J2SE(Core Java)

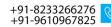**Basic of Java**
➔ Java - What, Where and Why?
➔ History and Features of Java
➔ Internals of Java Program
➔ Difference between JDK,JRE and JVM
➔ Internal Details of JVM
➔ Variable and Data Type
➔ Types of Variable in Java
➔ Control Statements in Java
➔ Unicode System
➔ Name Convention

OOPS Concept
➔ Advantage of OOPs
➔ Object and Class
➔ The way initialization of instance variable
➔ Method
➔ this keyword
➔ constructor
➔ this() constructor
➔ method Overloading
➔ static variable, method and block
➔ Instance initializer block and order of execution
➔ Inheritance (IS-A), Aggregation and Composition(HAS-A)
➔ Method Overriding
➔ Covariant Return Type super keyword
➔ Final keyword
➔ Runtime Polymorphism static and Dynamic binding
➔ Abstract class and Interface
➔ Downcasting with instance ofoperator
➔ Package and Access Modifiers
➔ Encapsulation, Object class, Object Cloning

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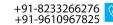➔ JavaArray, Call By Value and Call By Reference
➔ strictfp keyword
➔ Creating API Document

String
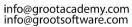
➔ String: What and Why?
➔ Immutable String
➔ String Comparison
➔ String Concatenation
➔ Substring
➔ Methods of String class
➔ StringBuffer class
➔ StringBuilder class
➔ Creating Immutable class to String method
➔ StringTokenizer class

Exception Handling

➔ Exception Handling :What and Why?
➔ try and catch block
➔ Multiple catch block
➔ Nested try
➔ finally block
➔ throw keyword
➔ Exception Propagation
➔ throws keyword
➔ Exception Handling with Method Overriding
➔ Custom Exception

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Nested Classes

➔ Nested Class: What and Why?
➔ Member Inner class
➔ Anonymous Inner class
➔ Local Inner class
➔ static nested class
➔ Nested Interface

Multithreading

➔ Multithreading : What and Why?
➔ Life Cycle of a Thread
➔ Creating Thread,Thread Scheduler
➔ Sleeping a thread
➔ Joining a thread
➔ Thread Priority
➔ Daemon Thread
➔ Thread Pooling
➔ Thread Group,Shutdown Hook
➔ Performing multiple task by multiple thread
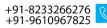➔ Garbage Collection
➔ Runnable class

Synchronization

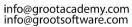➔ Synchronization : What and Why?
➔ synchronized method
➔ synchronized block
➔ static synchronization
➔ Deadlock
➔ Inter-thread Communication
➔ Interrupting Thread

Input and Output

➔ FileOutputStream & FileInputStream
➔ ByteArrayOutputStream
➔ SequenceInputStream
➔ BufferedOutputStream & BufferedInputStream

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- ➔ FileWriter & FileReader
- ➔ CharArrayWriter
- ➔ Input from keyboard by InputStreamReader
- ➔ Input from keyboard by Console
- ➔ Input from keyboard by Scanner
- ➔ PrintStream class
- ➔ PrintWriter class
- ➔ Compressing and Decompressing File
- ➔ Reading and Writing data simultaneously
- ➔ DataInputStream and DataOutputStream
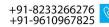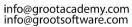- ➔ StreamTokenizer class

AWT and EventHandling
- ➔ AWT Controls
- ➔ EventHandling by 3 ways
- ➔ Event classes and Listener Interfaces
- ➔ Adapter classes
- ➔ Creating Games and Applications

Swing
- ➔ Basics of Swing
- ➔ JButton class
- ➔ JRadioButton class
- ➔ JTextArea class
- ➔ JComboBox class
- ➔ JTable class
- ➔ JColorChooser class
- ➔ JProgressBar class
- ➔ JSlider class
- ➔ DigitalWatch
- ➔ Graphics in swing, Displaying Image
- ➔ Edit Menu for Notepad
- ➔ Open Dialog Box
- ➔ Creating Notepad
- ➔ Creating Games and applications
- ➔ LayoutManagers
- ➔ BorderLayout
- ➔ GridLayout

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➔ FlowLayout
➔ BoxLayout
➔ CardLayout

Java Reflection API

➔ Reflection API
➔ newInstance() & Determining the class object
➔ javap tool
➔ creating javap tool
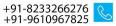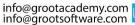➔ Accessing private method from outside the class

Java Reflection API

➔ About Collection Framework and It's Hierarchy
➔ List Interface and It's child classes ArrayList, LinkedList, Vector and Stack
➔ ArrayList vs LinkedList
➔ Iterator in Java Enumeration, Iterator, ListIterator,
➔ Queue->Deque interfaces and It's child classes PriorityQueue and ArrayDeque
➔ Set->Sorted interfaces and It's child classes HashSet, LinkedHashSet, TreeSet
➔ Map->SortedMap interfaces and It's child classes HashMap->LinkedHashMap, TreeMap
➔ Working of Hashtable, HashMap and LinkedHashMap
➔ HashMap vs Hashtable
➔ Collections class
➔ Sorting Collections
➔ Comparable interface
➔ Comparator interface
➔ Comparable vs Comparator
➔ Properties class

JDBC

➔ Evolution of Database Connectivity in Java
➔ Steps to connect to the database
➔ Connectivity with Oracle

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- ➔ Connectivity with MySQL
- ➔ Connectivity with MongoDB
- ➔ Connectivity with Access without DSN
- ➔ DriverManager
- ➔ Connection interface
- ➔ Statement interface
- ➔ ResultSet interface
- ➔ Prepared Statement
- ➔ ResultSetMetaData
- ➔ DatabaseMetaData
- ➔ Storing image
- ➔ Retriev ingimage
- ➔ Storing file
- ➔ Retrieving file
- ➔ Stored procedures and functions
- ➔ Transaction Management
- ➔ Batch Processing
- ➔ JDBC NewFeatures
- ➔ Three MiniProject

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