Java Lectureflow

- Introduction of students
- Career in IT
- Understanding Student Login of TOPS ERP
- Using Lab
- What is Program
- What is programming?
- Types of Programming Language
- World Wide Web
- How Internet Works
- Network Layers on Client and Server
- Client And Servers
- Types of Internet Connections
- Protocols
- Application Security
- Software Applications and its types
- Software Architecture
- Layers in Software Architecture
- Software Environments
- Types of Programming Languages
- Source Code
- Github and introductions
- Student Account in Github
- Types of Software
- Introduction of Software
- Application software
- Software development process
- Software Requirement
- Software Analysis
- System Design
- Software Testing
- Maintenance
- Development
- Web Application
- Designing
- moble application
- DFD

- Desktop Application
- Flow Chart

Module-3) SE - Fundamentals of Programming	15

- Basic Syntax
- Data Structures
- Variables
- Operators
- Control and looping Structures
- functions
- Arrays and strings
- Introduction to C
- What is Language?
- What is programming and program?
- Fundamental of Algorithms and Flowchart
- Real world problems - get solution via programs
- Practical Example: 1. Write a Flow chart of real problems - Days to month conversion system.
- Data Types and Variables - Data Types, Void Data Types,
- History of C
- Compiler and interpreter
- environment setup
- Type Modifiers,
- Basic Structure of C Programs
- Importance of C
- Fundamentals of C
- Difference between turbo C and Dev C/C++
- Practical Example : 1. Write a program of scanf 2. Write a program to demonstrate escape sequence 3. Write a program to demonstrate comments
- Comments
- Keywords
- Escape Sequence
- Practical Example: 1. Write a program to print (Hello World). 2. Write a program to print the sum of two numbers. 3. Write a program to exchange values of two variables using the 3rd variable. 4. Write a program to convert days into years and years into days.

Module-4) OOP Concept	8

- Procedure Oriented And object Oriented Programming
- Basic Concepts of OOP
- OOP - Objects and Classes
- Constructors and Destructors
- Data Abstraction and Encapsulation
- inheritance

- Encapsulation
- Types of polymorphism
- Dynamic Binding
- Array
- Types of constructors
- Compile time
- Types of Array
- Class and arrays : 1) Array within class 2) Array of objects
- Run time
- String
- Practical Example: 1. Write a program to print the score card of two students using an array of objects.
- Difference between constructor and destructor
- Practical Example: 1. Write a program to demonstrate difference between constructor and destructor 2. Write a program to demonstrate copy constructor
- Abstract class
- Practical Examples: 1. Write a program to check whether entered number is even or not using if..else statement in C++ 2. Write a menu - driven program to calculate the area of the circle,rectangle and triangle. 3. Write a program to calculate factorial of given number using for loop 4. Write a program to print the fibonacci series using while loop 5. Write a program to check whether the given number is palindrome using do..while loop. 6. Write a program to demonstrate jumping statements
- Practical Example: 4. Write a program to demonstrate pass object to a function 5. Write a program to demonstrate return object from function
- Class and pointer
- Aggregation
- Class and objects
- Practical Example: 1. Write a program to demonstrate pointer with class 2. Write a program to demonstrate dynamic object using new keyword
- Access modifiers
- Practical Example: 1. Write a program to demonstrate function overloading with different types of arguments 2. Write a program to demonstrate function overloading with default arguments 3. Write a program to show the constructor function overloading
- Member Function
- Types of inheritance 1 - Single level 2 - Multi-level 3 - Multiple 4- Hierarchical 5- Hybrid
- Comparisons of class and object
- Practical Example : Write a program to implement single level inheritance 2. Write a program to demonstrate single level inheritance in private mode 3. Write a program to demonstrate the ambiguity in single level inheritance 4. Write a program to demonstrate multilevel inheritance 5. Write a program to demonstrate multiple inheritance 6. Write a program to demonstrate the hierarchical inheritance 7. Write a program to demonstrate the hybrid inheritance
- Namespace
- Static Keyword
- Practical Example: 1) Write a program to demonstrate constructor invocation in inheritance
- Scope resolution operator

Module-5) SE - Database - Full stack and Back end	9

- What is Database
- DBMS and RDBMS
- Types of Database
- Normalization
- algebra
- Primary key
- foreign key
- unique key
- Database Programming Language SQL
- SQL Statements Types
- DDL
- DML
- TCL
- TQL
- Database backup and Restore
- What are Joins
- Types of Joins
- Function
- Procedure
- Trigger
- Curser
- Transaction concepts
- properties of transactions
- rollback and commit savepoint
- ER database schema

Module 6) WD - HTML - Full stack	10

- Student Intro , Career Center Login ,What is Internet, HTTP/HTTPS, WWW, Domain name and Top Domain name
- SEO, What is HTML, What is Text Editor, Web Browser, Downloading Text Editor , HTML Structure, First Program in HTML
- 1) HTML Introduction 2) HTML Getting Started 3) HTML Elements 4) HTML Attributes 5) HTML Basic Tags
- 1) HTML Doctypes 2) HTML Layout 3) HTML Head 4) HTML Meta 5) HTML Scripts
- Practical Examples: 1) Create any simple web page to display your name. 2) Importance of meta tag and Doctypes
- Tags and self Closing Tags, Basic Tag , Attribute and Events, Marquee Tag
- HTML - Meta Tags, HTML - Comments, HTML - Images, HTML - Tables, HTML - Lists, HTML - Text Links, HTML - Image Links
- HTML Headings HTML Paragraphs HTML Links HTML Text Formatting HTML Styles HTML Images

- HTML - Frames, HTML - Iframes, HTML - Blocks, HTML - Backgrounds, HTML - Colors, HTML - Fonts
- Anchor Tag, Img Tag, Image Mapping
- HTML - Fonts, HTML - Forms, HTML - Embed Multimedia ,HTML - Marquees, HTML - Header, HTML - Style Sheet, HTML - Javascript ,HTML - Layouts
- List Tag, Tables, Forms
- HTML - Tags Reference, HTML - Attributes Reference, HTML - Events Reference, HTML - Fonts Reference, HTML - ASCII Codes, ASCII Table, Lookup, HTML - Color Names, HTML - Entities, HTML - Fonts, Ref HTML - Events, Ref MIME Media Types, HTML - URL Encoding Language, ISO Codes HTML - Character Encodings, HTML - Deprecated Tags
- PRactical Examples: 1) Create simple Doc and display your name using different heading tag 2) Create link for open google. 3) Create document using all text formatting tags
- HTML online editor
- HTML Tables HTML Lists HTML Forms HTML Iframes
- Practical Examples: 1) Create simple table 2) Create time table for your school 3) Create table with colspanrowspan example 4) Create invoice using table 5) Create hotel menu. 6) Create index page for your book. 7) Create list with different categories.
- PRactical Examples: Create registration form with all fields and validation

Module 7) WD - CSS and CSS 3 - Full stack	**20**

- 1) CSS 2) In-line CSS Internal Style External Style Sheet @import Style Sheet 3) CSS Class CSS ID
- What is CSS How to Implement CSS Class and ID Width and Height Css Unit Box Model (Margin,padding,Border) and create basic template design
- Practical example : Create page with difference color text
- CSS Selectors , Pseudo Classes and Elements , Float and Clear and Alignment , Font Styling , Opacity and Visibility , Line Height
- 1) CSS Text 2)CSS Font 3) CSS Background 4) CSS Links 5) CSS Lists 6) CSS Display 7) CSS Visibility
- Creating Header of Website , Outline , Background , Counter increment , Counter reset ,Cursor , Overflow
- PRactical Example : Create layout for your project
- Position , Creating Submenu , Border Radius, Transform , Animation , Font Awesome Icons
- 1) CSS Layout Model 2) CSS Border 3) CSS Margin 4) CSS Padding 5) CSS Outline
- Font Family Through Google Font , import fontface rule ,FlexBox
- 1) CSS Float 2) CSS Align 3) CSS Position 4) CSS Element Size 5) CSS Layer
- Practical Example : Create image gallery
- 1) CSS Pseudo Class Selector 2) CSS Pseudo Element Selector
- CSS Properties 1) Background, 2) border 3) bottom 4) caption-side 5) clear 6) clip 7) color 8) content
- Practical Example: Create Menu with logo at left side and contact info at right side using clear effect
- 1) counter-increment 2) counter-reset 3) cursor 4) direction 5) display 6) empty-cells
- Practical Example: 1) Create submenu list using counter
- 1) float 2) font 3) height 4) left 5) letter-spacing 6) line [height, style, style-7) image, style-position, 8) style-type] 9) margin 10) outline 11) overflow 12) padding

- 1) page-break 2) position 3) quotes 4) right 5) table-layout 6) text 7) top 8) vertical-align 9) visibility 10) white-space 11) width 12) word-spacing 13) z-index
- Practical Example: wireframe layout for your template using div
- Media Query (For Responsive Website) , Creating a Responsive Website
- Validate a Website, Hosting a website with free domain name, Column , Clippath , Gradient Color , Filter, Border Image

Module 8) Website Designing - HTML5 - Full stack	**5**

- HTML5 Tags, HTML5 Input and Attribute
- Audio and Video, Semantic Element in HTML5
- Canvas, Svg
- Display Grid

Module 10) WD - JQuery Basic, Effects & Advanced	**6**

- What is JQuery , Downloading JQuery File , First Program in JQuery
- Jquery Selectors
- Jquery Display Effeects
- Jquery Fadding Effects
- Jquery Sliding Effects
- Add Elements using jquery
- Get and Set Content and Attributes
- Remove Elements
- Other Jquery HTML Methods - clone, scroll TOP, attr(), prop(),
- Wrap Element using Jquery
- Jquery CSS methods
- JQuery manipulating CSS
- Jquery Dimension Methods
- Jquery Form
- Jquery Mouse events
- Jquery Keyboard Events
- Jquery Form Events
- Jquery Document/Window Events
- Jquery Traversing - Ancestor
- Jquery Traversing - Descendents
- Jquery Traversing - Siblings
- Jquery Traversing - Filtering
- Practicals and assignments
- ajax
- ajax get and post

Module 11) WD - Bootstrap Basic & Advanced	**9**

- Bootstrap Basic 1) Bootstrap Introduction 2) Bootstrap Getting Started 3) Bootstrap Grid System 4) Bootstrap Fixed Layout 5) Bootstrap Fluid Layout 6) Bootstrap Responsive Layout
- Bootstrap Utilities
- 1) Bootstrap Typography 2) Bootstrap Tables 3) Bootstrap Lists 4) Bootstrap List Groups 5) Bootstrap Forms 6) Bootstrap Custom Forms 7) Bootstrap Input Groups 8) Bootstrap Buttons 9) Bootstrap Button Groups
- Bootstrap with CSS: Grid System
- 1) Bootstrap Images 2) Bootstrap Cards 3) Bootstrap Media Objects 4) Bootstrap Icons 5) Bootstrap Navs 6) Bootstrap Navbar 7) Bootstrap Breadcrumbs 8) Bootstrap Pagination 9) Bootstrap Badges 10) Bootstrap Progress Bars 11) Bootstrap Spinners 12) Bootstrap Jumbotron 13) Bootstrap Helper Classes
- Bootstrap with CSS - typography
- Bootstrap Advanced 1) Bootstrap Modals 2) Bootstrap Dropdowns 3) Bootstrap Tabs 4) Bootstrap Tooltips 5) Bootstrap Popovers 6) Bootstrap Alerts 7) Bootstrap Stateful Buttons 8) Bootstrap Accordion 9) Bootstrap Carousel 10) Bootstrap Typeahead 11) Bootstrap ScrollSpy 12) Bootstrap Toasts
- Bootstrap with CSS: Tables
- Bootstrap Striped Row Table
- Bootstrap Bordered Table
- Bootstrap Hover Row Table
- Bootstrap Condensed Table
- Bootstrap Contextual Classes
- Bootstrap Responsive Table
- Bootstrap with CSS - Forms
- bootstrap 4 Form
- Bootstrap with CSS - Buttons
- Bootstrap with CSS - Images
- Bootstrap helper Classes
- Border Classes
- Bootstrap with CSS - Responsive Utilities
- Bootstrap Layout - Glyphicon
- bootstrap Layout - Dropdowns
- Bootstrap Dropup
- Bootstrap - Button Group
- Bootstrap Layout - Navigation Elements
- Navbar
- Breadcrumb
- pagination
- Input Group
- Labels
- Badges
- Jumbotron
- Page Headers
- Alerts

- Progress Bar
- List Group
- Panels
- Wells

Module 2) JavaScript Essentials And Advanced	10

- Basic JavaScript, Js comment, Js variables , Understanding var, let and Const, JS switch, if, else,JS loop , Js global variables, Js data types, Js operators, Js Functions
- Functions - Function Declaration in JS - Arrow Functions - Higher Order Functions - Map, Reduce and Filter
- Javascript Objects, Js object , Js Array , Js string, Js Date, Js Math, Js number, Js Boolean
- Javascript BOM ,Broswer Objects , Window object, History object, navigator object, Screen object
- Javascript DOM, Document object, getElementById, getElementByName, getElementByTagName, JS innerHTML property, JS innerTEXT property
- Javascript OOPS, JS class, JS object, JS prototype, JS constructor method, JS static method, JS encapsulation, JS inheritance, JS polymorphism, JS abstractions
- Javascript Exception Handling, JS exception handling , Javascript try-catch
- Javascript MISC, JS this keyword , JS Debugging , JS Hoisting , JS Strict Mode, JS promises, JS typeof , JS ternary operator, JS reload() method, JS setAttributes () method, JS setInterval() method, JS setTimeout() method.
- Javascript Events, Javascript Events, Javascript AddEventListener,(), jsOnclick event, jsdbclick event, JS onload event, JS onresize event.
- Array in JS, Creating Array, Array methods, The Spread & Rest operators, Destructuring
- JS Async, Callbacks, Promises, Async/Await
- ES6 Basics and Babel, New features in ES 6, Arrow functions, The . Operator, For/of , Map Objects, Set Objects, Promises, Functions Rest parameter, String.includes(),String.starts.With(), String.endWith(), Array.form(), Array.keys(), Array find(), Array findIndex(), javascript Modules
- Small Project using ES6

Module 12) - Java -Introduction	1

- Introduction Lecture
- Introduction of students
- Understanding Student Login of TOPS ERP
- Working on Project and Assignment
- Using Lab
- Career in IT

Module 13) - Java - Core Java	15

- Practical Example : 1. Create class named student with variable rno, fname, lname, email, mobile. create 2 methods to get student data and print them.

- Practical Example : 1. Create class box with three variable height, width, depth. Create default, parameterized and copy constructor. Create one method called volume to show width*height*depth. Call all constructor and volume method for all constructor
- Practical Example : 1. One dimensional array(get data by scanner and print it). 2. Array array elements in asceding and desceding order
- Practical Example: 1. Create 2 two dimensional array and perform matrix addition, subtractio and multiplication
- Practical Example: 1. Perform singleinheritance. 2. Multilevel. 3. Hierarchical.
- Practical Example : 1. Perform constructor chaining
- Practical Example: 1. Method overloading. 2. Method overriding 3. Dynamic method dispatch to solve method override
- Practical Example: 1. Create abstract class RBI with one abstract method interest rate and extend this class in three class SBI, HDFC, Kotak to implement abstract method. 2. Create interface with 2 method. Implement this method in two class. 3. Create program for inheritance of interface. 4. Create program to implment static method in interface and call it in a class
- Practical Example: 1. Write a program to show the use of this keyword in assigning values to variable, as argument in constructor and method, call the default constructor in parameterized constructor using this, and call the method using this. 2. Write a program to demonstrate the difference between static and non static variable. 3. Write a program to to create a static method and static block. 4. Demonstrate teh use of final variable, mthod and class. 5. Access the variable, methods and constructor from d
- Practical Example: 1. String class & its method 2.Perform StringBuffer class methods
- Practical Example: 1. Demonstrate the devide by zero, input mismatch exception and arrayindexoutofbounds exception in a multi catch and multi try statement. 2. Create a method called demo and enter user defind integer value at runtime, if user enters negative value ask again to put value using recursion others wise throw an exception and handle it. 3. Create above program using throws clause without recusrion. 4. Demonstrate the finally block. 5. How to use exception in method override
- Practical Example: 1. Create custome excepton insufficientfund. Create class named bank and create two methods deposite and withdraw. If withdrawal amount is greater than balance then throw user defined exception and handle it.
- Practical Example: 1. Write a progra to write 1 string data into the file using FileOutputStream and read that file using FileInputStream.
- Practical Example: 2. Do above operation using FileWritter & FileReader
- Practical Example: 3. Create one class name student with rno, fname, lname & email and store values of variable into object and then write that object into file and read it.
- Practical Example: 4. Print all the basic property of file that is available in your c:\ drive. You create tops1.txt and put some text into it.
- Practical Example: 1. Pass the 2 integer values through command line and print the maximum number from this.
- Practical Example : 1. Print the current thread that is by default available and then change it's name and again print it. 2. Create a thread usinf Runnable interface. 3. Create a thread using Thread class. 4. Create multiple thread and execute it in main method. 5. Create multiple thread and execute them simultaneouly and achive synchronization. 6. Create two synchronized thread and perform deadlock

- Practical Example: 1. Make a ArrayList with different type of data and perform it's different method. 2. Iterate ArrayList data in both direction from first to last and last to first. 3. Demonstrate HashSet with it;s method. 4. Demonstrate HashMap and iterate it's data. 5. Perform enumeration with Vector class. 6. Create generic method to print different types of array of diffent wrapper classes. 7. Demonstrate Comparator 8. Demonstrate Comparable.
- Practical Example: 1. Create swing GUI with id, fname, lname & email and perform CRUD operation with mysql datanase.
- Conditional Statements (If, If Else, Nested If Else If)
- Introduction of Core Java
- Practical Example : 1. Odd-Even, 2. Prime Number, 3. Max out of three, 4. Student's grade system
- Eclipse IDE
- (Switch Case)
- JVM,JDK,JRE
- Practical Example : 1. Mini Calculator
- Class, Object Constructor
- Loops (While, Do While, For)
- Class, Object, Method
- Practical Example : 1. Sum of n numbers, 2. patterns, 3. prime numbers for a range
- Constructor
- Break and Continue
- Garbage Collection
- Practical Example : 1. exit or continue from loop using break & continue
- Finalize
- SDLC Process
- Project Analysis
- Source File Layout
- Analysis In Details
- DFD (with practical)
- Package Management, Modifiers- Public, Private, Protected, Default
- Introduction of DFD
- Import Statement
- Rules for Drawing DFD
- Context Level
- Data types
- First Level
- Primitive Types
- Second Level
- Reference Types
- Array Introduction
- Data Dictionary
- Modifiers - Public, Private, Protected, Default
- Why Array? Advantages
- Flow Chart
- Types of Array

- Resizing Array
- Copying Array
- Primitive types and Reference type Arrays
- Encapsulations
- Advantages of Inheritance
- Types of Inheritance
- Practical of Inheritance
- Practical of Inheritance with Constructor
- Polymorphism
- Types of Polymorphism
- Method Overloading and Method Overriding
- Abstract and Interface - Introduction and Difference
- Keywords - This, Static, Final, Super
- Classes
- Object Class(only Important Methods)
- String Class (Only Important Methods)
- String Buffer & String Builder
- Wrapper Classes
- Exceptions
- Introduction - Why Exceptions
- Types of Exceptions
- Try catch and Finally Block
- Multi catch Exceptions
- Throw and Throws keywords
- Method Overriding with Exceptions
- Custom Exceptions
- FILE I/O
- What is Stream and Types of Stream
- File Input Output Streams and Its Methods
- File class
- Command Line Arguments
- Thread-Introduction
- Thread Life Cycle
- Creating Threads
- Thread Class Methods (Only Important Methods)
- Runnable Interface
- Synchronized block and Synchronized Methods
- Collection Framework - Introduction
- Collection API
- Hierarchy of Collections
- List and Set and Map Collections
- Array list, vector and Other Classes
- Generics
- Comparator and Comparables

- JAVA GUI
- AWT (Introduction only) & Swing (in Details)
- Components, Containers, Frame, Window, Panel, Layout
- All Components
- Events, Event Handling

Module 14) Java - RDBMS & Database Programming With JDBC	**5**

- Database
- DBMS and RDBMS
- Introduction MYSQL
- Mysql IDE
- Query Types
- DDL, DML, DQL, DCL
- Constraints : Primary Key, Foreign Key, Unique Key
- Normalizations: 1NF 2NF 3NF
- Joins: All Joins Types
- Advance Database: Indexers Views Procedures Functions Cursor, Triggers
- JDBC (Insert, Update, Select, Delete)
- Introduction of JDBC
- Driver Types
- Steps for Creating Connections
- Types of Statements (Statements, prepared Statements and Callable Statements)
- Result Set Interface
- Database Metadata
- Result Set Metadata
- Practical Examples: SQL Queries
- Practical Example : 1. Create swing GUI with id, fname, lname & email and perform CRUD operation with mysql datanase. 2. Demonstrate callble statement in & out parameter.

Module 15) Java - Web Technologies In Java	**12**

- HTML UL, Tag LI, Tag a, Tag IMG, tag Table, TR, TD, tag
- Form tags with Attributes
- All input tags CSS
- Types of CSS Pseudo- Classes Margins and Puddings
- CSS background
- CSS using ID and Class
- JavaScript Events
- Validations with Regular Expressions
- Firebug Template Integration

- Practical Example: 1. Basic HTML Tags 2. Create Registration form and perform required and regular expression validation for firstname(only alphabets allowd), email(standard email id), mobile number(only 10 digits). 3. Perform all type of css, class & id, pseudo code.
- Introduction of Client Server Architecture
- HTTP Protocol overview with Request and Response header explanation
- J2EE Architecture Overview
- Web Component Development In Java CGI Programming Process Advantage and Disadvantage
- Servlet Programming Introductions Advantage and Disadvantage
- Servlet Versions, Types of Servlets
- Difference between HTTP Servlet an Generic Servlet
- Servlet Life Cycle
- Creating Servlets Servlet Entry in web.xml
- Logical URL Servlet Config Interface
- Request Dispatcher Interface Forward and Include Methods
- Request Dispatcher Interface
- Servlet Context Interface Web Application Listener Scope of Objects, Request and Response Application (Context)
- Practical Example: 1. Fetch data from web.xml to particular servlet using ServletConfig. 2. Fetch data from web.xml to multiple servlet using ServletContext. 3. Create one registration form in jsp and send data to servlet, from servlet again send data to jsp using RequestDispatcher. 4. Create login form in jsp and after login send uname & password to servlet, check data if not blank go forward and if blank then include login.jsp page to servlet.
- Java Filters - Introduction What are the needs Filter Life Cycle Process of Execution Filter Applying Filter Entry in web.xml URL Pattern with Filter
- Practical Example: 1. Perform server side validation using filter.
- Action JSTL Custom Tags
- Comments
- Declaration Implicit Objects
- Directives - Scriplets
- Expression
- JSP Life Cycle
- JSP Translation
- Practical Example: JSP Translation JSP Life Cycle Comments Directives Scrip lets Expression Declaration Implicit Objects Action JSTL Custom Tags
- Cookies Session
- Hidden Form Fields
- Session Management - Introduction
- Session Tracking Technique
- URL Rewriting
- What are needs?
- Practical Example: 1. Create registration form, after validation insert data to database and redirect to login form, if successfull login manage session data and logout. 2. Create complete CRUD operation for user profile management.

Module 16) Java - Rest Framework - Industry	10

- Design Pattern
- MVC Design Pattern with Example
- AJAX Programming With Example
- Practical Example: 1. Perform dynamic search operation in project using AJAX. 2. Register user with unique email using AJAX
- Introduction to Distributed Technologies RMI, EJB and WEB Services Introduction Types of Web Services What is Restful Web Services? Restful Web Services Annotations Restful Web Services with Exampl
- ractical Example: 1. Restful web service CRUD operation
- RESTful API: Representational State Transfer (REST) is a widely used architectural style for building web services. Understanding REST principles and being able to create RESTful APIs is essential. CRUD API: CRUD stands for Create, Read, Update, and Delete, which are the basic operations performed on data. Creating APIs that allow these operations is fundamental to backend development. Authentication and Authorization API: Knowing how to implement user authentication and authorization mechanisms is crucia
- OpenWeatherMap API: This API provides weather data for various locations worldwide. You can retrieve current weather conditions, forecasts, and historical weather data.
- Google Maps Geocoding API: This API allows you to convert addresses into geographic coordinates (latitude and longitude) and vice versa. You can use it to retrieve location data, calculate distances between points, and display maps.
- GitHub API: GitHub provides an API that enables you to interact with repositories, issues, pull requests, and more. You can perform actions like retrieving repository information, creating issues, and accessing user data.
- Twitter API: Twitter offers an API that allows you to integrate Twitter functionality into your applications. You can fetch tweets, post tweets, retrieve user information, and perform searches.
- REST Countries API: This API provides information about countries, including details like population, languages spoken, currencies, and more. You can retrieve country-specific data and use it for various applications.
- Social authentication (For eg; Login with Google, Login with Facebook...etc)
- Email sending APIs (For eg; Mailchimp, Mailgun...etc)
- SMS sending APIs (For eg; Twilio)
- Normal payments (For eg; Paypal, Stripe)
- - Google Maps API

Module 17) java - Frameworks - Industry	16

- All Core Interface Query and Criteria Named Query
- Relationships Many to Many
- Relationships One to Many
- Relationships Many to One
- Hibernate Introduction
- Relationships One to One

- Hibernate Architecture
- All Database Operations with hibernate
- Practical Example: 1. CRUD Operation with hibernate using xml files. 2. CRUD operation with hibernate using annotation. 3. Perform onetoone relationship(Employee class with eid, uname and password & EmployeePersonalINfo class with epid, fname, lname,email). 4. Perform onetomany & manytoone relationship(Employee class with eid, fname,lname,email & Department class with deptno, dname,location). 5. Perform manytomany relationship(Student class with sid, sname & Course class with cid, cname)
- Introduction of Spring Framework Architecture
- Overview Of Spring Framework
- Core Container AOP
- Spring DAO (Data Integration)
- Spring Using IDE, Using Library Spring Hello World Example
- Practical Example: 1. Hello world spring app to introduce spring framework
- 1) Spring IOC Container 2) Bean Factory 3) Application Context Spring Bean Definition 4) Configuration 5) Life Cycle 6) Inheritance 7) Scopes
- Practical Example: 2. Perform spring inheritance, life cycle & abstraction. 3. Perform singleton & prototype scope to use spring beans variable
- 1) Spring Dependency Injection 2) Constructor based 3) Setter Getter based 4) Inner Beans , Aliases and ID-ref Collections and References 5) Auto Wiring
- Practical Example : 4. Demonstrate spring dependency injection by setter method.5. Demonstrate spring dependency injection by constructor. 6. Demonstrate spring dependency injection by object. 7. Perform inner bean concept in xml file. 8. Use all type of collection refences in spring xml file. 9. Minimize spring xml file using spring auto wire concept
- 1) Spring AOP 2) AOP Term 3) Write the Aspects 4) Configure Where the Aspects
- Practical Example : 10. Perfomr AOP(aspect oriented programming concept(login, perform, logout sequence)
- Spring ORM
- Practical Example : 11. Perform CRUD operation in spring web using hibernate integration
- 1) Spring MVC Web Forms 2) Spring Form Handling 3) Spring Form Tags 4) Spring Controller XML and Annotation Based
- Practical Example : 12. Create spring MVC pattern using dispatcher servlet. 13. CRUD operation using Spring MVC+ORM
- Spring MVC with Session Management
- Practical Example : 14. Spring MVC+ORM+Session

Module-25) React - Components, State, Props	**8**

- Installation - Add React to a HTML Website - Create New React App - Hello World
- Getting started in React
- JSX
- Components
- Component Composition
- JSX - Why JSX? - Embedding Expressions in JSX - Attributes with JSX - Children with JSX

- Props & Prop Types
- Event Handlers
- State
- React Web App
- Components, State, Props - Function Component - Class Component - Props - State - Class Component Lifecycle

Module 4) Lists and Hooks	6

- Conditional Rendering - Lists and Keys - Forms - Handling Events - Lifting State up
- Hooks - Introduction - Using the State hook - Using the Effect hook - Rules of Hook - Custom Hook
- Rendering Lists inside components
- React Keys
- Using keys wit component
- Uniqueness of keys among siblings
- React refs
- Uses of react Refs
- How to access of Refs
- Refs current properties
- Add Refs to DOM elements
- Add refs to class components
- Callback refs
- Forwarding Ref from one component to another component
- React with useRef
- React conditional rendering
- React if, logical & operator, Ternary operator, switch case operator, Conditional Rendering with Enum, Preventing components from rendering

Module-27) React - Styling & Advance React	5

- Creating the first App
- Understanding the App
- Styling the App
- Inspecting & Debugging styles
- Built-in components
- Working with Images
- ListViews
- TextInput
- Styling React Components - CSS stylesheet - Inline Styling - CSS Modules - CSS in JS Libraries (styled components)
- Creating Views (Scenes)
- Conditional Rendering - Lists and Keys - Forms - Handling Events - Lifting State up
- Hooks - Introduction - Using the State hook - Using the Effect hook - Rules of Hook - Custom Hook

- Advance Concepts - Context, useContext() - Working with Refs and useRefs() - Fragments - Performance optimization with useMemo() - Styling React Components - CSS stylesheet - Inline Styling - CSS Modules - CSS in JS Libraries (styled components)
- Bootstrap with React
- React Router - Browser - Router - Link - Route - Template integration - Http Request in React - Get and Post data

Module 6) React Router	**8**

- React Router
- B r o w s e r - R o u t e r - Lin k - R o u t e
- Need of react router
- T e m pla t e in t e g r a tio n - H t t p R e q u e s t in R e a c t - G e t a n d P o s t d a t a
- React router installation
- React router, react-router-native, react-router-Dom
- Component in react router , Browser Router , HashRouter
- What is Route
- What is Link component , Adding navigation using Link component
- Link vs NavLink
- React Router Switch , React Router redirect
- Nested Routing in React
- Template integrations Using Browser Router , Routes , Route , Link and Hash Router
- Advantages of react Router

Module-29) React - Applying Redux	**8**

- State
- State storage problem
- Redux Basics
- Redux Principles
- Implementing Redux
- React-Redux
- Middleware
- Counter App Demo
- Redux - Complexity of Managing state - Understand the Redux Flow - Setting up Reducer and store - Dispatching Actions - Passing and Retrieving Data with Action - Combining Multiple Reducers - Adding Middleware - Redux Dev tools