Advanced Java content

Days	Module	Topics	Objectives
1	Java	Intro, Platform, Syntax, Variables	• Explain how Java is platform independent
			• Write a valid java program with correct file name, compilation error free, comments, spacing and indentation
			• Demonstrate usage of variable with assignment of value
			• Explain the importance of keywords
		Keywords, Operators	• Use the arithmetic operators in an expression
			• Demonstrate getting user input from keyboard
			•Using Operators
2	Java	Conditional Statements	•if and switch statements
			•if-else Branching
			•switch statements
3		,Conditional Statements Contd..	• Loops and Iterators, Using while loops
			• Using for Loops, Using do Loops
			•Using break and continue
4	Java	Arrays, Loops	• Demonstrate creation and manipulation of Arrays
			• Use loops to execute block of statements
			• Write reusable / modular methods
5		Methods, Class, Object, static	• Describe Class & Objects
			• Explain the benefit of wrapper classes
			• Define and use static variables (class variables)
6	Java	OOPS - Encapsulation, Inheritance	• Demonstrate Encapsulation
			• Demonstrate Inheritance
7		OOPS - Polymorphism, Abstraction	• Demonstrate Polymorphism
			• Demonstrate inheritance using Abstract class
8	Java	Interface, Object methods	• Demonstrate Inheritence using Interface
			• Demonstrate usage of Object class
9		Package, Modifier	• Explain usage of Access Modifiers
			• Demonstrate usage of packages
10	Java	Exceptions	•Handling Exceptions
			•Catching an Exception Using try and catch

			•Using finally
11		Exception Contd..	•Propagating Uncaught Exceptions
			•Defining Exceptions,Exception Hierarchy
			•Creating Customised Exceptions
12	Java	Collections - Introduction, List	• Explain Collections Framework
			• Demonstrate usage of List
13		Collections - Map, Set	• Demonstrate usage of Map
			• Demonstrate usage of Set
			• String ,StringBuilder,and StringBuffer
14	Java	Strings	•The String Class
			•Important Facts About Stirngs and Memory
			•The StringBuffer and StringBuilder Classes
15	java	I/O	•Important Methods in StringBuffer and SringBuilder
			•File Navagation and I/O
			•Types of Streams
			•The Byte –stream I/O hirearchy
16	Java	Lambda Expressions	•Character Stream Hirearchy
			•Serialization
			•Inroduction
			•Writing LambdaExpressions
17	Java	Functional Interfaces	•Functional Interfaces
			•Types of Functional Interfaces
			•Method Reference
18	Java	Core Java Case Study	• Banking Application Designing
19	java		• Banking Application Contd...
20	Database & JDBC	Introduction	• Describe DBMS and its types
			• Define SQL and its purpose • Describe 3 datatypes stored in database
			•The RDBMS
21,22	Database & JDBC	CREATE, INSERT, UPDATE, DELETE Statements	• Write valid INSERT statement to add data into atable • Write valid UPDATE statement to change data by a specific criteria
			• Write valid DELETE statement to remove data from a table by a specific criteria
			• Explain ALTER and DROP statements in SQL
23,24	Database & JDBC	Arithmetic, Logical Operators and Functions	• Use arithmetic operators to compute values from multiple columns
			• Use logical operators to filter data based on single and multiple criteria
			• Define SQL Built-in functions
		JOINS	• Write valid SELECT statement with INNER JOIN
			• Write valid SELECT statement with OUTER JOIN

25,26	Database &JDBC	Joins Contd.. JDBC	• Write valid SELECT statement with CROSS JOIN
			• Write valid SELECT statement with SELF JOIN
			•Intro to JDBC
			•Connection to Database using JDBC
			•Executing Static SQL Statements
27,28	JPA	Intro	•Introduction to ORM and its need
			•The Persistence Life Cycle
			•java persistence API
29,30	Spring REST	Spring CORE- Intro, Spring Boot, XML Config, Logging	• Explain the need and benefits of Spring Core
			• Demonstrate dependency injection based on spring configuration file
			• Demonstrate dependency injection based on annotations and autowiring
31,32	Spring REST	Spring BOOT	• Demonstrate creation of Spring Boot Application
			• Explain the need and benefits of Spring Boot
			• Demonstrate inclusion of logging in Spring Boot Application
33,34	Spring REST	Spring REST	• Explain in detail about HTTP Request and Response
			• Explain the need and benefits of RESTful Web Services
			• Demonstrate implementation of RESTful Web Service using GET method
			• Demonstrate implementation of RESTful Web Service using POST/PUT/DELETE method with input validation
35	Spring REST	WebServices	• Webservices need
			• Types of webservices
			• SOAP Vs REST
36,37	Spring REST	REST webservices	• REST based webservices
38,39	Spring REST	SOAP webservices	• SOAP based webservices
			• Case study:-Application Designing using Spring Boot REST