

Cognizant Academy

Academy Full Internship Learning Journey Guide (Java Track)



Why do we need this Academy Internship Program?

Academy Internship program engages young talents with a comprehensive learning pathway, giving these millennials an opportunity to interact with Subject Matter Experts (SME) and understand the corporate environment and groom themselves even before they join us.

Cognizant emphasizes on Learner Autonomy where students take charge of their own learning, with the available tools and resources. More focus is on “learning” than “teaching”. Get ready to embark your own learning adventure!

Program at a glance

Learning consisting of 2 Stages:

- Stage 1 - Core Programming Fundamentals
- Stage 2 - Deep Dive

Program Highlights

- The complete learning journey is formalized using adult learning principles, where problem solving and applying the skills gained are given more importance than conceptual learning.
- Learner Autonomy is encouraged via Flipped Classroom, where the learning platform offers world class learning resources, and students would not be constrained by tutelage of an instructor.
- Get mentored by SME, whose motivation and guidance will help you accelerate in the learning journey.

Learning Journey with Flipped Classroom

This program encourages you to be more autonomous learners during guided self-learning hours, completing the learning objectives on your own pace and style, and get ready for the hands-on practice time.

The complete learning path is set in the [GEN C Learn Platform](#), which you can login with SSO.

Flipped Classroom

Self-Learning Hours

- Go through the Learning Objectives
- Try to accomplish the learning objectives by accessing learning resources

Hands-on Practice Time

- Get guidance from Subject Matter Expert
- Deep dive on to the learning concepts and solve a problem statement

Recommended Program Sequence

The learning journey contains 2 stages:

- Stage 1 – Refresher on Core Programming Fundamentals
- Stage 2 – Deep Learnings

Stage 1 - Core Programming Fundamentals

Milestone 1

- Web Designing with HTML5/CSS3
- JavaScript
- Behavioral Skills

Milestone 2

- Programming with Database
- Behavioral Skills

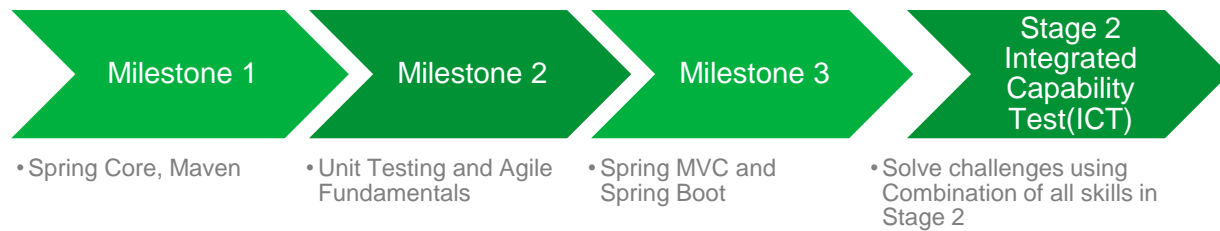
Milestone 3

- Programming in Java
- Behavioral Skills

Stage 1 Integrated Capability Test(ICT)

- Solve Challenges using combination of all skills in Stage 1

Stage 2 - Deep Learnings



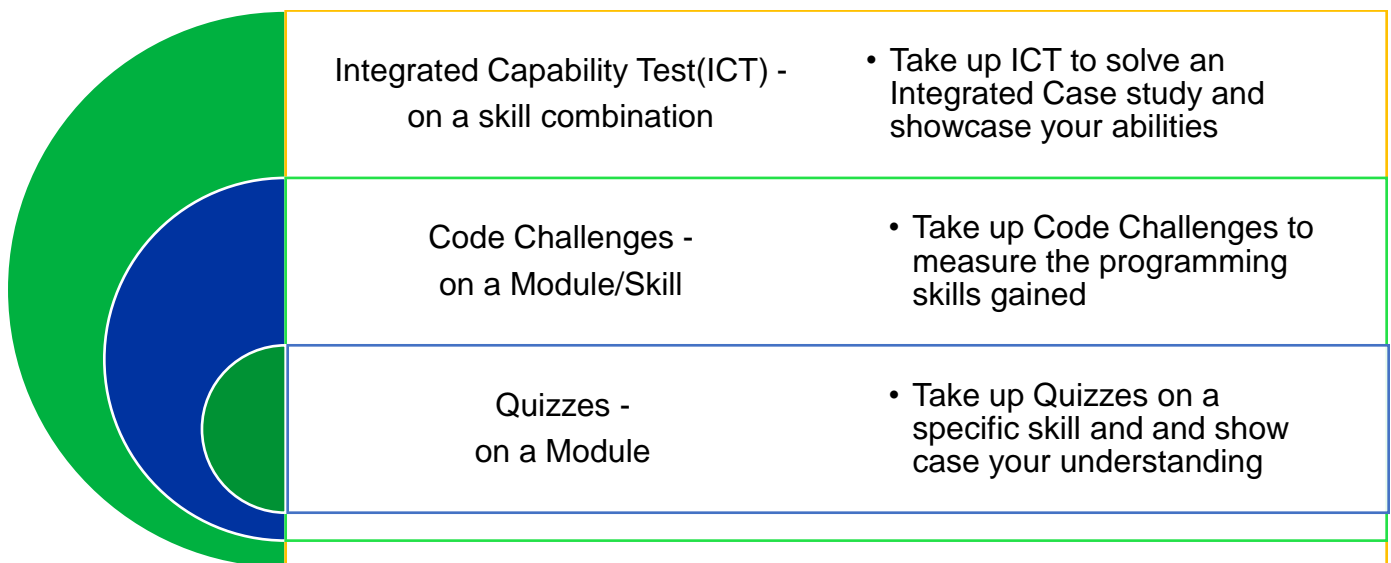
Key Learning Components of the Program

Cognizant has collaborated with Udemy to provide world class learning videos for the evolving future of work. These Udemy programs are woven in to a learning path, empowering you to plan and learn at your style.

The program also connects you with Subject Matter Experts to get the professional guidance on your queries in the learning journey.

The program continuously evaluates if you are able to apply those self-learnt skills to solve a business problem. Depicted below are the three key learning components, which are distributed across the learning journey for the purpose of continuous evaluation.

You have to score a minimum of 70% in each of the key components.



Program Completion Criteria

Complete all the mandatory Coding Challenges and ICT with benchmark of 70% in both the stages. Coding challenges will be scheduled on the last day of the Milestone.
ICT will be scheduled on the last day of the Stage.

Stage 1: Milestone 1

Overall Duration (including Behavioral Modules): 4.5 days

Milestone 1 will be focusing on HTML, CSS and JavaScript along with behavioral skills*

Udemy learnings are recommended in the Platform to understand the fundamental concepts. Apply the concepts learned and solve the Hands-on and Practice Case studies as recommended below.

Day 1

HTML5, CSS3

Learn the basics of HTML5 & CSS3



[Responsive Web Design: HTML5 + CSS3 for Entrepreneurs 2018](#)

- Refer sections 1, 2 in this Udemy course and complete the corresponding hands-on coding given below.
- Implement the examples along with the author.

Tekstac Hands-On:

- Simple Calculator

JavaScript

Learn the basics of Javascript

Learn and Practice:



[JavaScript basics for beginners](#)

- Refer sections 1, 2, 3 in this Udemy course and complete the corresponding hands-on coding given below.
- Implement the examples along with the author.

- Go through W3Schools web pages for learning below specific topics



[Form Validation](#)

- JavaScript Form Validation
- JavaScript can validate numeric input
- Data Validation

[String Methods](#)

- String Length
- The substring() Method
- String.trim()

[JavaScript HTML DOM](#)

- The HTML DOM (Document Object Model)
- What is DOM?
- What is the HTML DOM?

[Window alert\(\) Method](#)

- Definition and Usage
- Example

[JavaScript isNaN\(\) Function](#)

- Definition and Usage
- Example

[JavaScript isNaN\(\) Function](#)

- Definition and Usage
- Example

- Go through javascript-coder.com web page for learning form submission

javascript-coder.com

[JavaScript Form Submit Example](#)

- Refer code example in this web page

Tekstac Hands-On & Quiz:

- ACTB Connection Portal
- Quiz 1 & 2

Day 3

Practice Case Study

- Understand truYum use cases ([truYum-use-case-specification.pdf](#))
- Go through Web UI specification of truYum ([truYum-html-css-javascript-specification.pdf](#))
- Develop web pages using HTML, CSS and JavaScript for truYum

Day 4

Tekstac activity:

- Code challenge

* **Note:** Behavioral session will be conducted on any day in Milestone 1, for 8 hours – based on Trainer Availability. Module covered would be HeadStart_First Act

Stage 1: Milestone 2 - Schedule

Overall Duration (including Behavioral Modules): 6 days

Milestone 2 will be focusing on SQL Programming

Udemy learnings are recommended in the Platform to understand the fundamental concepts. Apply the concepts learned and solve the Hands-on and Practice case study as recommended below.

Day 1

Database design

DDL Commands, DML Commands

Learn and Practice:



[Sql for beginners](#)

- Refer sections 2 to 6 in this Udemy course and complete the corresponding hands-on coding given below.

Tekstac Hands-On:

Recommended

- Insert Records - Department
- Department name based on block number

Database design

Operators, Aggregate, String, Date Functions

Learn and Practice:



[Sql for beginners](#)

- Refer sections 7, 8, 10, 11 in this Udemy course and complete the corresponding hands-on coding given below.

Tekstac Hands-On:

Recommended

- Student and their Department Based on City
- Concatenating Details
- Quiz 2 & 3

Day 3

Learn and Practice:



[Relational Database Design](#)

- Go through the entire course

Additional hands-on:

Note: The below mentioned hands-on are for better understanding of the concepts and needs to be completed.

- car rental system - Insert values
- Hunger eats - update table
- Customers having gmail id
- Car details based on type and name
- Hotel_info
- No of time rented by each car
- Credential details

Day 4

Practice Case Study

- Go through SQL specification of truYum (truYum-sql-specification.pdf)
- Create schema, table and queries for storing and retrieving data for truYum

Tekstac activity:

- Code challenge

* **Note:** Behavioral session will be conducted for 2 days in Milestone 2 – based on Trainer Availability.

Stage 1: Milestone 3 - Schedule

Overall Duration (including Behavioral Modules): 14.5 days

Milestone 3 will be focusing on Java Programming along with behavioral skills*

Udemy learnings are recommended in the Platform to understand the fundamental concepts. Apply the concepts learned and solve the Hands-on and Practice Case studies as recommended below

Day 1

Core Java

Overview, First Java Program, Variables, Datatypes, Literals, Operators, Expressions and Conditional Statements.

Learn and Practice



[Java In-Depth: Become a Complete Java Engineer!](#).

- Go through section 2.
- Skip installation steps.
- Implement the HelloWorld Program along with the author.

[Core Java Made Easy](#).

- Go through section 6, section 8.
- Go through section 9(57 to 58).
- Implement the examples along with the author.

* Note: Please refer the [link](#) for providing the user inputs from the console for Java samples.

Tekstac Hands-On

- Display Characters
- Fuel Consumption Calculator
- Highest Placement

Core Java

Overview, String, Arrays, Looping Statements, Methods, Class, Object, static.

Learn and Practice



[Core Java Made Easy.](#)

- Go through Section 9(59 to 66)
- Go through Section 4, Section 5.
- Implement the examples along with the author.

[Java In-Depth: Become a Complete Java Engineer!.](#)

- Go through Section 3.20 to 3.21.

[Core Java Made Easy.](#)

- Go through Section 22(170,171, 177,178,179,180,181,182).
- Go through Section 24.
- Implement the examples along with the author.

Tekstac Hands-On

- Least offer
- String Concatenation
- Ticket Price Calculation – Static
- Student Details - Constructor

Day 3

Core Java

Access Modifiers, Packages, Inheritance, Abstraction.

Learn and Practice



[Core Java Made Easy.](#)

- Go through Section 10 to Section 14.
- Implement the examples along with the author.

Tekstac Hands-On

- Contact Details of Hosteller
- Shape - Area Volume Calculator
- Account Manipulation - Abstract class

Day 4

Core Java

Polymorphism, Encapsulation, Interface, Object Methods

Learn and Practice



[Core Java Made Easy.](#)

- Go through Section 15 to Section 16.
- Go through Section 25.
- Implement the examples along with the author.

Tekstac Hands-On

- BankAccountDetails
- Employee Loan Eligibility – Polymorphism
- Vehicle-Loan-Insurance - Use Interface

Core Java

Collection Framework, ArrayList, Map, Set.

Learn and Practice



[Core Java Made Easy.](#)

- Go through Section 26 (202-209, 211-215, 219-222, 224-225, 234, 236, 242-244)
- Implement the examples along with the author.

Tekstac Hands-On

- Insurance Bazaar
- Number of New Words
- PhoneBook Manipulation

Core Java

File Handling, Annotation, Threads and Garbage Collections, Exception Handling, Enums.

Learn and Practice



[Core Java Made Easy.](#)

- Go through Section 23 (182 - 185).
- Go through Section 31 (309 - 312).
- Go through Section 18 (133 – 140, 147-148).
- Go through Section 20.
- Go through Section 17, Section 27
- Implement the examples along with the author.

Hands-On

- Array Manipulation - Use try with multi catch
- Divide two numbers - Use finally
- Register a Candidate - User defined Exception (with throw and throws)

Core Java

Java 8 Features - Lambda Expressions, Streams, Filters, java.time.

Learn and Practice



[Core Java Made Easy.](#)

- Go through Section 28.
- Implement the examples along with the author.

[Java In-Depth: Become a Complete Java Engineer!](#)

- Go through Section 20.
- Implement the examples along with the author.

Tekstac Hands-On

- Mall Parking System
- Validate Name

JDBC

Introduction, Connection, Statement, Prepared Statement, Callable Statement, Transactions and Meta Data.

Learn and Practice



[Java Database Connection: JDBC and MySQL.](#)

- Go through entire course.
- Implement the examples along with the author.

Tekstac Hands-On

- Add Flight using JDBC

Day 9 and 10

Additional Hands-On:

Additional Hands-On

1. Bill Generation
2. Movie Ticket Calculation
3. Find Season
4. Pencil Count
5. Lucky Number
6. List of prime numbers
7. Increment Calculation
8. Factors of a Number
9. Search a Course
10. Validate PAN
11. Print unique characters
12. Palindrome
13. Cumulative sum in an array
14. InitCap
15. Find Average Age
16. Array Compatibility
17. Average and Grade Calculation

Day 11 and 12

TruYum Practice Case Study – Java TruYum Practice case study – JDBC

Day 13

Code Challenge

* **Note:** Behavioral session will be conducted for 2 days in Milestone 2 – based on Trainer Availability.

Stage 1: ICT Prep up and ICT.

Overall Duration (including Behavioral Modules): 3.5 days

Day 1,2

ICT Preparation and Mock ICT

Day 3

Stage 1 – ICT

* **Note:** Behavioral session will be conducted for 6 hrs in Prep up phase – based on Trainer Availability.

Stage 2: Milestone 1

Overall Duration (including Behavioral Modules): 5 days

Day 1

Maven

Needs and benefits, Maven Project Creation, POM.xml, Build lifecycle, repositories, Scopes and Profiles.

Learn and Practice

Refer this [document](#) for Maven Installation and Web Project Creation.



[Maven Crash Course](#).

- Go through section 1, section 3, section 8, and section 9.
- Perform maven build along with the author of this course.

Core Spring

Setter Based Injection

Learn and Practice

[Spring Framework in Easy Steps](#)



- Go through section 1, section 2.12, and section 4 (4.20 to 4.25).

Tekstac Hands-On

- DBConfig-SetterBasedInjection

Core Spring

Injecting collections, dependency check, Inner Beans and Scope.

Learn and Practice



[Spring Framework in Easy Steps](#)

- Go through section 4 (4.26 to 4.31)
- Implement the examples along with the author.

Tekstac Hands-On

- CurrencyConverter-Collections (Refer section 4.34 and 4.35 of Udemy course to implement this hands on)

Learn and Practice



[Spring Framework in Easy Steps](#)

- Go through section 6.
- Implement the examples along with the author.

Tekstac Hands-On

- Customer-Address-Scope
- Customer-Address Inner Bean

Core Spring

Constructor based Injection, Spring Core Concepts, Autowiring, Usage of Properties.

Learn and Practice



[Spring Framework in Easy Steps](#)

- Go through section 7 (7.59 to 7.60)
- Implement the examples along with the author.
- Go through section 3.
- Go through section 8.

Tekstac Hands-On

- Constructor Injection

Learn and Practice



[Spring Framework in Easy Steps](#)

- Go through section 9.
- Implement the examples along with the author.

Tekstac Hands-On

- Autowiring

Day 4

Core Spring

Stereotype Annotations, Injecting Interfaces

Learn and Practice



[Spring Framework in Easy Steps](#)

- Go through section 11 (11.83 to 11.87).
- Go through section 13.
- Implement the examples along with the author.

Day 5

Code Challenge

* **Note:** Behavioral session will be conducted for 4 hrs in Stage 2 Milestone 1 – based on Trainer Availability.

Stage 2: Milestone 2

Overall Duration (including Behavioral Modules): 10.7 days

Day 1

JUnit

Writing basic tests, Assert Statements.

Learn and Practice



[Learn Java Unit Testing with Junit & Mockito in 30 Steps](#)

- Go through section 1, 2 (2.4 to 2.10)
- Implement the examples along with the author.

Tekstac Hands-On

- Electricity Bill
- Testing using Assertion

Testing Exceptions, Comparing Arrays, Parameterized Tests, Test Suites

Learn and Practice



[Learn Java Unit Testing with Junit & Mockito in 30 Steps](#)

- Go through section 2 (2.11 to 2.15)
- Implement the examples along with the author.

Tekstac Hands-On

- Product Login Test Suite
- Loan EMI Calculator

Day 2

Test Driven Development

Test Automation, Test Code Optimization and Test Driven Development

Learn and Practice



[Learn TDD in 24 Hours](#)

- Go through sections 1, 2 and 3
- Implement the coding along with the author

Code Quality

The concepts include importance of code quality and coding standards.

Master Class – Need to be driven by SME

Learn and Practice

Refer this [document](#).

Agile Basics

The key concepts and tools of Agile Development, Agile Project Delivery and Agile Project Management.

Learn and Practice



[Agile Crash Course: Agile Project Management; Agile Delivery](#)

- Go through entire course

Day 4 and 5

TruYum Practice case study – Spring Core and Junit

Day 6 to 8

Additional practice

Day 9

Code Challenge

* **Note:** Behavioral session will be conducted for 10 hrs in Stage 2 Milestone 2 – based on Trainer Availability.

Stage 2: Milestone 3

Overall Duration (including Behavioral Modules): 6.5 days

Day 1

Servlets and JSP

Overview, Understanding Servlets, Web Application Request Flow.

Learn and Practice



[Java In-Depth: Spring MVC For Beginners - Build Java Web App in 25 Steps.](#)

- Go through section 1.1.
- Go through section 2(2.7 to 2.10)
- Setup a basic application using servlets along with the author.

Spring MVC using Spring Boot

Spring initializer, <https://start.spring.io>, pom.xml, @SpringBootApplication, SpringApplication.run(), Controller, @RequestMapping, @ResponseBody

Learn and Practice



[Learn Spring Boot in 100 Steps - Beginner to Expert.](#)

- Go through section 1.
- Skip Installation steps.
- Go through section 2(2.7 to 2.9)
- Setup a basic spring boot application along with the author.
- Go through Section 2(2.10 to 2.13)
- Implement the examples along with the author.

Spring Boot Web Application

View Resolver, @RequestParam, ModelMap, Dispatcher Servlet, Spring MVC Web request flow, Web Application Architecture, Session scope, Request scope, @SessionAttributes.

Learn and Practice



[Learn Spring Boot in 100 Steps - Beginner to Expert.](#)

- Go through Section 2(2.14 to 2.23)
- Implement the examples along with the author.

Tekstac Hands-On

- Zee Zee Login

Spring MVC using Spring Boot

JSTL tags, Spring MVC form tag library, Validations, initBinder

Learn and Practice



[Learn Spring Boot in 100 Steps - Beginner to Expert.](#)

- Go through Section 2(2.24 to 2.32)
- Implement the examples along with the author.
- Go through Section 2.37

Tekstac Hands-On

- HolidayParty-Validations

Day 4

Spring MVC Internationalization (i18n) - implement internationalization using the Spring MVC framework.

Learn and Practice

Refer this [document](#) and implement the example.

Tekstac Hands-On

- Front End-Internationalization

Day 5

Additional practice

Day 6

TruYum Practice case study – Spring MVC

Day 7

Code Challenge

Stage 2: ICT Prep up and ICT.

Overall Duration (including Behavioral Modules): 4 days

Day
1,2,3

ICT Preparation and Mock ICT

Day 4

Stage 2 – ICT