

## Generation Cognizant (GenC) Student Handbook (Java - React Track)



### Why do we need this Academy enablement Program?

Academy enablement 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 3 Stages and Business Aligned Project:

- Stage 1 – Core Programming Fundamentals (5 weeks)
- Stage 2 – Deep Dive (5 weeks)
- Stage 3 – Niche Skills
- Business Aligned Project (2 weeks)

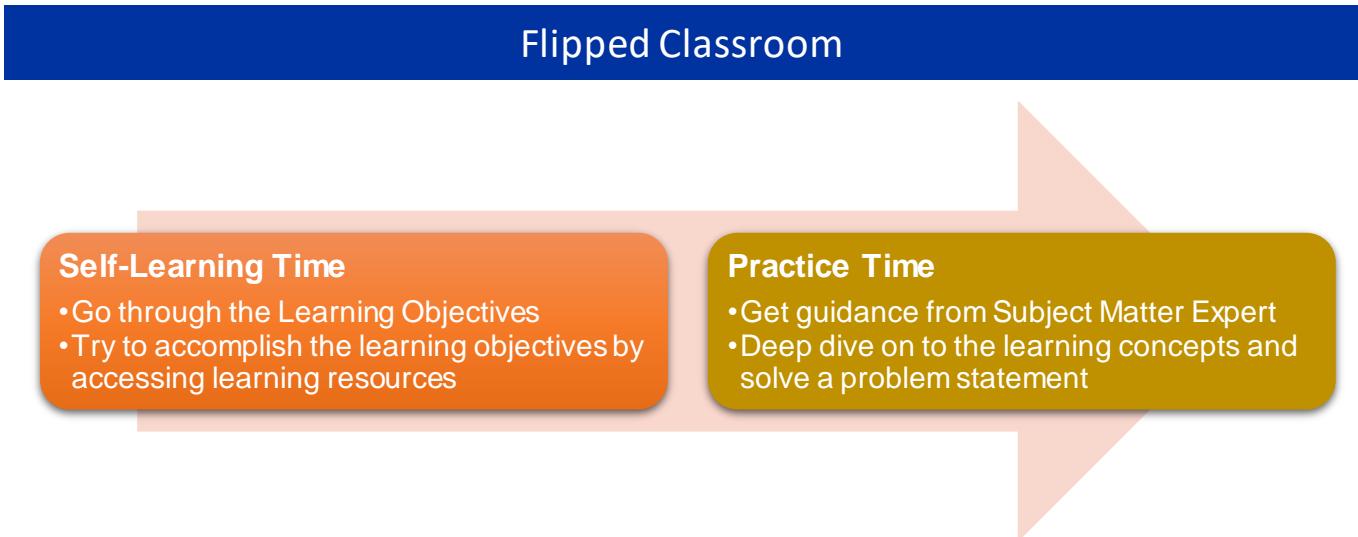
### Program Highlights

- 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.
- In stage 3, the learner will be mentored in advanced skills by expert trainers.
- Get mentored by SME, whose motivation and guidance will help you accelerate in the learning journey.

# Learning Journey with Flipped Classroom (Stage 1 & Stage 2)

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.



## Recommended Program Sequence

The learning journey starts with 6 days Icebreaker sessions followed by a technical learning. The learning journey contains 3 stages, followed by a Business Aligned Project aka My First POD Engagement(MFPE).

- Stage 1 – Refresher on Core Programming Fundamentals
- Stage 2 – Deep Dive into Skill Frameworks
- Stage 3 – Niche skills | Advanced skills
- Business Aligned Project will provide you an experience of real time problem solving in Agile methodology.

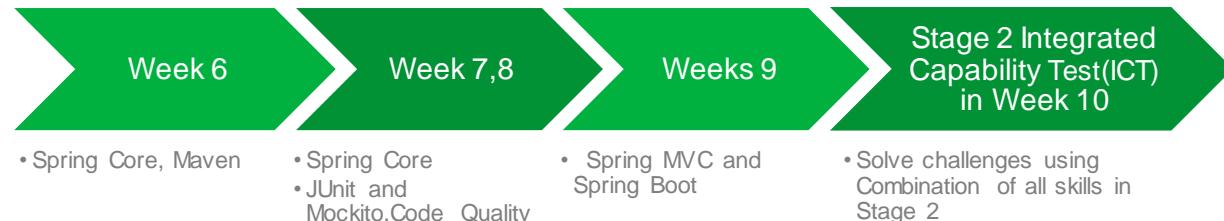
## IceBreaker



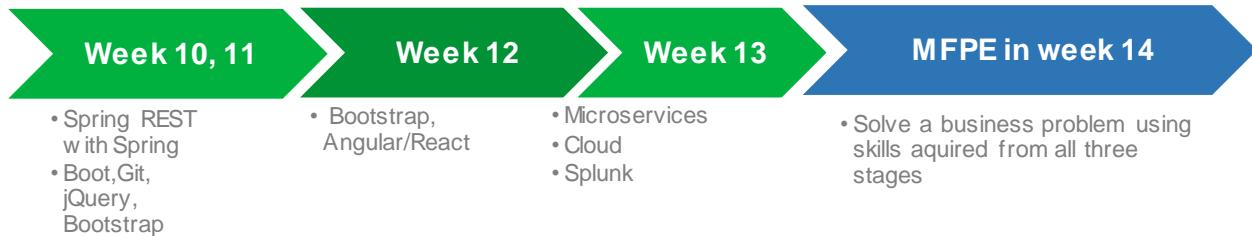
## Stage 1 - Core Programming Fundamentals



## Stage 2 - Deep Learnings



## Stage 3 – Niche Skills



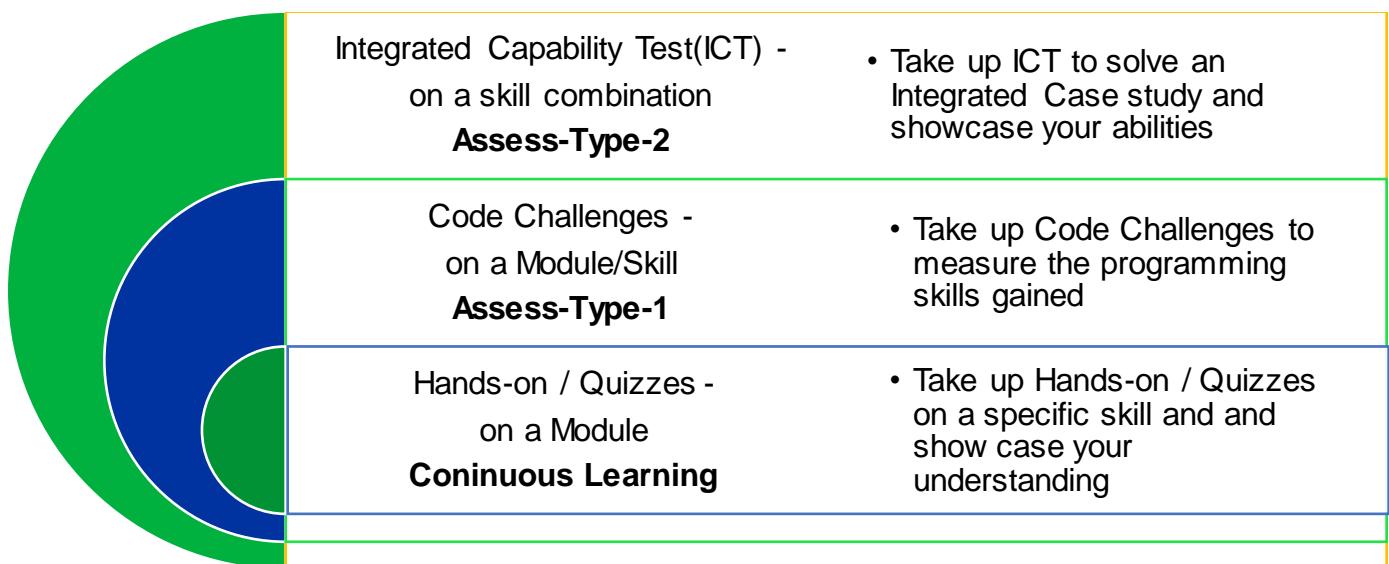
# Key Learning Components of the Program

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.



**Note:** Throughout the learning path, all the Mandatory Learning Components will attribute to the Performance Health Score. Additional Learning Components will help you to enhance your expertise level.

## Icebreaker: Week 1



Ice breaker session will be conducted for a duration of 6 days. During the session, various topics related to Corporate Induction, Talent Management, Cognizant Agenda on Core Values, Leader Talks, Alumni, BU Mentor connects will be covered. Followed by icebreaker, there will be 2 days' workshop on **Agile and DevOps** skills conducted by an Agile SME which will help the learner to become familiar with agile practices during their **MFPE** phase.

### Icebreaker Session

#### Following sessions will be covered during the 6 days of icebreaker

- Corporate Induction
- Talent Manager Connect
- Cognizant Agenda Sessions on Core Values
- Leader Talks (Academy) and many more...

## Icebreaker: Week 2

### Agile & DevOps

Day 7

#### Agile Workshop

## Courses:

- Agile Enablement - Principles and Methodology[201 - INTERMEDIATE]
- Agile Methodology (eLearning)

### Practice quiz on Agile basics

Day 8

DevOps.

### Learn and Practice

[AWS Essentials.](#)



Day 9

Behavioral Training

## Stage 1: Week 1



Week 1 will be focusing on HTML5, CSS3 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.

**Note:** You'll find the hands-on and practice case study in the current learning path's module as per the names specified below.

## Day 1

### HTML5, CSS3

#### Continuous Learning: Technical Enablement

Learn the basics of HTML5 & CSS3



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

- Learn the sections listed below in this Udemy course and complete the corresponding hands-on coding given below.
  - Lets Learn Some HTML 5
  - CSS3 & First Project
  - PROJECT: Awesome Landing Page Website
- Implement the examples along with the author.

Go through the below topics to enhance the learning.

- [Visual Studio Code Features](#)
- [Google Chrome Developer tools](#)

#### Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Simple Calculator
- Learning Material Styling

## Day 2

### HTML5, CSS3

#### Continuous Learning: Technical Enablement

Go through web pages for learning below specific topics

- [HTML5 Events](#)
- [HTML5 - Geo location](#)

- [HTML5 - Web Storage](#)
- [HTML5-Web SQL Database](#)
- [WEB Forms 2.0](#)

RWD, Media Queries

- [RWD Introduction](#)
- [Media Queries](#)

## Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Feedback Details
- Bill Calculator
- Trainer Feedback Rating Chart

Additional Hands-on

- Rate Card For Boat Rai Calculator

## Day 3

### Behavioral Training:

- Behavioral Session

## Javascript

### Continuous Learning: Technical Enablement

Learn the basics of Javascript

**Learn and Practice:**



#### [Javascript basics for beginners](#)

- Learn the sections listed below in this Udemy course and complete the corresponding hands-on coding given below.
  - Getting Started
  - Basics
  - Operators
- Implement the examples along with the author.

Go through the below topics to enhance the learning.

- [JavaScript HTML DOM, Form Validation, and String Methods](#)
- [Form Submission](#)

- [JSON](#)
- [Regular Expression](#)
- [Window alert\(\) Method](#)
- [isNaN\(\) Function](#)

## **Continuous Learning: Technical Hands-on**

### Mandatory Hands-on

- ACTB Connection Portal
- EMI Calculator

### Additional Hands-on

- Fixed And Reducing Interest Loan Estimator Calculator

## **Additional Learning:**

### **Technical Quizzes:**

Quiz: HTML 5 & CSS 3 & Javascript

**Day 4**

## **JavaScript**

### **Additional Learning:**

### **Technical 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 5**

## **Behavioral Training:**

- Behavioral Session

## Additional Learning:

### Technical Practice Case Study (Contd.):

- 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

### Assess-Type-1: Code Challenge

- All code challenges

## Stage 1: Week 2

Week 2 will be focusing on SQL 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 study as recommended below.

**Note:** You'll find the hands-on and practice case study in the current learning path's module as per the names specified below.

### Day 6

#### Database design

#### Continuous Learning: Technical Enablement

DDL Commands, DML Commands

#### Learn and Practice:



## [Sql for beginners](#)

- Learn the sections listed below in this Udemy course and complete the corresponding hands-on coding given below.
  - Installation and Setup
  - Data Definition Language
  - More On Alter Table
  - Data Manipulation Language
  - Selecting from a Table

### **Continuous Learning: Technical Hands-on**

#### Mandatory Hands-on

- Insert Records - Department
- Department name based on block number
- Delivery Partner details based on rating
- Car & owner details based on car type
- Hotels that took order based on month

#### Additional Hands-on

- Car rental system - Create Table
- Car rental system - add new column
- Hunger eats - change datatype
- Hunger eats - Change the field name

## Day 7

### **Database design**

#### **Continuous Learning: Technical Enablement**

Operators, Aggregate, String, Date Functions, Joins, Sub queries

#### **Learn and Practice:**



## [Sql for beginners](#)

- Learn the sections listed below in this Udemy course and complete the corresponding hands-on coding given below.
  - Selecting From Multiple Tables
  - Database Design

- Aggregate Functions
- Subqueries
- MySQL Functions – String Functions and Date Functions

Go through web pages for learning below specific topics

### [RANK Function](#)

## **Continuous Learning: Technical Hands-on**

### Mandatory Hands-on

- Student and their Department Based on City
- Concatenating Details
- Password generation
- Customers using HDFC BANK
- Rental details based on date

### Additional Hands-on

- Total sale daywise
- Hotels not taken orders in a specific month
- Hotels that took order more than five times
- Maruthi car owner details
- Cars not taken for rent
- Customer mail details
- Order details
- Buses based on source and destination
- Number of tickets booked

## Day 8

## **Behavioral Training:**

- Behavioral Session

## **Database design**

## **Continuous Learning: Technical Enablement**

### **Learn and Practice:**

#### [Relational Database Design](#)



- Go through the entire course

Go through web pages for learning below specific topics

## Continuous Learning: Technical Hands-on

### Mandatory Hands-on

- car rental system - Insert values
- Hunger eats - update table
- Customers having gmail id
- Car details based on type and name
- Hotel\_info

### Additional Hands-on

- No of time rented by each car
- Credential details

Day 9

## Database design

### Additional Learning:

Go through web pages for learning below specific topics

[Introduction to NoSQL](#)

### Technical Practice Case Study:

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

Day 10

## Behavioral Training:

- Behavioral Session

## **Additional Learning:**

## **Technical Quizzes:**

- Quiz: Database Concepts & ANSI SQL

## **Technical Practice Case Study(Contd):**

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

## **Assess-Type-1: Code Challenge**

- All code challenges

**Day 11**

## **Additional Learning:**

## **Technical Practice Case Study (Contd.):**

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

## **Stage 1: Weeks 3, 4 & 5**

Weeks 3, 4 & 5 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

**Note:** You'll find the hands-on and practice case study in the current learning path's module as per the names specified below.

## Core Java

### Continuous Learning: Technical Enablement

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

#### Learn and Practice



#### Java In-Depth: Become a Complete Java Engineer!

- Java: A High-level Overview
- Skip installation steps.
- Implement the HelloWorld Program along with the author.

#### Core Java Made Easy.

- Datatypes, Literals, Variables, Type Conversion, Casting & Promotion
- Operators and Assignments
- Flow Control Statements
  - Flow Control Statements Introduction
  - IF-ELSE
  - Assignment 2: If Else Ladder

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

### Continuous Learning: Technical Hands-on

#### Mandatory Hands-on

- Display Characters
- Fuel Consumption Calculator
- Highest Placement

#### Additional Hands-on

- Bill Generation
- Movie Ticket Consumption Calculator

## Day 13

### Behavioral Training:

- Behavioral Session

## Core Java

### Continuous Learning: Technical Enablement

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

#### Learn and Practice



##### Core Java Made Easy.

- Flow Control Statements
  - Switch,While,Do-While,For Loop, Break, Continue
- Static Members and their execution control flow.
- Non-Static Members and their execution control flow.

##### Java In-Depth: Become a Complete Java Engineer!.

- Classes, Objects and their Members.
  - Chapter Introduction
  - Class & Objects

##### Core Java Made Easy.

- String Handling
- Arrays

### Continuous Learning: Technical Hands-on

#### Mandatory Hands-on

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

#### Additional Hands-on

- Increment Calculation

- Find Average Age

## Day 14

### Core Java

#### Continuous Learning: Technical Enablement

Access Modifiers, Packages, Inheritance, Abstraction.

#### Learn and Practice

Go through below mentioned sections and implement the examples along with the author.



#### [Core Java Made Easy](#).

- Access Modifiers
- Packages
- Event Management Use case
- Inheritance
- Abstraction

#### Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Contact Details of Hosteller
- Account Manipulation - Abstract class

Additional Hands-on

- Shape - Area Volume Calculator

#### Additional Learning:

#### Technical Quizzes:

- Quiz - Java Operator, Control flow statement
- Quiz - Applying Object Oriented Concepts in java

## Day 15

### Behavioral Training:

- Behavioral Session

## Core Java

### Continuous Learning: Technical Enablement

Polymorphism, Encapsulation, Interface, Object Methods

### Learn and Practice

Go through below mentioned sections and implement the examples along with the author.



#### [Core Java Made Easy](#)

- Polymorphism
- Encapsulation
- Object class methods

### Continuous Learning: Technical Hands-on

Mandatory Hands-on

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

## Day 16

## Core Java

### Continuous Learning: OOAD Workshop

The workshop will help in understanding a problem using real world concepts instead using adhoc function concepts. We intent to learn OOAD approach for the following reason.  
Promotes better understanding of user requirements, leads cleaner design flexibility.

## Continuous Learning: Technical Enablement

Collection Framework, ArrayList, Map, Set.

### Learn and Practice



Go through below mentioned sections and implement the examples along with the author.

#### Core Java Made Easy.

- o Collections with Generics
  - Collections Introduction
  - List Introduction
  - ArrayList Hands On
  - Restricting the ArrayList Type
  - Inserting and Replacing Objects
  - addAll and contains Methods
  - size get and remove Methods
  - Set Introduction
  - Using HashSet
  - Different Set Classes
  - Iterator
  - ListIterator
  - Comparable and Comparator
  - Create a StringBuffer Comparator
  - Sort Strings by Length
  - Sorting Objects
  - Create a Object Comparator
  - Map Introduction
  - HashMap Demo
  - Arrays and Collections Classes
  - Collections Sort
  - Reversing a List
  - Arrays sort()
  - Array to List conversion
  - Generics
  - Generic class structure
  - Create your own Generic Class

## Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Insurance Bazaar
- Number of New Words
- Phone Book Manipulation

## Additional Hands-on

- Count of Each Words
- Book Manipulation

## Additional Learning:

## Technical Quizzes:

- Quiz - Collections Framework

# Day 17

## Core Java

### Continuous Learning: Technical Enablement

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

### Learn and Practice

Go through below mentioned sections and implement the examples along with the author.



#### [Core Java Made Easy.](#)

- IO Streams (File IO)
  - IO Streams Introduction
  - Read a File Using FileInputStream
  - Copy A File using FileOutputStream
  - Using Reader And Writer
- Java Annotations
  - Introduction
  - Using @Deprecated
  - Using @Override
  - Using @SuppressWarnings
- Multithreading
- Garbage Collection & Types Of Objects
- Exception Handling and Assertions
- Enums

### Continuous Learning: Technical Hands-on

## Mandatory Hands-on

- Array Manipulation - Use try with multi catch
- Employee Promotion
- Register a Candidate - User defined Exception(with throw and throws)
- Retrieving Data from file

## Additional Hands-on

- Visitors Details
- Divide two numbers - Use finally

## Day 18

### Behavioral Training:

- Behavioral Session

## Core Java

### Continuous Learning: Technical Enablement

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

#### Learn and Practice

Go through below mentioned sections and implement the examples along with the author.



[Core Java Made Easy.](#)

- Java 8 Features

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

- Date & Time API ~ Covers Java 8 & also Legacy API

### Continuous Learning: Technical Hands-on

## Mandatory Hands-on

- Mall Parking System
- Validate Name
- Travel Agency – Lamda
- Fruit Basket Estimation -Stream

## Additional Hands-on

- Participant List Manipulation - Streams
- College Account

## Day 19

### Core Java

#### Continuous Learning: Technical Enablement

Java 8 Features - Streams and Optionals. Asynchronous and Parallel Programming in Java 8

Go through web pages for learning below specific topics

[Asynchronous and Parallel Programming](#)

#### Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Employee Loan Eligibility
- Placement Enrollment Count
- Auditing

#### Additional Learning:

#### Technical Quizzes:

- Quiz - Advanced Java Concepts

## Day 20

### Behavioral Training:

- Behavioral Session

### JDBC

## Continuous Learning: Technical Enablement

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.

## Continuous Learning: Technical Hands-on

### Mandatory Hands-on

- Add Flight using JDBC
- Search for Trains – JDBC
- Player Selection System\_JDBC

## Assess-Type-1: Code Challenge

- All code challenges

Day 21

## JDBC

## Continuous Learning: Technical Enablement

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.

## **Continuous Learning: Technical Hands-on**

### **Additional Hands-on**

- Retrieve customer count based on loan type\_JDBC
- Retrieve ID and Price of mobiles with in the range\_JDBC

**Day 22**

### **Additional Learning:**

#### **Technical Practice Case Study:**

TruYum Practice Case Study – Java  
TruYum Practice Case Study – Jdbc

**Day 23**

### **Behavioral Training:**

- Behavioral Session

### **Additional Learning:**

#### **Technical Practice Case Study(Contd):**

TruYum Practice Case Study – Java  
TruYum Practice Case Study – Jdbc

**Day 24**

### **Additional Learning:**

#### **Technical Practice Case Study(Contd):**

TruYum Practice Case Study – Java  
TruYum Practice Case Study – Jdbc

Assess-Type-2 Preparation

## Day 25

### Behavioral Training:

- Behavioral Session

### Additional Learning:

Assess-Type-2 Preparation

### Assess-Type-2: Integrated Capability Test (ICT)

- Java, JDBC, MySQL – 4 hours

## Stage 2: Week 6

Week 6 will be focusing on Maven and Spring Core 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.

**Note:** You'll find the hands-on and practice case study in the current learning path's module as per the names specified below.

## Day 26

### Additional Learning:

### Mock Interview

## Day 27

## Maven

### Continuous Learning: Technical Enablement

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.

Go through the below mentioned sections and perform maven build along with the author of this course.

### Maven Crash Course.

- Introduction
- Maven Project Creation and Key Concepts
- Scopes
- Profiles

## Spring Core

### Continuous Learning: Technical Enablement

Setter Based Injection

## Learn and Practice



Go through the below mentioned sections and implement examples along with the author of this course.

### Spring Framework in Easy Steps

- Introduction
- Software Setup
  - Troubleshooting Maven Projects
- Setter Injection
  - Create a Maven Project
  - Create the Java Bean
  - Create the Spring Configuration
  - Create and run the test
  - Value as attribute
  - Using p:schema or p: namespace

### Continuous Learning: Technical Hands-on

Mandatory Hands-on

- DBConfig-SetterBasedInjection
- EZEE Transport

Day 28

### Behavioral Training:

- Behavioral Session

## Spring Core

### Continuous Learning: Technical Enablement

Injecting collections, dependency check, Inner Beans and Scope.

#### Learn and Practice

Go through the below mentioned sections and implement examples along with the author of this course.



#### [Spring Framework in Easy Steps](#)

- Setter Injection
  - Injecting Collections
  - List - Create the Spring Bean
  - List - Create the Configuration file
  - List - Create the Test
  - Running the test and flow
  - Two More Things About List

#### Learn and Practice



#### [Spring Framework in Easy Steps](#)

- Dependency Check , Inner beans and Scopes

### Continuous Learning: Technical Hands-on

#### Mandatory Hands-on

- CurrencyConverter-Collections (Refer section 4.34 and 4.35 of Udemy course to implement this hands on)
- Customer-Address-Scope
- Customer-Address Inner Bean

Day 29

## Spring Core

### Continuous Learning: Technical Enablement

## Learn and Practice



### [Spring Framework in Easy Steps](#)

- Constructor Injection
- Spring Core Concepts
- Using Properties

## Learn and Practice



### [Spring Framework in Easy Steps](#)

- Auto-Wiring

## Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Constructor Injection
- Engine Analysis
- Autowiring

Day 30

## Behavioral Training:

- Behavioral Session

## Spring Core

## Continuous Learning: Technical Enablement

Stereotype Annotations, Injecting Interfaces

## Learn and Practice



### [Spring Framework in Easy Steps](#)

- Stereotype Annotations
- Injecting Interfaces

## Continuous Learning: Technical Hands-on

## Mandatory Hands-on

- EBanking Hands on
- Passport Service

## Additional Hands-on

- Patient Management

### Assess-Type-1: Code Challenge

- All code challenges

## Stage 2: Week 7 & 8

Week 7, 8 will be focusing on Maven and Spring Core, Junit and Code Quality 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.

**Note:** You'll find the hands-on and practice case study in the current learning path's module as per the names specified below.

Day 31

### Spring Core

#### Continuous Learning: Technical Enablement

Aspect Oriented Programming (AOP) using Spring AOP and AspectJ.

#### Learn and Practice



#### Spring Framework in Easy Steps

- Spring AOP
- Implement the examples along with the author.

## Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Spring AOP Demo

Day 32

## Spring Core

### Continuous Learning: Technical Enablement

Spring JDBC

**Learn and Practice**



#### [Spring Framework in Easy Steps](#)

- Spring JDBC
- Implement the examples along with the author.

## Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Billing Software Application

Additional Hands-on

- EBill

Day 33

## Behavioral Training:

- Behavioral Session

## Spring Core

### Continuous Learning: Technical Enablement

Spring JDBC

#### Learn and Practice



##### Spring Framework in Easy Steps

- Spring JDBC
- Implement the examples along with the author.

Day 34

## JUnit

### Continuous Learning: Technical Enablement

Writing basic tests, Assert Statements.

#### Learn and Practice



##### Learn Java Unit Testing with Junit & Mockito in 30 Steps

- Introduction
- Unit Testing with Junit
  - JUnit Step 1 : Why is Unit Testing Important?
  - JUnit Step 2 : Setting up your first JUnit
  - Step 03 : First Successful JUnit. Green Bar and assertEquals
  - Step 04 : Refactoring Your First Junit Test
  - Step 05 : Second JUnit Example assertTrue and assertFalse
  - Step 06 : @Before @After
- Step 07 : @BeforeClass @AfterClass

Testing Exceptions, Comparing Arrays, Parameterized Tests, Test Suites

### Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Electricity Bill
- Testing using Assertion

## Additional Hands-on

- Loan EMI Calculator

## Day 35

### Behavioral Training:

- Behavioral Session

## JUnit

### Continuous Learning: Technical Enablement

#### Learn and Practice

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



- Unit Testing with Junit
  - Step 08 : Comparing Arrays in Junit Tests
  - Step 09 : Testing Exceptions in Junit Tests
  - Step 10 : Testing Performance in Junit Tests
  - Step 11 : Parameterized Tests
  - Step 12 : Organize JUnits into Suites

### Continuous Learning: Technical Hands-on

#### Mandatory Hands-on

- Parameterized HandsOn
- Product Login Test Suite

## Test Driven Development

### Continuous Learning: Technical Enablement

Test Automation, Test Code Optimization and Test Driven Development

#### Learn and Practice

[Learn TDD in 24 Hours](#)



- Getting started with automated tests.
- Taking care of the test code
- Test-Driven Development

## Day 36

### Mockito

#### Learn and Practice



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

- Getting Ready for Mockito
- Need For Mockito
- Mockito Basics

#### Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Verify Call

Additional Hands-on

- Test Callback

## Day 37

### Mockito

#### Learn and Practice



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

- Getting Ready for Mockito
- Need For Mockito
- Mockito Basics

#### Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Test Mock DB

Additional Hands-on

- Test Callback

## Day 38

### **Behavioral Training:**

- Behavioral Session

## Code Quality

### **Continuous Learning: Technical Enablement**

The concepts include importance of code quality and coding standards.

- [PMD rulesets](#)
- [Checkstyle](#)
- [SONAR](#)
- [Findbugs](#)

Mandatory Hands-on

- LMS Refactoring

## Day 39

### **Additional Learning:**

### **Technical Practice Case Study:**

TruYum Practice case study – Spring Core and Junit

## Day 40

### Behavioral Training:

- Behavioral Session

### Assess-Type-1: Code Challenge

- All code challenges

## Stage 2: Week 9

Week 9 will be focusing on Spring MVC and Spring Boot 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.

**Note:** You'll find the hands-on and practice case study in the current learning path's module as per the names specified below.

## Day 41

### Servlets and JSP

#### Continuous Learning: Technical Enablement

Overview, Understanding Servlets, Web Application Request Flow.

#### Learn and Practice

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



- Part 1: Basic Java Web Application with JSP and Servlets..

# Spring MVC using Spring Boot

## Continuous Learning: Technical Enablement

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.](#)



- o Web Application with Spring Boot
  - Introduction
  - Skip Installation steps.
  - Step 0 : Web Application with Spring Boot - Section Introduction
  - Step 01: Part 1 Basic Spring Boot Web Application Setup
  - Step 01: Part 2 Pom.xml, Spring Boot Application and application properties
  - Step 02: Part 1 First Spring MVC Controller, @ResponseBody, @Controller
  - Fastest Approach to Solve All Your Exceptions
  - Step 02: Part 2 Understanding HTTP Request Flow
  - Step 03: Demystifying some of the Spring Boot magic

## Continuous Learning: Technical Hands-on

Mandatory Hands-on

- Age Calculator
- BodyMassIndex

Day 42

# Spring Boot Web Application

## Continuous Learning: Technical Enablement

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.](#)

- Web Application with Spring Boot
  - Step 04: Redirect to Login JSP -
  - @ResponseBody and View Resolver
  - Step 05: Show userid and password on welcome page - ModelMap and @R...
  - Step 06: DispatcherServlet and Spring MVC Flow
  - Step 07: Your First HTML form
  - Step 08: Add hard-coded validation of userid and password
  - Step 09: Magic of Spring
  - Step 10: Create TodoController and list-todos view. Make TodoService a @S...
  - Step 11: Architecture of Web Applications
  - Step 12: Session vs Model vs Request- @SessionAttributes
  - Step 13: Add new todo

### **Continuous Learning: Technical Hands-on**

#### Mandatory Hands-on

- Zee Zee Login
- Bakingo Cake Service

Day 43, 44

### **Behavioral Training:**

- Behavioral Session

## **Spring MVC using Spring Boot**

### **Continuous Learning: Technical Enablement**

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

### **Learn and Practice**



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

- Web Application with Spring Boot
  - Step 14: Display Todos in a table
  - using JSTL Tags
  - Step 15: Bootstrap for Page Formatting using webjars
  - Step 16: Let's delete a Todo
  - Step 17: Format Add Todo Page and Adding Basic HTML5 form validation
  - Use modelAttribute instead of commandName

- Step 18: Part 1 Validations with
  - Hibernate Validator - Using Command ...
  - Step 18: Part 2 Using JSR 349 Validations
  - Step 19: Updating a todo
  - Step 20: Let's add a Target Date for Todo - Use initBinder to Handle Date Fields
- Step 25: Exception Handling

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

## Learn and Practice

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

## Continuous Learning: Technical Hands-on

Mandatory Hands-on

- HolidayParty-Validations
- Front End-Internationalization

## Day 45

### Behavioral Training:

- Behavioral Session

### Additional Learning:

### Technical Quizzes:

- Quiz - Spring MVC and Spring Boot

### Assess-Type-1: Code Challenge

- All code challenges

## Day 46

### Additional Learning:

## **Technical Practice Case Study:**

TruYum Practice case study – Spring MVC

**Day 47**

### **Additional Learning:**

Assess-Type-2 Preparation

### **Mock Interview**

### **Mock Assess-Type-2**

## **Stage 3: Week 10**

**Day 48**

### **Behavioral Training:**

- Behavioral Session

## **Spring REST with Spring Boot**

Characteristics of RESTful web services, REST Architecture, HTTP Request and Response.

### **Learning Reference:**

#### [Spring-REST-Objectives](#)

- Refer the Objectives with Topic ID : SPRING-REST-T01, SPRING-REST-T02

### **Hands-on:**

- [Spring-REST-HOL-001](#)

## Day 49

### Spring REST with Spring Boot

Need and benefits, Response status codes, @RestController, @GetMapping, JSON response, Get with parameters, @PathVariable, test service using Postman.

#### Learning Reference:

##### [Spring-REST-Objectives](#)

- Refer the Objectives with Topic ID : SPRING-REST-T02, SPRING-REST-T03

#### Hands-on:

- [Spring-REST-HOL-002](#)

## Day 50

### Behavioral Training:

- Behavioral Session

### Assess-Type-2: Integrated Capability Test (ICT)

## Stage 3: Week 11

## Day 51

### Spring REST with Spring Boot

@PostMapping, @PutMapping, @DeleteMapping, JSON to bean mapping, @RequestBody, validating input, Exception Handling, usage of @ControllerAdvice.

#### Learning Reference:

##### [Spring-REST-Objectives](#)

- Refer the Objectives with Topic ID : SPRING-REST-T04, SPRING-REST-T05, SPRING-REST-T06

#### Hands-on:

- [Spring-REST-HOL-003](#)
- [Spring-REST-HOL-004](#)

## Day 52

#### Practice Check:

- [Spring REST Case Study](#)

## Day 53

### Git

Introduction to Git, Basic Git Commands, Branching & Merging

#### Learning Reference:

##### [Git-Objectives](#)

- Refer the Objectives with Topic ID : Git-T01, Git-T02, Git-T03

**Note\*:** These hands-on's can be worked during the first day of MFPE phase.

#### Hands-on:

- [Git-T02-HOL\\_001](#)
- [Git-T02-HOL\\_002](#)
- [Git-T03-HOL\\_001](#)
- [Git-T03-HOL\\_002](#)

- [Git-T03-HOL\\_003](#)

## jQuery

What is jQuery, Advantages of jQuery, Element selector, The #id selector, The .class selector, Finding elements, Filtering out elements, DOM traversing methods.

### Learning Reference:

#### [Java-jQuery-Objectives](#)

- Refer the Objectives with Topic ID : jQuery-T01, jQuery-T02, jQuery-T03

### Hands-on:

- [jQuery-T02-HOL\\_001](#)
- [jQuery-T02-HOL\\_002](#)
- [jQuery-T03-HOL\\_001](#)

Day 54

## jQuery

DOM replacement, DOM manipulation methods, Event object, Event types, Binding event handlers, Removing event handlers, Event methods, Event helper methods.

### Learning Reference:

#### [Java-jQuery-Objectives](#)

- Refer the Objectives with Topic ID : jQuery-T04, jQuery-T05

### Hands-on:

- [jQuery-T04-HOL\\_001](#)
- [jQuery-T04-HOL\\_002](#)
- [jQuery-T04-HOL\\_003](#)
- [jQuery-T04-HOL\\_004](#)
- [jQuery-T05-HOL\\_001](#)

Day 55

## Bootstrap

Purpose of Bootstrap, RWD, Mobile First Design, Grid System, Layout: Containers, Grid System, Tables, Components: Button, Cards, Dropdowns, Navs, Navbar, Pagination, Forms.

### **Learning Reference:**

#### Bootstrap-Objectives

- Refer the Objectives with Topic ID : BS-T01, BS-T02, BS-T03

### **Hands-on:**

- [BS-T01-HOL\\_001](#)
- [BS-T03-HOL\\_001](#)

## Stage 3: Week 12

Day 56

### **Bootstrap**

Display of form elements with RWD, customizing bootstrap styles, purpose of Flex box, flex classes for controlling the layouts in BS4, BS4 vs BS3, Direction, Align items, Auto margins, Wrap, Order.

### **Learning Reference:**

#### Bootstrap-Objectives

- Refer the Objectives with Topic ID : BS-T03, BS-T04

### **Hands-on:**

- [BS-T04-HOL\\_001](#)
- [BS-T04-HOL\\_002](#)

Day 57

### **React**

SPA, benefits of SPA, Pros & Cons of SPA, React & its features, virtual DOM. React Components, types of components, React - props, React – state, ReactDOM.render

### **Learning Reference:**

#### [Java-React-Objectives](#)

- Refer the Objectives with Topic ID : React-T01, React-T02, React-T03

### **Hands-on:**

- [ReactJS-HOL\\_001](#)
- [ReactJS-HOL\\_002](#)
- [ReactJS-HOL\\_003](#)
- [ReactJS-HOL\\_004](#)
- [ReactJS-HOL\\_005](#)

## Day 58

### **React**

Features of ES6, ES6 classes, ES6 arrow functions.

### **Learning Reference:**

#### [Java-React-Objectives](#)

- Refer the Objectives with Topic ID : React-T04

### **Hands-on:**

- [ReactJS-HOL\\_006](#)
- [ReactJS-HOL\\_007](#)

## Day 59

### **React**

React – events, conditional rendering. Implementation of conditional rendering in React, React list, React keys, maps.

### **Learning Reference:**

## Java-React-Objectives

- Refer the Objectives with Topic ID : React-T05, React-T06, React-T07

### **Hands-on:**

- [ReactJS-HOL\\_008](#)
- [ReactJS-HOL\\_009](#)
- [ReactJS-HOL\\_010](#)

Day 60

## **React**

React forms, form submission, form validation, handling error messages, consume REST API in React

### **Learning Reference:**

## Java-React-Objectives

- Refer the Objectives with Topic ID : React-T08

### **Hands-on:**

- [ReactJS-HOL\\_011](#)
- [ReactJS-HOL\\_012](#)
- [ReactJS-HOL\\_013](#)

Stage 3: Week 13

Day 61

## **React**

### **Practice Check:**

- [Practice Check case study](#)

Day 62

## Microservices

SOA, Problem with SOA and Monoliths, Introduction to Microservices architecture, API vs Microservices, Advantages of Microservices, When not to use Microservices. Components and patterns, Service Discovery.

### Learning Reference:

#### [Microservices-Objectives](#)

- Refer the Objectives with Topic ID : MSA-T01, MSA-T02

Day 63

## Microservices

Breaking a Monolith application to Microservices

### Learning Reference:

#### [Microservices-Objectives](#)

- Refer the Objectives with Topic ID : MSA-T03

### Practice Case Study:

- [Microservice Practice Case Study](#)

### Knowledge Based Assessment

- Microservices

Day 64

## Spring Cloud

Introduction to Cloud, Characteristics, Deployment model, advantages of Cloud Computing, AWS Fundamentals.

## **Learning Reference:**

### [CloudComputing-AWS-Objectives](#)

- Refer the Objectives with Topic ID : CloudComputing-T01 to CloudComputing-T07, CloudComputing-T08

## **Hands-on:**

- [CloudComputing-AWS-HOL\\_001](#)
- [CloudComputing-AWS-HOL\\_002](#)

## **Knowledge Based Assessment (KBA):**

- Cloud

Day 65

## **Splunk**

Introduction to Splunk, Machine data, benefits, installation of Splunk, Uploading the test file data to Splunk, indexing, monitoring input, Refining the search, searching by fields, exporting the search results, best practices, SPL fundamentals

## **Learning Reference:**

### [Splunk-Objectives](#)

- Refer the Objectives with Topic ID: Splunk-T01, Splunk-T02, Splunk-T03

Day 66

## **Splunk**

Commands (Top, Rare, Status), Functions (Count, DC, Sum, Avg, List, Value), Search and reporting in real time project data

## **Learning Reference:**

### [Splunk-Objectives](#)

- Refer the Objectives with Topic ID: Splunk-T04, Splunk-T05, Splunk-T03

## Business Aligned Project (MFPE) – Week 14 Onwards

**Overall duration:** 10 days

This Project phase will be executed in agile methodology, the duration of which is 10 days. With the matured Product backlog, High-level design document & Wireframes as base the POD team translates the backlog items into engineering design and logical units of work (tasks) and release it sprint wise. Project Evaluation will be based on:

- Contribution to Sprint Goal
- Sprint Participation
- User Story Completion
- Standards and Best Practices
- Confidence and Articulation

## How to learn each day?

Each day has a set of learning objectives. These learning objectives can be met by going through the Udemy courses and by completing the hands on exercises mentioned in the daily plan.

The below strategies will help you decide the learning approach.

## Learning Strategy & Approach

Find below few imaginary profiles. For each of these profiles we have defined a recommended learning approach. This is not an exhaustive list. The approaches below might help invent a new way of learning.

### Profile #1

Harry Reacher  
**Engineering Discipline:** Electronics



**Skills:** Python, Ruby on Rails, nginx

**Project:** Mining Crime Data to get Route Cause Insights

**Learning Approach to Programming Languages:** I do not want to waste my time learning. I am more practice oriented. I want to work on the problem immediately

### What will work for me?

- Directly complete hands on exercises
- Refer Internet or Udemy Courses
- If hands on are implemented early, clarify your friends questions and troubleshoot their issues

## Profile #2



**Olivia Richards**

**Engineering Discipline:** Computer Science

**Skills:** Java, C, C++

**Project:** Library Management System

**Learning Approach to Programming Languages:** I have interest, but I don't know where to start.

### What will work for me?

- Go through the recommended Udemy Course
- Try completing the hands on exercises
- Get your clarifications solved with help from Tech SME
- Get help from other learners in your batch whom had already completed

## Profile #3



**Greg Anderson**

**Engineering Discipline:** Civil

**Skills:** C

**Project:** Fiber reinforced concrete

**Learning Approach to Programming Languages:** I am scared of programming languages. I haven't got my hands dirty with coding

### What will work for me?

- Go through the recommended Udemy Course
- Implement the coding along with the author of the Udemy Course
- Try completing the hands on exercises
- Clarify queries with SME
- Troubleshoot programming issues with help from SME or learner from your classroom whom had already completed

## FAQ

**1. Who can participate in this program?**

Students who have enrolled for Full Internship Program (or) the Cognizant on-boarded GEN Cs can participate in this program.

**2. Is there any pre-learning I should do?**

No. This program is open to all students from any academic discipline.

**3. How will I know my RAG status?**

It will be shown to you in the GEN C learn Platform, in your Home Page.

**4. What is Assess-type-1?**

A problem statement will be provided to you and you need to solve it using a single skill.

**5. What is Assess-type-2?**

A case study problem statement will be provided to you, that you may need solve using the combination of Skills learnt in the given stage.

**6. Whom do I reach out in case of any queries?**

Coach is your point of contact.