Teks academy

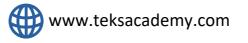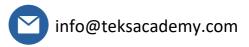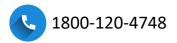Transferring Experts Knowledge To Students

Full Stack Java

Module 1 - HTML Introduction To Web

- Overview of Web And web application
- Overview of Mobile and mobile applications
- Web VS Mobile
- Web Designer vs HTML Developer

Module 2 - Core Concepts Of HTML

Elements and Attributes
- Tags
- Introduction
- Types
- Single Tags / Empty Tags / Void Tag / Self Enclosing Tag
- Paired Tags
- Semantic Tags
- Non Semantic Tags
- Elements
- Introduction
- Types
- Inline elements
- Block Level
- Inline-Block
- Attributes
- Introduction
- Types
- Predefined Attributes

- Global Attributes
- Style
- Id
- class
- Element Specific Attributes
- src
- alt
- type
- Custom / User Defined Attributes

Text tags

- Headings
- h1 to h6
- Paragraph
- Lists
- Ordered List
- Unordered List
- Definition List
- Tables
- article
- aside

Graphic Tags

- Image Tag
- Figure tag

Links

- Anchor
- Internal linking(Within Project)
- External Linking(from our project to external pages)
- (#)HashBased navigation(Within page)

Multi Media Tags
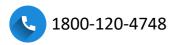
- Audio
- Video

Layout Tags

- Div
- Section
- Header
- Main
- Nav
- Footer

Form tags and form attributes

- Form
- Form attributes
- method
- action
- enc-type
- autocomplete
- novalidate

Form Elements & form element attributes

- Types
- Input types
- text
- password
- file
- hidden
- radio
- checkbox
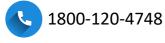- submit(Action Items)
- reset(Action Items)

- Textarea
- Dropdown Box
- select
- option
- Attributes of form elements
- type
- name
- placeholder
- value

HTML Features with Examples

- The DOCTYPE declaration for HTMl5 is very simple, !DOCTYPE html
- The character encoding meta charset="UTF-8"
- New function for embedding audio(audio), video(video), graphics(svg and canvas)
- Client-side data storage
- Interactive documents
- New structural elements, article ,header,footer,nav,section,and figure
- New from control calendar, date,time,email,url,search
- Javascript enhancement
- New HTML5 API's
- HTML Geolocation, HTML Drag And Drop, Web storage

Module 3 : CSS Introduction

- What is CSS
- Why Use CSS?
- How is CSS Used?

- Creating and Linking a CSS StyleSheet
- How To Test A Stylesheet

Module 4 : Selectors

Selectors
- What is a selector?
- The Universal/Global Selector
- The Tag/Element Selector
- The ID Selector
- The Class Selector
- The Attribute Selector
- The Relationship Selector
- Psuedo Selector
- Group Selector
- Specificity & When To Use Selectors
- What are Properties?
- The CSS General Rule

Coloring & Formatting
- Types of Colors
- Coloring Text
- Background colors
- Images/URLs in CSS Other background Properties
- Opacity / Transparency
- Gradients

Fonts & text manipulation
- Introduction to types of units
- Text Manipulation
- Font Size, Bolding & Style

- Font Families
- Including external fonts W/Google Fonts
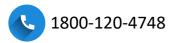- Using External Fonts

Layout

- Introduction
- The Box Model
- Padding
- Border
- Margin
- Changing Content Size
- CSS Borders
- Margin & Padding
- Float & Display Types

Flexbox

- Introduction
- Flexbox Components
- Creating a Flex Container
- Flex Direction & Wrap
- Content Alignment
- Flex Item Order
- Shrink, Grow & Basis
- The 'Flex' Property
- Item Alignment

Grid

- Grid vs Flexbox
- Introduction
- Differences
- Creating a Grid
- Template Columns & Rows
- Justify & Align Grid

- Row & Column Gaps
- Column & Row Lines
- Grid Area

Animation & Transitions

- The Transitions Property
- Transform property
- Creating Animations w/ Key frames
- Adding an Animation
- Animation Properties

Media Queries

- Media Queries in css
- Introductions
- properties

Module 5 : Introduction To Javascript

What is Javascript? Use of javascript?
Trend of Javascript
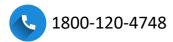**Types of Implementing Javascript**

- Inline
- Internal
- External

Basics of Javascript

- What are the Datatypes? Example for each one of them
- Variables & Constants

Operators

- What is Operators?
- Types of Operators
- Examples

Conditions / Decision making

- What is decision-making
- Types of Conditions
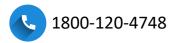- Examples for each one of them

Loops / Iterations

- What are loops? Usage?
- Types of loops
- Entry controlled vs exit controlled loops
- Examples for each one of them

DataStorage Techniques & DOM Manipulation

- What are the types of data storage?
- Strings & Methods
- Arrays & Methods
- Objects & Methods
- Array of Objects
- Realtime examples for each one of them

DOM & Dom Manipulations

- What is DOM & Dom Manipulation Methods?
- Types of DOM Manipulation Methods
  - Dom Selectors
  - getelementById()
  - getElementByTagName()
  - getElementByClassName()
  - querySelector()
  - querySelectorAll()
  - Attaching Event
  - addEventListener()
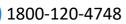 - Detaching Event
  - removeEventListener()

- Manipulating Elements
- createElement()
- appendChild()
- removeChild()
- replaceChild()
- Manipulating Attributes
- setAttribute()
- removeAttribute()
- Adding Css using Javascript
- document.getElementById('idvalue').style.property = 'value'
- Classlist
- addClass
- removeClass
- InnerHTML
- Document.write() vs innerHTML

Forms & Events

- What is forms and validations?
- Events and Event handling
  - Types of events
  - Keyboard events
  - keyup
  - keydown
  - keypress(deprecated)
  - Mouse events
  - click
  - dblclick
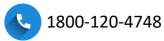 - hover
  - mouseover
  - mousemove

- mouseleave
- contextmenu
- Form events
- submit
- blur
- focus
- reset
- change
- Page events
- load
- scroll
- resize
- What is event Bubbling And Capturing?
- Event loop
  - Types of form validations
    - field validations
    - form validation
  - Regular expressions
    - form validation using regex
    - form validation without regex

Error Handling
  - What are the types of errors in JS?
    - syntax errors
    - type errors
    - assignment errors
    - reference errors
    - others
  - How to handle the errors?
  - What is exception handling?
    - try block

- catch block
- finally block
- throw block
- custom error messages

OOJS
- Object oriented Principles
  - Data abtraction
  - Data Encapsulation
  - ES5
  - Object Literal
  - Object Constructor
  - Es6+
  - Classical
  - Polymorphism
  - Operators Overloading
  - Function Overloading
  - Inheritance
  - Types of inheritance
  - Js Supported Types
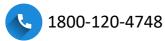
call(),apply() and bind()

Module 6 : React JS

Adding JavaScript to a Web Page
- Inline Script
- Internal Script
- External Script
- Multiple External Scripts

Arrays
- How to create an empty array

- How to create an array with values
- Creating an array using split
- Accessing array items using index
- Modifying array element
- Methods to manipulate array
- Array of arrays

Conditionals

- If
- If Else
- If Else if Else
- Switch
- Ternary Operators

Loops

- If Else

Scope

- If Else if Else

Object

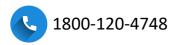- Switch

Functions

- Ternary Operators

Higher Order Function

- Callback
- Returning function
- Setting time

Destructuring and Spreading

- What is Destructuring?
- What can we destructure?
- Spread or Rest Operator

Functional Programming

- Foreach
- Map
- Filter
- Reduce
- Find
- Findindex
- Some
- Every

Classes

- Defining a class
- Class Instantiation
- Class Constructor
- Default values with constructor
- Class methods
- Properties with initial value
- Getter
- Setter
- Static method
- Inheritance
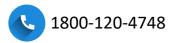- Overriding methods

Document Object Model(DOM)

Getting Started React

What is React?

Why React?

JSX

- JSX Element
- Commenting a JSX element
- Rendering a JSX Element

- Style and className in JSX
- Injecting data to a JSX Element

Setting Up

- Node
- Module
- Package
- Node Package Manager(NPM)
- Visual Studio Code
- Browser
- Visual Studio Extensions
- Create React App

Your first React App

- React Boilerplate
- Styles in JSX
- Injecting data to JSX elements
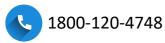- Importing Media Objects in React

Components

- Big picture of components
- JavaScript function
- JavaScript Class
- Creating React Component
- Props
- Props in Functional Component
- What is props?

Props object

- Destructuring props
- propTypes
- defaultProps

Mapping arrays

- Mapping and rendering arrays

Class Components

- Accessing props in Class components
- Methods in Class based component

States

- What is State?
- How to set a state
- Resetting a state using a JavaScript method

React Project Folder Structure and File Naming

- File Naming
- Folder
- Components Folder
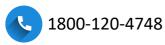- Fragments

Events

- What is an event?

Forms

- Getting data from an input field
- Getting multiple input data from form
- Get data from different input field types
- Form Validation
- What is validation?
- What is the purpose of validation
- Validation Types

Uncotrolled Components

- Getting data from an uncontrolled input
- Getting multiple input data from form

Component Life Cycles

- What is component life cycle
- Mounting
- Updating
- Unmounting

Third Party Packages

- NPM or Yarn

React Router

- What is React Router ?
- BroswerRouter
- Route
- Switch
- NavLink
- Nested Routing
- Redirect
- Prompt

Fetch and Axios

- Fetch
- Axios

Introducing React Hook

- Basic Hooks
- Additional Hook

Form Using React Hooks

- Basic Hooks
- Additional Hook

Fetching Data Using Hooks

- Basic Hooks
- Additional Hook

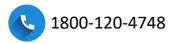**Custom Hooks**

Context

useRef

Module 7 : Bootstrap

Introduction to BootStrap
- What is Bootstrap
- History of Bootstrap
- Versions of Bootstrap
- Popularity of Bootstrap
- Bootstrap Documentation
    - Installing Bootstrap Locally
    - Install or adding Bootstrap via Cdn link
    - Adding Javascript cdn link

Layout & Components
- BreakPoints
    - Extra small
    - Small
    - Medium
    - Large
    - Extra large
    - Extra extra large
- Containers
    - container- fluid
    - container
- Columns
    - column
    - row
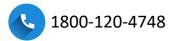- Gutter
    - Horizontal gutter
    - Vertical gutter

- - Row column gutter
  - No gutter
- Margins
- Padding
- Components in Bootstrap

Utilities
- Background
- Colors
- Display
  - none
  - inline
  - inline-block
  - block
  - grid
  - flex
  - inline-flex
- Float
  - float-start
  - float-end
- Position
  - position-static
  - position-relative
  - position-absolute
  - position-fixed
  - position-sticky

Flex
- Direction
  - flex-column
  - flex-column-reverse

- justify-content
  - justify-content-start
  - justify-content-end
  - justify-content-center
  - justify-content-between
  - justify-content-around
  - justify-content-evenly
- align-items
  - align-items-start
  - align-items-end
  - align-items-center
  - align-items-baseline
  - align-items-stretch
- flex-fill
- flex grow & shrink

Grid
- Grid options
  - Extra small (xs)
  - Small (sm)
  - Medium (md)
  - Large (lg)
  - Extra large (xl)
  - Extra extra large (xxl)
- Containers and rows
- Columns
- Responsive Breakpoints

Module 8 : Material UI

Introduction
- Introduction to MUI
- MUI Documentation
- Advantages of MUI
- Setting up Environment
  - installing MUI in local

MUI Components
- INPUTS
  - AutoComplete
  - Button
  - Button Group
  - Checkbox
  - Radio group
  - Select
- DATA DISPLAY
  - Avatar
  - Badge
  - Typography
  - Icons
  - Tooltip
- FEEDBACK
  - Dialog
  - Alert
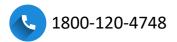- SURFACES
  - Accordion
  - App Bar

- Card
- Paper
- NAVIGATION
  - Breadcrumbs
  - Drawer
  - Link
  - Menu
  - Pagination
  - Tabs

Modal & Transition

- Basic modal
- Nested modal
- Transitions
  - Collapse
  - Fade
  - Grow
  - Slide
  - Slide relative to a container
  - Zoom
  - TransitionGroup
- Basic Popover
- Anchor playground
- Mouse over interaction

Data grid

- Installation
- Layout
- Column
  - column definition
  - column dimensions

- column visibility
- column header
- column ordering
- column spanning
- column grouping
- Pagination
- Filtering

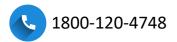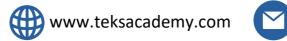**Container & Grid**

- Container
  - Fluid
  - Fixed
- Grid
  - Fluid grids
  - Grid with multiple breakpoints
  - Spacing
  - Row & column spacing
  - Responsive values
  - Auto-layout

Module 9 : Introduction To Java
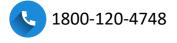
Introduction To Java

- History of Java
- What is Java , Java Flavors, characteristics
- JVM Architecture
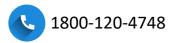- Bytecode
- Class Loader
- Unicode

- Class path
- Path
- Fundamentals of Java Programming
  - Object oriented concepts (OOP)
  - Keywords, Datatypes, Variables, Operators, Casting
  - Selection statement (if, switch)
- Control flow , Conditional
  - Control statements (while, do while , for)
  - Conditional statements (if, else, elseif)
  - Static
  - Arrays
- Object Oriented Programming with Java
  - Classes and Objects
  - Structure of a class – its internals (Data Members, methods)
  - Using static
  - Constructor
- Object Oriented Programming with Java continued
  - This keyword
  - Modifiers
  - Playing with the object (copying, casting)
  - Garbage collection
  - Abstract class
- Inheritance
  - Basics (extends keyword)
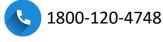 - Modifiers and their scope
  - Deriving a class

- Super, final keyword
- Why java does not support multiple inheritance?
- Polymorphism
  - Overloading a method
  - Overloading a constructor
  - Method overriding
  - Accessing base class method
- Packages and Interfaces
  - Basics
  - Modifiers and their scope chart
  - Setting classpath
  - Compiling and accessing a packaged class
  - Types of packages
  - User-defined package
- Exploring java.lang package
  - String, StringBuffer, Arrays
  - Wrapper classes
- Exception Handling
  - Basics
  - Hierarchy of exceptions
  - Handling exception – Try, catch, finally, throw, throws
  - User defined exceptions
- Threads
  - Basics, Thread class , Runnable Interface
  - Thread model
  - Life cycle – start(), run()
  - Scheduling
- Threads Continued
  - Deadlocks / concurrency issues

- Synchronization – as a block, as a modifier
- Daemon thread
- I/O Streams
  - Introduction
  - Hierarchy of streams
  - IO Stream, Byte Stream, Character Streams
  - Buffered Input Stream, BufferedOutputStream
  - Reader and Writer class
  - Buffered Reader, Print Writer
  - Serialization
- Collection Framework
  - Basics, hierarchy
  - Legacy classes – Vector, Queue, Stack, Enumeration, Dictionary, Properties
  - List, ArrayList, LinkedList
  - Set, HashSet, TreeSet,
- Collection framework continued
  - Map, HashMap, TreeMap,
  - Generics
  - Annotations
  - Boxing / Unboxing
  - Enums
- Spring core
  - Types of containers
  - Xml configuration Core annotations
  - Component – scan
  - What can be injected into a bean
  - Understanding core annotations
- Spring MVC
  - Handler Mapping

- Controllers
- View resolvers
- Validators
- Interceptors
- Spring DAO
  - Jdbc templates
  - Exception hierarchy
- Spring ORM
  - Hibernate template
  - Integration with hibernate
- Spring AOP
  - Point cut
  - Advisors
  - Types of advice
- Spring – webservices
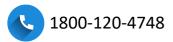- Spring security
- Spring JPA

Module 10 : Hibernate

Introduction
- Introduction to ORM (Object Relational Management)
- Benefits of ORM
- Contrast JDBC with ORM
- Hibernate Jar files

Architecture & Crup operation
- Hibernate Architecture
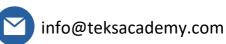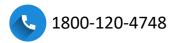- SessionFactory, Session, Transaction, Query

- Understanding config files .hibernate.xml, .hbm.xml
- Performing CRUD operations
- load, get, save, saveorupdate, delete
- HQL
  - working with various SQL commands
  - Accessing more than one object from the table
- Mapping
  - Inheritance
  - Collection
  - Composition
  - Association
- Cache
  - Level – I and II
  - Using third party to configure L2 cache
- Criteria
- Note : an application using the above technologies
- Domains :Telecom , LMS, etc…
  - Interfaces/classes
  - Implementation
- Spring Boot
  - Introduction/benefits
  - Spring Boot overview
  - Bootstrapping an Boot application
- Sprint Boot continued
  - Initializer
  - Auto Configuration
  - Spring Boot annotations
  - Spring Boot properties
- Spring Boot profiles
  - Accessing data with Spring Boot and h2 database

- Configuring Spring Boot with spring MVC application
- Building a Restful web application with Spring Boot
- Servlets
  - Servlet Internals and Servlet Programming
  - What are Servlets and why do we need Servlets?
- Servlet Development with Eclipse
  - Developing Servlets
  - Compiling Servlets
  - Deployment and Invoking of Servlets
  - Purpose of Servlet Mapping and web.xml
- Servlet Architecture
  - Detailed Architecture of Servlets
  - Discussion of GenericServlet, HttpServlet Interfaces
  - Programming examples
- Servlet Life Cycle
  - HTTP Internals
  - Detailed discussion of all parameters of request and response packets
  - Discussion of HttpServletRequest and HttpServletResponse interfaces
- Session Tracking API
  - Practical visualization of Http Session objects and Session table
  - Session Tracking API
  - Session Tracking Programming
  - Cookies, URL Rewriting and Hidden Form Fields
  - ServletConfig Object
  - ServletContext Object
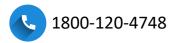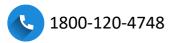 - RequestDispatcher Object

- Filters
  - Why do we need filters?
  - Filter, FilterChain, FilterConfig interfaces
  - Programming examples
  - Application / Attribute Lifecycle Listeners
  - Why do we need Lifecycle Listeners?
  - ServletContext and ServletContext Attribute Listeners
  - Session and Session Attribute Listeners
  - Programming examples
- Java Server Pages(JSP)Internals and Programming
  - What is JSP? Why do we need JSP?
  - JSP development with Eclipse
  - JSP Life Cycle
  - Predefined Objects of JSP
- JSP Continued
  - request, response, out and session objects
  - config, application, pagecontext objects
  - Scripting Tags (Writing Java code inside JSP)
  - Directives
  - @page, @include directives
- Action tags of JSP
  - Difference between jsp:forward, jsp:include and @include tags
  - Programming examples to illustrate each tag
  - Expression Language
  - Why do we need EL?
- More on Expression Learning
  - Reading scoped attributes using EL
  - Reading bean properties using EL

- Reading collections using EL
- Operators of EL
- Programming examples to illustrate each usage
- JSTL (JSP standard tag library)
  - JSTL (JSP standard tag library)
  - Why do we need JSTL?
  - Looping tags
  - Control tags
  - Database tags
- JSTL Continued
  - 118N tags
  - Programming examples to illustrate each category of tags
  - Custom tags
  - Custom tag creation based on Servlets
  - Custom tag creation based on JSP
  - concept of tld file
  - programming examples to illustrate each concept
- Java Beans
  - What are Java beans and why do we need Java beans?
  - Action tags for java beans
  - Application of Java beans
- MVC Architecture
  - Why do we need MVC?
  - Discussion of pros and cons of Servlets, JSP and JavaBeans
  - Programming example to illustrate Business logic, Controller logic
  - Presentation logic and Bean creation
- JDBC

- Java Data Base Connectivity (JDBC) internals and programming
- What is JDBC ? Why do we need JDBC ?
- Discussion of JDBC driver types and Driver Manager
- Connection object
- Statement types and Discussion of each type of Statement Objects
- JDBC Continued
  - ResultSet Types and Discussion of each type
  - Stored Procedure Access from java applications
  - Transaction Programming with JDBC
  - Savepoint and RowSet
  - DataSource and Connection Pooling
  - Batch Updates, JNDI
  - Explanation on Usage of important Practical Tools
  - Eclipse
  - Jboss, Weblogic, Tomcat

Module 11 : Database

- Database handling with mysql
- Create database connection
- Dml and ddl operations with databases performing transactions
- Handling database errors disconnecting database
- Database handling with mongodb sql vs nosql
- Mongodb , Pymongo
- Establishing a connection
- Accessing database
- Dml and ddl operations

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