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CURRICULUM OF Complete JAVA 6 Months

INTRODUCTION TO JAVA
Features of Java
Java Virtual Machine
C , C++ & Java : A comparison
Platforms of Java & Versions
First Java Program

DATA TYPES & IDENTIFIERS
8 Data types in java, complete overview.
Types of variables Operators & statements
Reading input from java.util.Scanner class
Displaying output with System.out.printf()
Displaying formatted output with String format()

CLASSES & OBJECTS
Oops concepts
Creating an object
Initializing an instance variable
Access modified
Constructors & its types

METHODS IN JAVA
Method prototype, static keyword
Static methods
Mutators & Accessors
Passing parameters in methods (primitives & Objects)

RELATIONSHIP B/W OBJECTS
Relating objects using references
Inner classes

ENCAPSULATION, INHERITANCE & POLYMORPHISM
Concept of inheritance
The keyword'super and final

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ABSTRACTION
Abstract Classes & Interfaces
Abstract Method & Classes
Interface
Multiple Inheritance using Interfaces
Abstract Classes vs. Interfaces

ARRAYS
Why java arrays are different from the array of C and C++
How array can be created in java
How is array iterated in java
The zigzag array
How array can be used in software development.

STRINGS
Creating Strings
String class methods
String comparison
Immutability of strings
Spring 3 Architecture
Introduction to Inversion Of Control

STRING BUFFER & STRING BUILDER
Creating string buffer object
String buffer class methods
String builder class

PACKAGES
Concept of Packages
Need to packages
How to creat packages using copiler
How to use packeges
Concept of JAR file
How to creat the JAR file

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EXCEPTION HANDLING
Errors in java program
Concepts of exceptions
Keywords: throw,throws,
Multiple exceptions

WRAPPER CLASSES
Number Class
Character Class
Byte, Short, Integer, Long, Float, Double, Boolean Classes
Math Classes

MULTI THREADING
What is a Java thread
Need of thread in Java
The constructor and methods of Thread class
Life cycle of Java thread
Writing Thread using Thread Class and Runnable Interface
Daemon and Non-Daemon threads
Synchronization in java
Thread collaboration
Writing a real life application using multi-threads

STREMS & FILES
Creating a File
Reading & Writting data from a File
Zipping & Unzipping File
Serialization/de-serialization of Objects

COLLECTION FRAMEWORK
Introduction of Collection Framework
Need of Collection
Collection API (the classes and interfaces)
The methods of Collection interface

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List Interface (the Array List, Vector, Linked List, and Stack classes)
The Iterator, ListIterator, and Enumeration interfaces
Set Interface (the HashSet, LinkedHashSet classes)
Map Interface (the Hashtable, HashMap, LinkedHashMap, classes)
The Comparable and Comparator interfaces
The TreeMap and TreeSet classes
How Collection Framework is used in industry (the real Project Development)
Writing an application using Collection API and JDBC

DATABASE CONNECTIVITY (THE JDBC)

Concepts of JDBC
Need Of JDBC
Types Of JDBC Drivers
Type1: Jdbc-Odbc bridge Driver
Type1: Jdbc-Odbc bridge Driver
Type2: Native API Driver
Type3: Middleware layer Driver
Type4: Pure Java Driver
Difference between the JDBC drivers
Connecting with Databases (MS Access, My Sql, and Oracle)
Executing query in database
Other miscellaneous topics in JDBC

SWING

Introduction to AWT
Introduction to Swing Components
Look And Feel of Swing Components
MVC Architecture of Swing Components
Working with Image
Advance Swing Components
JOptionPane,JTree,JTable,JTabbedPane
JfileChooser,JcolorChooser
Menu Components
JMenu

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JMenuItem
JMenubar

REFLECTION

Understanding the Need Of Reflection
Getting information about class's modifiers, fields, methods, constructors and super classes
Finding out constant and method declaration belong to an interface
Creating an instance of the class whose name is not known until runtime
Getting and setting values of an object's field if field name is unknown until runtime
Invoking a method on an object if the method is unknown until runtime
Invoking Private Methods

EXTENDED & UTILITY CONCEPTS

Generics
Lambda Expression
Annotations
Object Cloning
Vargs
Static-import
Enum
Static, Default and Private Methods of Interface
Var Type
Java Modules

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BRUSH UP OF COLLECTIONS FRAMEWORK
BRUSH UP OF JDBC

JAVA EE (JAVA PLATFORM ENTERPRISE EDITION)

Understanding the Concept of Java EE : JEE Specification
Java EE Architecture
Single Tier
Two Tier
Three Tier
N-Tier
Java EE Components
Web Components
Distributed (Business) Components
Java EE Containers& Servers
Web Container& Web Server (Apache Tomcat)
EJB Container& Application Server (Weblogic,Glassfish,Websphere)
Java EE Services
JNDI Service
Java Transaction Service
JMS

JAVA SERVLET

Introduction to web programming
Role of Servlet in web programming
Servlet Lifecycle
Servlet with Annotations
@WebServlet
@WebInitParam
@WebListener
@WebFilter
@MultipartConfig
Request Dispatching
Parameters & Attributes and their differences
ServletConfig and ServletContext

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File Uploading and Downloading
Session Tracking&State Management
Cookie
Url Rewriting
Hidden Form Field
Session Object
Events & Listeners
Dependency Injection
Refreshing Servlet
Filters

JAVA SERVER PAGES (JSP) & JSTL

JSP Architecture
JSP Elements
JSP Objects
Understanding JavaBeans
Custom Tags
Using tags of JSTL
Expression Language

PROJECT CLASSES

Front End Coding
FORM DESIGNING
HTML
CSS
JAVA SCRIPT
BOOTSTRAP
Back End Coding
DATABASE DESIGNING
Connecting forms to database
Writing Business Logic
Project Hosting

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DESIGN PATTERN
Why Design Patterns…?
Front Controller
Composite View
Factory Pattern
Singleton Pattern
DAO Pattern

BUILDING RESTFUL API
Web Services
SOAP Web Services
RESTFul Web Servcies
JAX-RS
Jersy Framework
HTTP Request Components
HTTP Response Coponents
Resource
HTTP Web Verbs
HTTP Endpoints
HATEOAS

JPA(JAVA PERSISTENCE API)
JPA overview
ORM
JPA Entity
JPA Association Mapping
JPA Inheritance Mapping
JPA JPQL
JPA Criteria API

OVERVIEW OF HIBERNATE FRAMEWORK SPRING
Hibernate overview
Hibernate architecture
Hibernate configuration and mapping file

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Hibernate generator classes
Hibernate association mapping
Hibernate inheritance mapping
HQL
HCQL
Hibernate caching
First level cache and Second level cache

BASIC BEAN WIRING

Containing your Bean
Creating bean
Injecting into bean properties
Auto wiring
Controlling bean creation

ADVANCED BEAN WIRING

Declaring parent and Child Bean
Applying method injection
Injecting Non-spring Beans
Registering Custom property editors

HITTING THE DATABASE

Learning spring's data Access Philosphy
Configuring a data source
Using JDBC with Spring
Working with JDBC Templates
Using Spring's DAO Support Classes for JDBC
Integrating Hibernate with Spring
Caching

INTRODUCTION TO MVC

Define MVC
Hibernate Injection
Spring Annotation

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Spring Controller

MAVEN DEPLOYMENT

Maven Configuration
Converting Maven to Eclipse
Various Maven Command

SPRING

Spring Overview
Spring Module
IOC Container
Dependency Injection
Spring Beans
Bean Scops
Bean Configurartion
Setter Injection
Constructor Injection
Spring Autowiring

SPRING MVC

Spring MVC Overview
MVC(Model-View-Controller)
DispatcherServlet
Configuration Files
DispatcherServlet Architecture
Creating Controllers
Creating Models
Creating Views
Using Thymeleaf Template

SPRING BOOT

Spring BOOT Overview
Spring BOOT Initilizer
Spring BOOT CLI

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Spring BOOT Starter
Spring BOOT Autoconfiguration
Spring BOOT Application Properties
Spring BOOT RESTFul API
Spring BOOT MVC
Spring Security
Spring Data JPA

DEPLOYMENT OF PROJECT

Front End Coding
Form Designing
Back End Coding
Database Designing
Connecting forms to database
Writing Business Logic

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