Digital Nurture 2.0
Flexi Internship – GenC Next

Program guide – Full Stack Engineer – Java (React track)

About the program

This is launched exclusively to candidates who were skilled via our flagship Digital Nurture 2.0 program and got selected for Cognizant through the recently held Campus hiring 2023 interviews. Join us for yet another exciting journey to learn and enable yourself with business-critical skills towards becoming a **Full Stack Engineer – Java.**

Cognizant presents you with this opportunity to continue your Deep Skilling on the very important and core skills of **Full Stack, React & REST** concepts. We understand that you are currently in college education, so this program is designed to be a flexible one – where we provide the best online learning content, hands-on practices, a dedicated coach who will be your Cognizant point of contact and help you throughout this program.

We expect you to spend a minimum of **10 hours per week** for this program. We'll provide a recommended learning schedule to help you learn and practice in an appropriate sequence. You can choose to follow that or go by your style of learning in a flexible way. **You are allowed to define your own project and its implementation.** We will extend our support to build the project, evaluate the same and provide feedback to complete the program successfully.

This would help you build a strong foundation for your full-time business internship with Cognizant.

"Learn, practice, and apply the learning"

Am I equipped for this program?

Yes, you are! You, enthusiastically participated in the Digital Nurture 2.0 program of Cognizant and learnt the following... Didn't you?

- Web User Interface – HTML5, CSS3, Javascript, Bootstrap, JQuery
- Database – MySql, Oracle PL/SQL
- Programming Languages – Core Java
- Core framework skills – Spring MVC using Spring Boot
- Unit Testing

Also, you cleared a Technical Interview. Yayyyy. Kudos to that!

Now, are you game for the next step? Excited to learn some interesting skills in the 'Full Stack Engineering' concept? Yes, we hear you roar to learn!!

Okay, tell me about the program.

Here you go.

We will learn, a very popular and uberly used, simple yet comprehensive front-end development framework – React. To make it bubbling with real-time data, we'll learn yet another uberly used concept of RESTful service (love googling?? then search the meaning of RESTful service 😊)

Sounds Interesting?

May be not, not yet!

Okay, so how do we do make this journey interesting?

We totally admire your enthusiasm, interest to know things, explore so many avenues! And everyone is a big fan of entertainment.

Heard about Netflix, Amazon Prime, Disney Hotstar? Using Swiggy, Zomato?

Okay, we hear your questions. Who doesn't use these now, isn't it?

So, shall we now try something similar? Replicate a part of it? Create **your own** page, **your own** data, **you integrate** and make **your data flow**, apply some logic, and make the application **lively?**

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That enthusiasm and spirit is infectious and that is truly you, our future Generation Cognizant 😊

Is this what you are thinking now? Many questions scrambled in your brain? Very eager to start the Learning Wagon.

Come along champ!

1) What skills do I learn?
2) Do I need to search the Internet to find the best place to learn?
3) Will I get to Learn and practice together? Do I need to install software for them?
4) Shall I build a Project? Apply everyday' s learning into the project building?
5) Will I get any help or guidance OR will I be all alone in this journey? 😫
6) How long is this interesting journey for?
7) Is there any schedule to follow?
8) Do I need to demo my project to someone?
9) Will there be any Coach from Cognizant through this journey?
10) Is there anything like passing criteria for this?

That is a long list of questions, but it is sheer enthusiasm, champ. Let us answer them for you, one by one.

1) What skills do I learn?

- React
- Spring Data JPA
- Spring REST

2) Where to learn?

You are free to learn from the internet. *We got you covered there!* Got the best content from learning platform and chose the sections to learn 😊 sounds good? From where – Udemy! Also, you'll have a learning path on **Tekstac platform** (yes, the one that you are already quite familiar with).

3) Will I get to learn and practice?

Yeah. *Learning and Practice goes together.* Install the following **free software** on your local machine. *We hear some of you saying this – Hey, we're ahead of you, we're using some of these for my past-time hobby.* The list of software needed are

Category	Software name	Version
Database	• Mysql-8.0.26-win32 • Mysql-connector-java-8.0.26-bin	8.0.26
Software	Java Development Kit	1.6, 1.7 and 1.8
Software	Node.js	Latest
Server	Tomcat	9.0
IDE	MySQL Workbench	Latest
IDE	Eclipse Neon	Neon
IDE	Visual Studio Code	1.51
Plugin	PMD	
Plugin	ECL Emma Code Coverage	Latest

Category	Software name	Version
Plugin	Maven plugin for eclipse	3.2
Version Control	Git	2.21.0
API testing	Postman For Chrome	1.00
Docker	Docker installation	Latest version
Minikube	Run Kubernetes locally	Latest version

Tekstac learning path has good number of hands-on for you to practice! We know that you are serious about your learning and interest, that you'll surely utilize the opportunity to the fullest to practice and work on **your project!**

4) Shall I build the Project?

Yes, it is your project. You choose, you define your project, the choice is yours!

Just ensure that there is a front-end single page application (SPA) and 2 restful services with clean data. Once there is data flow and you ensure that your application works fine for any type of input… it's going to **euphoric**!
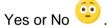
Decide and start working on the project alongside, while you learn. You learn for your project and apply that in your everyday learning.

Does Cognizant provide or recommend any site to choose my project? Hmm. Not really.

How about the design consideration for my project? Yes, let your project does add, get, list, edit data type operations along with some business logic, to make it **lively**.

Ensure that you get your project discussed or vetted by the trainer.

5) How about the Support / guidance?
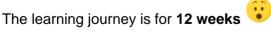
Yes or No 😳 .

Yes, there would be good support from very kindhearted and talented Trainers, through master classes. It aims to cover complex topics & query clarifications that you earnestly want, guidance in the project flow.

There would be a Point of Contact (POC) from Cognizant, the **GenC Program coach** who will interact with you continuously to know your learning progress, check on your hands-on completion, project progress, schedule the Knowledge Based Assessments (KBA)

6) What about the learning duration?

The learning journey is for **12 weeks** 😮

Don't worry, you'll need this time to space out the learnings, practice hands-on questions, work on your project continuously, test it, take up KBA to know where you stand. Keep the project ready for a demo!

You would require a **minimum of 10 hours per week** for this journey. *Sounds difficult?? May be, but, with the interesting skills and your enthusiasm, it'll be a cake walk for you!!*

Demo? That's interesting. Yes, there would be representatives from Cognizant to check your interest, sincerity, the heart, and soul that you'd put into the project to acknowledge, appreciate, and evaluate. Yes, they'll evaluate your project, and that would help you to get a golden ticket on the Flexi internship completion successfully.

Cool! Now, I am totally into this 😊. We *hear this unanimously from you!!*

7) **We strongly recommend the below schedule to keep up your learning, build your project and demo it.**

Now, are you sure on the skills?

Week	Activity	What is in it for you?
1	Identify the project that you want to do. Split it into the front-end and back-end parts. Learn unit testing concepts.	Your choice
2, 3	Learn and practice **React**. Slowly build the front-end of your project	• Happiness on learning new things • Build your project slowly and steadily
4	Complete all the functionalities, test, join meeting over teams to discuss with peers to discuss on your work. This will be a brilliant opportunity for you to speak, explain the project, the features that you've used.	• Talk boldly, strongly with clarity • Understand the concepts that others have used which you can imbibe or improvise in your project
5, 6	Learn **Spring Data JPA and Spring REST.** Slowly build the back-end of your project.	• As the name suggests, you build the backbone of your project • Create clean base data to show up in your beautiful front-end
7	Complete all the functionalities, test, join meeting over teams to discuss with peers to discuss on your work. This will be a brilliant opportunity for you to speak, explain the project, the features that you've used.	• Talk boldly, strongly with clarity • Understand the concepts that others have used which you can imbibe or improvise in your project
Week	Activity	What is in it for you?
8	Integrate the front-end and back-end parts of your project	• Code completion • Unit testing • Manual testing

9 - 12	Project review, rework, evaluation – complete the journey with flying colors!	Present your project well, either through a discussion or a micro project to be done on a session with a Cognizant representative

8) Passing criteria

A **minimum of 70% average in all the KBA type assessments** which will gauge the learning and a **minimum of 70% in the project case study** is required.

The MCQ assessments will be on the Tekstac platform. Learning and hands-on completion is recommended to take up the MCQ assessments. **Two attempts will be given for every MCQ assessment**. The best of the scores will be considered as your final score.

As mentioned earlier, you'd be onboarded to Tekstac learning path. It is split into 3 stages based on the skills and complexity. The already completed ones in the Digital Nurture 2.0 program would be marked as complete. As per the skills listed above, you can start the learning.

All the best folks 👌

Learning path – Your guide!

Have you decided your project? No? Please choose soon.

Are you following the recommended schedule? Click here to check

React

Scope

In the Tekstac learning path, please navigate to **Stage 3 → Angular/React milestone** (the blue heading box). It is a common milestone containing the content of Angular and React. As for your track, **please go with Angular**. Click the link shown below in it to download and view the learning objectives.

Angular/React

By completing Angular/React Milestone you will learn

- Components
- Different types of forms
- Routing concept
- Application testing using Karma/Jest

Angular/React

Objectives

Click here to download the learning objectives of Angular.

Click here to download the learning objectives of React.

Hands On

Angular/React - Handson

Note:

✓ Go through the skills in the same sequence as given in the handbook

✓ Few of the practice hands-on will contain references to exercises completed in the previous module

Learning reference

React - The Complete Guide (incl Hooks, React Router, Redux)

1) Learn the sections listed below in this Udemy course

- Section 1: Getting Started
- Section 2: JavaScript Refresher
- Section 3: React Basics & Working with Components
- Section 4: React State & Working with Events
- Section 5: Rendering List & Conditional Content
- Section 14: Sending Http Requests (e.g., Connecting to a Database)
- Section 16: Working with Forms & User Input

2) Implement the examples along with the author

3) Please download and practice the hands-on in the milestone

Apply the learnings in your project. Work on it to learn, apply and relate topics!

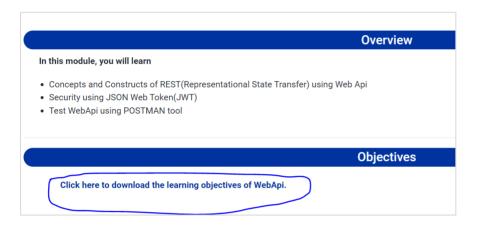**Are you now ready for a quick KBA?**

React Knowledge Based Assessment: There would be an assessment in the Tekstac platform, be scheduled manually based on your readiness.

Want to brush-up on your core skills? Refer to the **SmartSkills excel** provided in the platform.
Are you following the recommended schedule? Click here to check

REST, Spring Data JPA

Scope

Please navigate to Stage 4 → Spring REST with Spring Boot milestone. Click the link shown below in it to download and view the learning objectives.

Overview

In this module, you will learn

- Concepts and Constructs of REST(Representational State Transfer) using Web Api
- Security using JSON Web Token(JWT)
- Test WebApi using POSTMAN tool

Objectives

Click here to download the learning objectives of WebApi.

Spring REST using Spring Boot

Master Java Web Services and RESTful API with Spring Boot

1) Learn the sections listed below in this Udemy course
   - Section 6: RESTful Web Services with Spring and Spring Boot

2) Implement the examples along with the author
3) MockMVC
4) Restful Webservice Integration
5) Performance Testing of Restful Webservice

Spring Data JPA

Master Hibernate and JPA with Spring Boot in 100 Steps

1) Learn the sections listed below in this Udemy course

   - Section 5: JPA and Hibernate in Depth
   - Section 6: Establishing Relationships with JPA and Hibernate - OneToOne
   - Section 7: Let's review with a few FAQs about Hibernate and JPA
   - Section 8: Establishing Relationships with JPA and Hibernate – OneToMany
   - Section 9: Inheritance Hierarchies with JPA and Hibernate
   - Section 10: Queries with Entities using JPQL
   - Section 11: Queries using Java API - Criteria Queries
   - Section 13: Spring Data JPA & Spring Data REST

2) Implement the examples along with the author
3) HQL
4) Restful Webservice – Spring Data JPA Integration
5) UserDetailsService

Please download and practice the hands-on in the milestone.

Note:
✓ Few of the practice hands-on will contain reference to exercises completed in the previous module

Apply the learnings in your project. Work on it to learn, apply and relate topics!

Are you now ready for a quick KBA?

Spring REST Knowledge Based Assessment: There would be an assessment in the Tekstac platform, be scheduled manually based on your readiness.

Coding standards

The concepts include importance of code quality and coding standards.
Refer this document and the below for a reference on good coding quality standards.

Effective coding standards

1. Ensure there are no unused variables, fields and empty catch blocks in your application.
2. Ensure that there are no unused classes or interfaces in your application.
3. All configuration values should be there in the Configuration file and pulled in the application code. No Hardcoding in application code. If needed maintain a Utility class to store the values are read-only variable, access that in the application.
4. Remove unused, commented code, unused properties
5. Check for Logging in all methods.
6. Classes and methods to have Comments to describe its need.
7. All methods to have Unit test cases.
8. Coding standards
   a. Java
      i. Class / interface Name should be in Pascal case
      ii. Method names, parameter names, field/property names should be in camel case.
      iii. Package name should always be in lower case
      iv. Meaningful names to variables, properties, methods and Classes
   b. DotNet
      i. Pascal casing for Class, Namespace, Methods, Properties
      ii. Camel casing for method parameters, variables
      iii. Meaningful names to variables, properties, methods and Classes
      iv. Appropriate data annotation to Model class property as appropriate

Application debugging

What is this? Out of syllabus 😜

We hear you. This is purely for your reference, and you'll need it. This is very important to work on any application.

Application debugging

There are 2 milestones in Stage 3 & 4 for this. Please go through the videos, download the application code from there to practice the hands-on.

My project demo – I own this 😊

Yes, we've come to the end of the program. It is time to prove yourself, your capability, your passion and all the hard-work you've put in to learn, apply and relate the topics.

Upload the project code you developed during this program to Github, have it as a private repository. Your coach will be in constant touch with you throughout the journey, schedule meetings and the final demo.]

1) Explain your project requirement clearly
2) Demo the application flow
3) Explain the concepts that you've used which you've learnt
4) Relate the front-end and back-end
5) Relate the topics you learnt and applied in the project
6) Be open to suggestions and feedback. Work on the feedback comments. Talk to your coach for the final demo after the changes, as appropriate
7) Close the project and discussion with confidence and grace

After all, it is you, your capability, your project, you designed and worked on it.
Let the world know you!

1) Are the learnings mandatory to take up the KBA?

We strongly recommend that you complete the learning modules before your final evaluation. If you're confident to take up the assessments without the learning, it can be done.

2) Are there multiple attempts for the KBA? If so, which score will be considered?

Yes, 2 attempts will be given for every KBA. The best of the scores will be considered as the final score.

3) Can I work on the project from Day 1?

Yes, you can.

4) What are the passing criteria for this program?

A minimum average of 70% in the KBA, a minimum of 70% in the Project case study is the passing criteria of this part of the program.

5) Will there be trainer support during the project phase?

Yes, there would be master classes by trainer & BU SME connects to support on complex topics, query clarification etc. The schedule will be notified to you by your coach.