UNIT I

Importance of Studying Programming Languages, History of Programming Languages, Impact of Programming Paradigms, Role of Programming Languages, Programming Environments. Impact of Machine Architectures : The operation of a computer, Virtual Computers and Binding Times.

Programming paradigms : Introduction to programming paradigms, Introduction to four main Programming paradigms- procedural, object oriented, functional and logic and rule based.

UNIT II

Elementary Data Types : Primitive data Types, Character String types, User Defined Ordinal Types, Array types, Associative Arrays, Record Types, Union Types, Pointer and reference Type.

Expression and Assignment Statements : Arithmetic expression, Overloaded Operators, Type conversions, Relational and Boolean Expressions, Short Circuit Evaluation, Assignment Statements, Mixed mode Assignment.

Statement level Control Statements : Selection Statements, Iterative Statements, Unconditional Branching.

Subprograms : Fundamentals of Sub Programs, Design Issues for Subprograms, Local referencing Environments, Parameter passing methods.

Abstract Data Types and Encapsulation Construct : Design issues for Abstraction, Parameterized Abstract Data types, Encapsulation Constructs, Naming Encapsulations.

UNIT III

Fundamentals of JAVA, Arrays : one dimensional array, multi-dimensional array, alternative array declaration statements, **String Handling :** String class methods, Classes and Methods : class fundamentals, declaring objects, assigning object reference variables, adding methods to a class, returning a value, constructors, this keyword, garbage collection, finalize() method, overloading methods, argument passing, object as parameter, returning objects, access control, static, final, nested and inner classes, command line arguments, variable - length arguments.

UNIT IV

Inheritances : Member access and inheritance, super class references, Using super, multilevel hierarchy, constructor call sequence, method overriding, dynamic method dispatch, abstract classes, Object class.

Packages and Interfaces : Defining a package, finding packages and CLASSPATH, access protection, importing packages, interfaces (defining, implementation, nesting, applying), variables in interfaces, extending interfaces, instance of operator. fundamental, exception types, uncaught exceptions, try, catch, throw, throws, finally, multiple catch clauses, nested try statements, built-in exceptions, custom exceptions (creating your own exception sub classes).

Managing I/O : Streams, Byte Streams and Character Streams, Predefined Streams, Reading console Input, Writing Console Output, Print Writer class.

UNIT V

Concurrency and Synchronization, Java Thread Model : Thread priorities, Synchronization, Messaging, Main Thread, Creating thread: Implementing Thread using thread class and Runnable interface. Creating multiple threads using is Alive() and join(). **Web Based Application in Java :** Use of JavaScript for creating web based applications in Java, Introduction to Java script frameworks- ReactJS, VueJS, AngularJS (open source).

UNIT VI

Functional Programming Paradigm : Understanding symbol manipulation, Basic LISP functions, definitions, predicates, conditionals and scoping, Recursion and iteration, Properties List array and access functions, Using lambda definitions, printing, reading and atom manipulation.

Logic Programming Paradigm : An Overview of Prolog, Syntax and Meaning of Prolog Programs, Lists, Operators, Arithmetic, Using Structures.

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