



Automation Testing with Selenium

Our Seasons

- Fearless Java
- Logical Strength
- Actual Java
- Selenium Basics
- Selenium Intermediate
- Selenium Advanced

Season 1: "Fearless Java" (80 hours or 45 days)

Objective: Remove fear and build a strong foundation in Java programming

Topics:

- Command Prompt Commands (4 hours)
- Java History (1 hour)
- Writing First Java Program (1 hour)
- Installing Java Latest Versions (JDK 23) (2 hours)
- Java Program Compilation, Execution, and Analysis (Java 8 version) (1 hour)
- Industry Standards for Java Programming (1 hour)
- Error-Free Programming: Best Practices (1 hours)
- JShell (with latest version) (1 hour)
- Java Syntax:
 - Keywords (1 hours)
 - Identifiers (class, interface, enum, record, constructors, variables, reference variables) (4 hours)
 - Understanding JAVA Files. (2 hours)
 - Compiling blank java file
 - writing multiple classes in one file and compile the .java file to see all .class files created .
 - compiling multiple .java files
 - Methods (very important - logics will be written only in methods) (4 hours)
 - Constants (4 hours)
 - Local Blocks (1 hour)
 - Labels (1 hour)
 - Package (4 hours)
 - Literals (very important - (3 hours)
 - 12 types of Data Castings (20 hours)
 - Operators:
 - Around 12 operators (6 hours)
 - Indentation (1 hour)

- Access Modifiers: (2 hours)
 - Public
 - Protected
 - Package Private
 - Private
- Static Variables and Static Blocks (2 hours)

Note: This season focuses on building a strong foundation in Java programming, covering the basics, syntax, and essential concepts to help students overcome their fear of Java and build confidence in their programming skills.



Season 2: "Logical Strength" (60 hours or 30 days)

Objective : Develop logical thinking and problem-solving skills to write efficient programs

Topics:

- Conditional Statements: (10 hours)
 - If-Else
 - Ternary Operators
 - Switch
 - Enhanced Switch
 - enum
- Recursion (10 hours)
- Loops: (10 hours)
 - For loop basics
 - For loop with numbers
 - Difference between For and While loops
 - Converting While loop to For loop and vice versa
 - Pattern programs using For loop and nested For loops
- Strings: (10 hours)
 - CharSequence
 - StringBuffer (Synchronized methods)
 - StringBuilder (non-Synchronized methods)
 - String methods.
- Arrays (Single Dimension): (10 hours)
 - Creating an Array
 - Reading values
 - Presenting values
 - Adding elements
 - Removing elements
 - Finding elements in Array
 - Varargs and method overloading
 - sorting (Bubble sort, Selection sort, Insertion sort, etc.)

- Arrays and Collections: (10 hours)
 - Enhanced For loop (String and Collection programs)
 - Converting Array to Collection and vice versa
 - Similarities and differences between Arrays and Collection
 - Comparator and Comparable.

Note: This season focuses on developing logical thinking and problem-solving skills to write efficient programs. Students will learn advanced concepts in conditional statements, loops, strings, arrays, and collections to become logically strong programmers.



Season 3: "Actual Java" (80-100 hours) or (50 days)

Objective: Master the Core Java concepts and apply them to real-world scenarios

- Sub season 4.1: Core Java (20 hours)
 1. Object-Usage
 2. this keyword
 3. Class vs Object
 4. Constructors
 5. Overriding to String and equals
 6. hash Code and equals methods
 7. Generic Basics
 8. Overriding compare To and compare
 9. Collection Basics

- Sub season 4.2: OOPS Concepts (25 hours)
 1. Encapsulation
 2. Singleton design pattern
 3. Voter class
 4. Records
 5. Inheritance (Types of Inheritance)
 6. Sealed/non-sealed Classes using permits
 7. Polymorphism (Overloading, Overriding)
 8. Abstraction
 9. Abstract Class
 10. Interface

- Sub season 4.3: Use Cases (8 hours)
 1. Student X Student Am itab Fruit Juice
 2. Mom Sweet (recipe) (why we need interface)
 3. Fresher Interview (mostly like selenium framework)

- Sub season 4.4: Advanced Topics (17 hours)
 1. 2-D Array
 2. Collection
 3. Exception Handling
 4. File Handling (Serialization, Deserialization)
 5. Properties Files (Yml, xml, json, CSV, Text, Excel, word, pdf)
 7. Eclipse/IntelliJ

Extra Topics: (4 hours)

1. Functional Interfaces (An interface that has only one unimplemented method).
 - a. Method References
 - b. Lambda Expressions (covered during collection basics)

Note: This season focuses on advanced Java concepts, OOPS principles, and real-world applications. Students will learn how to apply Java concepts to practical scenarios, making them industry-ready.



Season 4: Selenium Basics (30 hours)

- HTML Basics for element location and identification.
- Testing XPath and CSS Selectors

Xpath:

- Manual XPath Construction: Write your own XPath based on the structure.
- Using XPath with Attributes: Use attributes like id, class, and name to find elements.
- XPath Functions: Use contains(), starts-with(), and text() for dynamic XPath.
- XPath Axes: Use axes like parent, child, descendant, and following-sibling for navigation.

CSS:

- Manual CSS Selector Construction: Write selectors based on element types, IDs, classes, etc.
- CSS Selectors with Attributes: Use [attribute="value"],
- Method Combinators: using (*, ^, \$) - Use[attribute*="value"]
- CSS Pseudo-Classes: Use :hover, :first-child, :nth-child(), etc.
- CSS Combinators: Use descendant (), child (>), sibling (+), and general sibling (~) combinators.

- Maven installation and dependencies
- Selenium basics:

- Opening browsers and navigating URLs
- Finding elements and performing actions
- Using Chrome Options
- Dynamic XPath and CSS construction
- implicit waits, Explicit Waits (Web Driver Wait, Fluent Wait)
- Switching frames, windows, and alerts
- Mouse and keyboard actions
- Assignments to test knowledge

Season 5: Selenium Intermediate (30 hours)

- Relationship between manual test cases and automation frameworks

- Framework without TestNG and POI
- Automating manual test cases in a framework
- TestNG installation and integration with Maven
- Running automation cases from command

prompt/Jenkins

- Taking parameters from testng.xml file
- Different annotations and parallel execution
- Multi-browser testing and rerunning failed test cases
- Properties file reading and POI for Excel reading
- TestNG DataProvider for data-driven testing
- Hybrid-TestNG FW (Page Object Model) with Data

Provider

- Assignment to create a framework independently (With this you will get 100% of real time experience).



Season 6: Selenium Advanced (20 hours)

- Cucumber-BDD
- Extent Reports
- Git
- Log4J2
- Selenium Grid
- Jenkins (Only theory part)

Topics: (will be covered based on student understanding level - 20 hours)

- Descriptive and Non-Descriptive Programming: (4 hours)
 - Non-static methods
 - Static methods
- Method Chaining (2 hours)
- Inner Classes (4 hours)
- JAR Files (1 hour)
- Local Variables (2 hours)
- Generating Random Numbers (2 hours)
- Basics of Threading (if time permits - not important as per selenium perspective)

Note: This season focuses on building confidence in Java programming by teaching best practices, industry standards, and advanced concepts to help students write error-free programs and develop a deeper understanding of Java fundamentals.

Thank you

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