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# Atelierul Digital pentru Programatori

## Java Curriculum (30 h)

- **Intro**
  - Why Java?
  - History
  - Tools chain
  - Git and IDEs
- **OOP concepts**
  - Data abstraction & communication through messages
  - Encapsulation
  - Inheritance & Polymorphism
  - OOP advantages
  - UML basics
- **Java concepts**
  - Variables
  - Loops
  - Conditionals
  - Arrays
  - Classes
  - Inheritance and Polymorphism
  - Interfaces and Abstract Classes
  - Collections
  - Generics
  - Exceptions
  - IO
  - Concurrency
  - Unit Testing

## Android Fundamentals Curriculum (30 h)

- **Build Your First App**
  - Why Android?
  - How to start? (process)
  - Android Studio & Git
  - Android Platform Architecture & Project Structure
  - Deploying the app to an emulator and a device
- **Building a layout with UI elements - Views**
  - Size, margin, padding, units, gravity
  - TextView
  - ImageView
  - EditText
  - Button
  - View
  - CheckBox
  - RadioButton
  - RatingBar
  - Switch
  - SeekBar
  - ProgressBar
- **ViewGroups**
  - LinearLayout
  - FrameLayout
  - RelativeLayout
  - ScrollView
  - Spinner
- **Complex Views**
  - RecyclerView
  - ConstraintLayout
- **Activities and Intents**
  - Activity
  - Activity lifecycle
    - startActivityForResult()
    - onSaveInstanceState()
  - Intent
    - Implicit intents
    - Explicit intents

- Bundle
- Activities stack
- Debugging
- **Navigation and user interaction**
  - Fragments
    - Methods
    - Fragment lifecycle
  - Navigation drawer
- **Styles and more**
  - Themes, styles and material design
  - Support libraries
  - Permissions
- **Networking**
  - Http requests (Retrofit)
  - Firebase
- **Store data in Android**
  - SharedPreferences
  - File manager
  - SQLite (Room)
  - Publish the app on the market
- **Demo day and Recap :)**

## Android Advanced Curriculum (30 h)

Knowledge areas:

- **Polished UI**
  - Transitions
  - Animations
  - Data Binding
  - Infinite scroll
  - Complex Screens (ConstraintLayout)
  - Custom Views
- **Mobile Products Design & Implementation**
  - Onboarding flow
  - Navigation Patterns
  - Notifications
- **Data sources**
  - Web Services (Retrofit)
  - Local databases (Room)
  - Remote databases (Firebase)
- **Release & Maintenance**
  - Google Play channels
  - Crashlytics
  - Analytics
  - Performance monitoring (mem, cpu, battery)
- **Various topics**
  - Android testing
  - Dependency Injection
  - Android Jetpack
  - Schedulers and Foreground Services
  - Android APIs (BLE, Camera)
  - Handling Video
  - ARCore
- **Demo day and Recap**

# Python Curriculum

## 1. Introduction

- o Tools
- o Guidelines on how to write good code
- o Modules and packages
- o Database (MySQL)

## 2. Built-in Data Types

- o Mutable or immutable
- o Numbers
- o Immutable sequences
- o Mutable sequence
- o Set types
- o Dictionaries

## 3. Conditional programming & looping

- o If
- o The ternary operator
- o The for loop
- o Iterators and iterables
- o The while loop
- o The break and continue statement

## 4. Functions

- o Why use functions?
- o Scopes and name resolution
- o Input parameters
- o Return values
- o Tips & Tricks
- o Recursive functions
- o Anonymous functions
- o Built-in functions

## 5. Memory saver

- o Map
- o Zip
- o Filter
- o Comprehensions
- o Generators

## 6. OOP

- o Decorators
- o Class and object namespaces
- o Self variable
- o Initializing an instance
- o Inheritance and composition

- o Multiple inheritance
- o Static and class methods
- o Private methods and name mangling
- o Property decorator
- o Polymorphism

## **7. Web development with Django**

- o Django design Framework
- o Django URL dispatcher
- o Setting up Django
- o Customizing the admin panel
- o Creating the form
- o Writing the views

## **Demo day and Recap**

# Flutter Development Curriculum

## Introduction to Flutter development

- What is Flutter?
- The anatomy of a Flutter app
- Text formatting, Buttons and Images in Flutter coding
- Learn about Flutter Widgets coding Falling in love with logs coding
- Version Control refresher
- intro Currency Converter App project

## Section 2: Deep dive into Dart

- Why Dart?
- Data types and control flow in Dart
- Guess my number App
- OOP in Dart coding
- Number shape App

## Section 3: Layouts and media

- Building medium complexity layouts
- Simple animations
- X/O App
- Introduction to pub.dev
- Play Audio in Flutter
- Play Video in Flutter
- Phrases App project

## Section 4: Internet content, sky's the limit

- Timers and async code
- Fast quiz App
- Download Web content (REST refresher) and string manipulation
- Guess the Flag App project
- JSON parsing
- Latest Movies App project