

## Программа обучения JAVA-программированию

### Учебный план программы «JAVA-программирование»

#### INTRODUCTION

- how computer works
- JVM – computer, modeled on computer
- JDK installing
- experimenting
- first program

#### IDE

- installing
- small “how to”
- under the hood

#### A WORD ABOUT LEARNING

- sources of knowledge
- experimenting
- writing something from scratch

#### GIT

#### PROGRAMS, SIMPLE IO, DEBUG

- tools for experiments
- algorithms

#### DATA REPRESENTATION, TYPES, OPERATIONS

- what’s going on in computers memory
- types in Java

## **FLOW CONTROL**

- conditions
- loops
- making programs smarter

## **METHODS**

- static methods
- calculation rules
- type restrictions

## **TESTING**

- unit testing
- tdd

## **ARRAYS**

- and loops application

## **OBJECTS AS DATA STRUCTURES**

### **OBJECTS ADVANCED**

- classes
- non-static methods

## **OOP**

- inheritance
- polymorphism
- incapsulation
- abstract classes
- interfaces
- solid
- nested classes
- enums

## **A WORD ABOUT LIBRARIES, STANDARDS**

- and documentation

## **EXCEPTIONS**

- kinds of exceptions
- catching exceptions
- throwing exceptions
- custom exceptions
- best practices

## **GENERIC**

- what for
- how generics work in Java

## **COLLECTIONS**

- creating collections from scratch
- Java collections
- more about algorithms and data structures

## **FILE IO and ENCODINGS**

## **THREADING**

- primitives
- pitfalls
- good practices

## **JAVA 8**

- differences

## **A WORD ABOUT FUNCTIONAL PROGRAMMING**

## **NETWORKING**

- wireshark demonstration
- sockets
- simple server
- servlets
- spring framework

## DATABASES

- sql, no sql
- java libraries

## JAVA IN ANDROID

- how Java works on android
- IDE setup
- application components
- activities
- layouts
- intents
- storing data in SQL
- content providers
- broadcasts
- services