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JAVA
JAVA with ANDROID
JAVA on CLOUD

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CURRICULUM

INTRODUCTION TO JAVA

- Understanding Requirement: Why Java
- Why Java is important to the Internet
- **JAVA on LINUX Platform**

INTRODUCTION TO JAVA VIRTUAL MACHINE

- Java Virtual Machine Architecture
- Class loading process by Classloaders
- Role of Just in Time Compiler (JIT)
- Execution Engine

AN OVERVIEW OF JAVA AND BUZZWORDS

- Data Types, Variables ad Arrays
- Operators
- Control statements
- Object oriented Paradigms
- Abstraction
- The Three OOP Principles (Encapsulation, Inheritance and Polymorphism)

JAVA CLASSES AND OOP IMPLEMENTATION

- Class Fundamentals
- Command Line Arguments
- Learning static initializer
- Declaration of Objects
- Instance Variable Hiding
- Overloading and Overriding of Methods
- Understanding of Access Controls:
  - Private, Public and Protected
- Learning Nested and Inner Classes
- Dynamic method Dispatching
- Using Abstract Classes
- Using final to prevent Overriding & Inheritance
- Garbage Collection

PACKAGES AND INTERFACES

- Defining a Package
- Understanding CLASSPATH
- Access Protection
- Importing Packages
- Defining and implementing an Interface
- Abstract classes Vs Interfaces

EXCEPTION HANDLING

- Fundamentals of exception handling
- Types of exceptions
- Learning exception handlers
- Try and catch
- Multiple catch clauses
- Nested try statements
- Throw, throws and finally

STRING HANDLING

- Learning String Operations
- Learning Character Extraction
- Learning String Comparison
- Understanding of StringBuffer Class

New in JDK

- Premain Method, Objectsize
- Generics
- Annotations
- Vargs
- Static Import
- For Each

WINDOWS PROGRAMMING

Swing

- Introduction to JFC
- Controls

Event Delegation Model

- Event Classes
- Event Listeners

Applet

- Applet Basics
- Architecture and Skelton
- Simple Applet Display Methods
- The HTML Applet Tag

INTRODUCTION TO EVENT HANDLING

- Event Delegation Model
- Event Classes
- Event Listeners
- Adapter Classes

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JAVA

MULTITHREADED PROGRAMMING

- The Java Thread Model
- Creating a Thread: Extending Thread, Implementing Runnable
- Creating Multiple Threads and Context Switching
- Synchronization: Methods and Statement
- Interthread Communication

MANAGING INPUT AND OUTPUT IN JAVA

- Introduction to I/O streams
- File Handling
- Binary Streams
- Character Streams
- Data Streams
- Serialization

NETWORKING

- Introduction to Networking
- URL, InetAddress
- Socket and Server Socket
- Datagram Socket

COLLECTION API

- Collection Overview
- The Collection Interfaces (List, Set, SortedSet)
- The Collection Classes (ArrayList, LinkedList, HashSet, TreeSet)
- Accessing a Collection via an Iterator
- Working with Maps

INTRODUCTION TO JAVA

- Introduction to J2EE Architecture
  - Tier Architecture
    - Single Tier
    - Two Tier
    - Three Tier
    - N Tier

J2EE CONTAINERS

- Container Types
- Container Services

JDBC

- Introduction to JDBC
- JDBC Drivers
- Statements
- Metadata
- Scrollable & Updatable ResultSet
- Batch Updates

JAVA SERVLET

- Introduction to Web
- Programming
- Advantages of Servlets
- Servlet Lifecycle
- Packing and Deployment
- Session Tracking
- Request Dispatching

JAVA SERVER PAGES (JSP)

- JSP Architecture
- JSP Elements
- JSP Objects
- Custom Tags

Ajax

- XMLHTTPRequest
- Ready State
- OnreadystateChange
- ResponseText
- ResponseXML
- Status

Jquery

- Jquery with Ajax
- Jquery Event
- Jquery Selectors
- JSON

RMI

- Distributed Applications
- RMI Architecture
- Implementation

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ANDROID

ENTERPRISE JAVA BEANS (EJB 3.0)

- Introduction
- Java Persistence API
- Java Persistence Query
- Introduction

JAVA Mail API

Utilities

- My Eclipse 8.0
- Net Beans 6.5

Web Server

- Apache Tomcat 6.0

Application Server

- Bea's Weblogic 10.3
- IBM's WebSphere
- JBoss 4.1

ANDROID APPLICATION DEVELOPMENT

OBJECTIVE

- Introduction to Android
- What is Android
- Applications in Android
- Open Handset Alliance
- Android Layers and their Work
- How to Properly Install Android SDK on Your Windows
- Install Android SDK in Windows
- How to create first android mobile app
- Create Android Application
- Android Views
- Buttons and their properties
- EditText Attributes
- CheckBox
- A Custom View
- RadioButton
- Introduction to Services in Android
- An introduction to Text-To-Speech in Android
- Android: Speech To Text
- Android camera application
- Bluetooth
- Wifi
- DATABASE
- PROJECT (EMPLIZONE)
- Company Client relationship and product management
- Project Snapshots

HISTORY OF ANDROID, ANDROID STRUCTURE AND WORKING TECHNOLOGY

- Android OS Architecture
- Android OS version
- SDK installation for Android
- App sound base
- Android process Architecture
- Android Application components.

ANDROID VIEWS

- What are Views
- View and XML Relations
- Views connection with the widgets
- Activity methods and connections
- Layout In flators, views and View Group

ANDROID UI DESIGNING & SERVICES

- Views UI Design
- Fragment and UI Relation, view Reusability and off loading work from main thread.
- Services Structure and its Introduction
- Unbinded and Binded Services with examples
- Approaches for Binding a services

INTENT

- In text Introduction
- Types of Intent with Examples
- Accessing Recognizer Intent (Speech to Text)
- Accessing Implict Intent (camera services)
- Callback Implicit Intent Methods for service data capture
- Services interaction-
  - Text to speech
  - Wifi-service (Managers)
  - Bluetooth Adapter

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DATABASE

- Introduction to types of Database
- Sqlite Database Introduction
- Sqlite Open Helper and Sqlite Database classes work
- Cursor Operation and classes
- Cursor Methods
- CRUD Operations
- Database full Structure

PROJECT

- **Teracom APP**

CLOUD COMPUTING

OBJECTIVE

- Understand: What is Cloud Computing
- Understand: What is Virtualization and its benefits
- Understand: What are public and private cloud and creating your own cloud.

INTRODUCTION TO CLOUD COMPUTING

- Cloud Computing – Definition
- History/ Origin of Cloud computing
- Cloud Computing- Concept
- Grid Computing
- Cluster Computing
- Distributed computing
- Utility Computing
- Converged Infrastructure
- Shared Services
- Virtualization
- Multitenancy
- Cloud Computing: Characteristics
- Cloud service Models
- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)
- Network as a service (NaaS)
- Multitenancy
- Cloud Computing: Characteristics
- Cloud service Models

LIVE PROJECT

- Deployment of Java Projects in AWS EC2 with RDS.
- Accessing the Project globally.

- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)
- Network as a service (NaaS)

DEEP DIVE INTO CLOUD COMPUTING

- Comparison of SAAS, PAAS, IAAS, NAAS
- Cloud Management
- Cloud Management Challenges
- Cloud Clients
- Cloud Deployment Models

VIRTUALIZATION

- Introduction of Virtualization.
- Objectives & Benefits of Virtualization.
- Types of Virtualization
- Working with VMware
- Virtualization for Enterprise.

INTRODUCTION TO AMAZON WEB SERVICES

- Amazon cloud-based computing services
- Amazon Storage Services
- Amazon Databases
- Amazon Networking services
- Amazon Application Services
- Deployment and Management in Amazon Web Services
- EC2: It is a virtual server created in cloud.
- RDS: It is a Database suit allows multiple databases to be used in cloud.
- DynamoDB: It is is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability. A developer, you can use DynamoDB to create a database table that can store and retrieve any amount of data, and serve any level of request traffic.
- S3: It is Simple Storage Service provided by Amazon. S3 provides simple web services interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the web.
- Route 53: Scalable Domain Name Hosting System and Domain Name Registration Platform.