Kotlin & Spring with Kotlin
Introduction

- Created by JetBrains
- First appeared in 2011
- First stable version in 2016
- Cross platform
- Supported by Google for Android development
- Support by most frameworks (Spring, Micronaut, etc) for backend development
Why was it created?

- Kotlin was invented to solve developer challenges of JetBrains
- There was need for simpler tool than Java
- Needed to work everywhere where Java works
Syntax introduction
class DemoClass {
    fun sayHello() {
        println("Hello")
    }
    fun add(num1: Int, num2: Int) = num1 + num2
    fun demo() {
        val a = 5;
        var b: Int = 5;
        for (i in 1..10) {
            println(i)
        }
    }
}

fun main(args : Array<String>) {
    val demoClass = DemoClass()
    demoClass.sayHello()
    val result = demoClass.add(1,2)
    println(result)
    demoClass.demo()
}
Interchangeability with Java

- Kotlin and Java are 100% interoperable
- Call Kotlin code from Java
- Call Java code from Kotlin
- Kotlin and Java classes in same project side
- by side
New things

- Data classes
- Top level functions
- Extension functions
- Smart cast
- Null safety
- Coroutines
public class PersonJava {
    private int id;
    private String name;

    public PersonJava(int id, String name) {
        this.id = id;
        this.name = name;
    }

    public int getId() {
        return id;
    }

    public void setId(int id) {
        this.id = id;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    @Override
    public boolean equals(Object o) {
        if (this == o) return true;
        if (o == null || getClass() != o.getClass()) return false;
        PersonJava that = (PersonJava) o;
        return id == that.id &&
                Objects.equals(name, that.name);
    }

    @Override
    public int hashCode() {
        return Objects.hash(id, name);
    }

    @Override
    public String toString() {
        return "PersonJava{"
                + "id=", id
                + ", name='", name"'
                + "}";
    }
}

data class Person(var id: Int, var name: String)
fun addNumbers(num1: Int, num2: Int) = num1 + num2

fun sumNumbers(n: Int) : Int {
    var s = 0
    for (i in 1..n) {
        s += i
    }
    return s
}
fun Int.percentOf(num: Int) = (num * this) / 100

fun main(args: Array<String>) {
    println(7.percentOf(200))
}
Object obj = "This is some String";
if (obj instanceof String) {
    String str = (String) obj;
    System.out.println("Length is " + str.length());
}

val obj: Any = "This is some String"
if (obj is String) {
    println("Length is ${obj.length}")
}
data class User(var id: Int, var name: String?)

fun test() {
    val user = User(1, null)
    val user1 = User(null, "User") // Compile error
    println(user.name.length) // Compile error
    println(user.name!!.length) // Throws exception
    println(user.name?.length) // Returns null
}
DEMO 1
Kotlin & Spring
Popular misconception

- Kotlin is only for Android

NO!!!!
Kotlin for backend

- Companies started using Kotlin for Backend before Google supported it for Android (Pinterest for example)
- Many backend frameworks support Kotlin
  - Micronaut
  - Spring
  - Vertx
  - Spark
  - .....
Spring and Kotlin

- Spring supports Kotlin from the beginning
- Dedicated support since Spring 5
Kotlin extensions in Spring

- Spring created extensions for many of its classes
- RestTemplate, Model....

```kotlin
model.addAttribute("title", "Blog");
model.addAttribute("posts", postRepository.findAll());

model["title"] = "Blog"
model["posts"] = repository.findAll()
```
DEMO 2
Some statistics
Stackoverflow 2019 survey

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<tr>
<th>Loved</th>
<th>Dreaded</th>
<th>Wanted</th>
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