data entities, DAO, database
- Application context
- Singleton
- Separation of concerns

## Lecture 10

- Asynchronous programming
- Coroutines
  - runBlocking
  - launch, async & await
    - join, cancel
- Suspend functions
  - delay
- HTTP requests
- Ktor
- Serialization & Deserialization
  - JSON keys and values
  - GSON
- Consuming an API
  - Modeling a JSON, endpoints
- LaunchedEffect
- Coil

## Lecture 11

- rememberCoroutineScope
- ViewModel
  - ViewModelStoreOwner
  - viewModelScope
- Flows
  - Cold Flow
  - Hot Flow
    - StateFlow