

KOTLIN COURSE CONTENTS

By Dr. Vishwanath Rao

Day 1

- A basic demonstration of Kotlin
 - The main traits of the Kotlin language
 - Possibilities for Android and server-side development
 - What distinguishes Kotlin from other languages
 - Writing and running code in Kotlin
-
- Declaring functions, variables, classes, enums, and properties
 - Control structures in Kotlin
 - Smart casts
 - Throwing and handling exceptions
-
- Functions for working with collections, strings, and regular expressions
 - Using named arguments, default parameter values, and the infix call syntax
 - Adapting Java libraries to Kotlin through extension functions and properties
 - Structuring code with top-level and local functions and properties
-
- Classes and interfaces
 - Nontrivial properties and constructors
 - Data classes
 - Class delegation
 - Using the object keyword

Day 2

- Lambda expressions and member references
- Working with collections in a functional style
- Sequences: performing collection operations lazily
- Using Java functional interfaces in Kotlin
- Using lambdas with receivers

The Kotlin type system

- Nullable types and syntax for dealing with nulls
- Primitive types and their correspondence to the Java types
- Kotlin collections and their relationship to Java

Operator overloading and other conventions

- Operator overloading
- Conventions: special-named functions supporting various operations
- Delegated properties

Higher-order functions: lambdas as parameters and return values

- Function types
- Higher-order functions and their use for structuring code
- Inline functions
- Non-local returns and labels
- Anonymous functions

Day 3

Generics

- Declaring generic functions and classes
- Type erasure and reified type parameters
- Declaration-site and use-site variance

Annotations and reflection

- Applying and defining annotations
- Using reflection to introspect classes at runtime
- A real example of a Kotlin project

DSL construction

- Building domain-specific languages
- Using lambdas with receivers
- Applying the invoke convention
- Examples of existing Kotlin DSLs

Day 4

Dependency Injection

JSON Serialization
HTTP Clients
Web Application Introduction
Utilities
Data Structures
Desktop Programming
Testing