

Govt. of Karnataka, Department of Technical Education
Diploma in Computer Science & Engineering

Fifth Semester

Subject: Programming With Java

Contact Hrs / week: 4

Total hrs: 64

Table of Contents

SN	Chapter	Hours	Marks
1	Introduction of Java	5	12
2	Classes, Objects and Methods	10	25
3	Strings and String Buffer Classes	4	10
4	Interface: Multiple Inheritance	4	10
5	Packages: Putting Classes Together	6	15
6	Multithreaded Programming	6	15
7	Managing Errors and Exceptions	4	10
8	Applet Programming	10	25
9	Graphics Programming	7	18
	Seminars, Guest Lectures and other innovation interactions	5	
	Tests	3	
	Total	64	140+5(Objective Type)

Detailed Contents

1		Introduction of Java
	1.1	Java history
	1.2	Java Features
	1.3	How Java Differs from C and C++
	1.4	Java and World Wide Web
	1.5	Java Environment
	1.6	Simple Java Program
	1.7	More of Java
	1.8	An Application with Two Classes
	1.9	Java Program Structure
	1.10	Java Tokens
	1.11	Java Statements
	1.12	Implementing a Java Program
	1.13	Java Virtual Machine
	1.14	Command Line Arguments
	1.15	Programming Style
	1.16	Constants
	1.17	Variables
	1.18	Data Types
	1.19	Scope of Variables
	1.20	Symbolic Constants
	1.21	Type Casting
	1.22	Standard Default Values
	1.23	Special Operators
	1.24	Mathematical Functions
	1.25	Labeled Loops (break & Continue)
	1.26	Operators and Expressions
	1.27	Decision Making, Branching & Looping
2		Classes, Objects and Methods
	2.1	Introduction
	2.2	Defining a Class
	2.3	Fields Declaration
	2.4	Methods Declaration
	2.5	Creating Objects
	2.6	Accessing Class Members
	2.7	Constructors
	2.8	Methods Overloading
	2.9	Static Members
	2.10	Nesting of Methods
	2.11	Inheritance: Extending a Class
	2.12	Overriding Methods

	2.13	Final Variables and Methods
	2.14	Final Classes
	2.15	Finalize Method
	2.16	Abstract Methods and Classes
	2.17	Methods with Variable arguments (Var Args)
	2.18	Visibility Control
3		Strings and String Buffer Classes
	3.1	Strings
	3.2	Vectors
	3.3	Wrapper classes
	3.4	Enumerated Types
	3.5	Annotations
4		Interfaces: Multiple Inheritance
	4.1	Introduction
	4.2	Defining Interfaces
	4.3	Extending Interfaces
	4.4	Implementing Interfaces
	4.5	Accessing Interface Variables
5		Packages: Putting Classes Together
	5.1	Introduction
	5.2	Java API Packages
	5.3	Using System Packages
	5.4	Naming Conventions
	5.5	Creating Packages
	5.6	Accessing a Package
	5.7	Using a Package
	5.8	Adding a Class to a Package
	5.9	Hiding Classes
	5.10	Static Import
6		Multithreaded Programming
	6.1	Introduction
	6.2	Creating Threads
	6.3	Extending the Thread Class
	6.4	Stopping and Blocking a Thread
	6.5	Life Cycle of a Thread
	6.6	Using Thread Methods
	6.7	Thread Exceptions
	6.8	Thread Priority
	6.9	Synchronization
	6.10	Implementing the 'Runnable' Interface
	6.11	Inter-thread Communication

7		Managing Errors and Exceptions
	7.1	Introduction
	7.2	Types of Errors
	7.3	Exceptions
	7.4	Syntax of Exception Handling Code
	7.5	Multiple Catch Statements
	7.6	Using Finally Statement
	7.7	Throwing Our Own Exceptions
	7.8	Using Exceptions for Debugging
8		Applet Programming
	8.1	Introduction
	8.2	How Applets Differ from Applications
	8.3	Preparing to Write Applets
	8.4	Building Applet Code
	8.5	Applet Life Cycle
	8.6	Creating an Executable Applet
	8.7	Designing a Web Page
	8.8	Applet Tag
	8.9	Adding Applet to HTML File
	8.10	Running the Applet
	8.11	More About Applet Tag
	8.12	Passing Parameters to Applets
	8.13	Aligning the Display
	8.14	Displaying Numerical Values
	8.15	Getting Input from the User
	8.16	Event Handling
9		Graphics Programming
		Introduction
	9.1	The Graphics Class
	9.2	Lines and Rectangles
	9.3	Circles and Ellipses
	9.4	Drawing Arcs
	9.5	Drawing Polygons
	9.6	Line Graphs
	9.7	Using Control Loops in Applets
	9.8	Drawing Bar Charts
	9.9	Introduction to AWT Package
	9.10	Introduction to Swings

Text book:

1. Programming with Java, 4th edition, Balagurusamy, Mc Graw Hill, ISBN-9780070141698
2. Programming With Java By Niranjan A, Sapna Publications

Reference Books:

1. Computer Programming in Java, Junaid Khateeb and Dr. G.T. Thampi, Wiley Dreamtech, ISBN : 9788177228298
2. Java 6 Programming – Black Book Wiley India Pvt Ltd
3. Programming in JAVA2 – Dr. K. Somasundaram Jaico Publish
4. Programming in JAVA – S.S. Khandare – S. Chand Publish

General Objectives:

After the completion of the study of this subject students should be able to

1. Visualize the java revolution.
2. Familiarize extending classes.
3. Understand the concepts of interfaces, packages, exception & strings.
4. Practice the use of threads, Interactive I/O & Understand the concepts of applets.
5. Study the concept of AWT.
6. Extend the concept of advanced java like swings.

Specific Objectives:

1	Introduction of Java
	Know about Java History, it's Features, how it differs from C & C++, Java & WWW & Java Environment.
	Learn the java programming, An Applications with two classes, Java program structure, tokens, statements & its implementation.
	Learn Interactive input/output, JVM, Command line arguments, programming style.
	Brief Knowledge about Constants, Variables, data type, and scope of variable, symbolic constants, type casting, standard default values, special operators, mathematical functions & Labeled loops like break & continue.
2	Classes, Objects and Methods
	Learn to define & declare classes ,objects, Class members, accessing class members through methods, inheritance, overriding methods, final variables & methods, final classes, finalizer method, abstract methods & classes , methods with variable arguments and also visibility control
3	Strings and String Buffer Classes
	Understand strings, vectors, wrapper classes, enumerated & Annotations
4	Interfaces: Multiple Inheritance
	Know about interfaces.
	Learn to Define interfaces , implementing them & to access their variables
5	Packages: Putting Classes Together
	Learn about packages, java API's, use of system packages & naming conventions.
	Learn to create, access , usage of java package, adding classes to package, hiding classes & static import of classes & packages
6	Multithreaded Programming
	Brief Knowledge of Threads, creating threads, extending thread classes, stopping and blocking a thread, life cycle of thread.
	Learn to use thread methods, exceptions & its priority.
	Know to have synchronization between threads, implement the runnable interface & also inter -thread communication.
7	Managing Errors and Exceptions
	Know about Errors, its types & exceptions.
	Managing & handling exceptions using multiple catch statements & final statements.
	Learn to throw our own exceptions & also Exception debugging
8	Applet Programming
	Learn about applets & how it differs from applications.
	Learn to write applets, building applet code, applet life cycle , creating an executable applet, designing a web page, applet tag, adding applet to html file,

	running the applet , applet tags passing parameters to applets, displaying numerical values., getting input from the users, event handling
9	Graphics Programming
	Learn about graphic programming, graphic classes, Lines and Rectangles, Circles and Ellipses.
	Learn to draw arcs, polygons, & line graphs using control loops in applets & also to draw bar charts.
	A brief knowledge of AWT packages & swings.

Govt. of Karnataka, Department of Technical Education
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Fifth Semester
Subject: Java Programming

Max. Marks: 100

Max. Time: 3 Hours

Model Question Paper

- Note: 1. Section –I is compulsory.
2. Answer any TWO questions from each remaining Sections.

Section - I

- | | | |
|------|--|-------|
| 1 a. | Fill in the blanks | 5x1=5 |
| i. | | |
| ii. | | |
| iii. | | |
| iv. | | |
| v | | |
| b. | “Java is a Revolutionary Programming Language” . Justify | 5 |

Section – II

- | | | |
|----|--|---|
| 2. | a).What is a Token? List the various types of Tokens supported by Java. | 2 |
| | b). Write a program to find the number of and sum of all integers greater than 100 and less than 200 that are divisible by 7 | 5 |
| | c). Describe different forms of Inheritance with examples | 8 |
| 3 | a). What is a Constructor? What are its special properties | 5 |
| | b). compare Overloading with Overriding methods | 5 |
| | c). Explain the different levels of access protection available in Java | 5 |
| 4 | a). How does String Class differ from String buffer Class | 5 |
| | b). Write a program which illustrates Wrapper Class | 7 |
| | c). Differentiate between a Class and Interface | 3 |

Section-III

- 5 a). Write a Program which Illustrates Implementing Multiple Inheritance 7
b). What is a Package ? Explain how to create a package with an example 5
c). How do we add a Class or Interface to a Package? 3
- 6 a). How to access a Package? Illustrate with an example 7
b). Differentiate between Multi Threading and Multitasking 5
c). How to create Thread? 3
7. a). Write a program which illustrates the Thread methods yield(), stop()
and sleep() 6
b). What is an Exception? List the Java common exception types and causes 5
c). What is a finally block? When and How it is used? 4

Section -IV

8. a). What is an Applet? Explain the life cycle of an Applet 10
b). Write a note on HTML Applet tag 5
9. a). Write an Applet Program to input 3 floating point numbers, to find sum,
Average and Largest of Three 10
b). Write a note on Swings 5
10. a). Describe Three ways of Drawing a Polygon 6
b). Write Applets to Draw the following shapes 9
- i. Cone
 - ii. Cylinder
 - iii. Cube