

# **FINAL YEAR B.TECH. SEMESTER INTERNSHIP REPORT**

A report submitted in partial fulfilment of the requirements for the Award of Degree of

**BACHELOR OF TECHNOLOGY**

in

**ELECTRONICS AND COMMUNICATION ENGINEERING**

BY

**SAI TEJA KMVP**

**Enrolment Number: BT18ECE014**

Under the Supervision of

Mr. Ajit Kumar ,Samsung SDS, Gurgaon

**Internship Period: 16 February, 2022 to 30 June, 2022**



भारतीय सूचना यौगिक संस्थान, नागपूर

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY,  
NAGPUR**

(An Institution of National Importance by Act of Parliament)

BSNL RTTC, Near TV Tower, Besides Balaji Temple, Seminary Hills,  
Nagpur-440006





**भारतीय सूचना प्रौद्योगिकी संस्थान, नागपुर**  
**Indian Institute of Information Technology, Nagpur**  
**"An Institution of National Importance by an Act of Parliament"**

Survey No. 140,141/1, Behind Br. Sheshrao Wankhade Shetkari Sahkari Soot Girni, Village - Waranga, PO - Bori (Butibori), Nagpur (Rural), Nagpur - 441108

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**INTERNSHIP PERFORMANCE ASSESSMENT BY EMPLOYER**

Is Internship completed on or before 31<sup>st</sup> May 2022: No

If No, please specify the amount of Internship work done (in percentage) till 31<sup>st</sup> May 2022: 75%

To,

The Reporting Manager / Program Coordinator (Internships)

We appreciate your contribution to the professional growth and development of students of IIIT Nagpur.

This internship is a mandatory part of B.Tech curriculum at IIIT Nagpur. This Assessment form is a part of INTERNSHIP EVALUATION of the student. Based on your assessment, the student will earn the credits for this internship.

Please handover this document duly filled and signed by the Supervisor/Reporting Manager to the student for submitting to the Institute.

*Please note this form may be shared with the student; comments that will aid the student in career and related skill development are particularly encouraged.*

**STUDENT'S INFORMATION:**

Student's Name: \_\_\_\_\_ Sai Teja \_\_\_\_\_

Student's Enrollment Number: 8743461 \_\_\_\_\_

Internship Start Date: \_\_\_\_\_ Feb 1, 2022 \_\_\_\_\_ Internship End Date: \_\_\_\_\_ June 30, 2022

Work hours per week: \_\_\_\_\_

• **Internship Profile Name:**

\_\_\_\_\_ Intern \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

• **Duties allotted to the student:**

Clearing The advance level software competency test in Samsung \_\_\_\_\_



### INTERNSHIP EVALUATION SHEET

Please rate the internship performance of the student in the following areas on a scale of 1 to 5.

1=Poor	2=Acceptable	3=Good	4=Very good	5=Excellent
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Sr No	Area	Rating (Out of 5)	Comments
1	Domain knowledge	4	
2	Ability to apply domain knowledge to tasks given	3	
3	Completion of Assignment/Project	3	
4	Ability to meet deadlines	4	
5	Ability to develop creative solutions to problems	3	
6	Ability to take initiative	3	
7	Ability to work with others	4	
8	Presentation Skills	3	
9	Communications Skills	4	
10	Punctuality	4	
	<b>TOTAL SCORE (Out of 50)</b>	<b>35</b>	

**NARRATIVE ASSESSMENT** *(Please state in narrative form your final assessment of the student's performance. Is the student better prepared for the industry? What are the specific strengths and weaknesses?)*

\_\_\_\_\_ Yes-----

**RECOMMENDATIONS** *(Do you have any recommendations to the program faculty on how to improve the program or the internship experience?)*

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**DETAILS OF THE ORGANIZATION WHERE INTERNSHIP IS PURSUED**

Name of the Organization/Institute where internship is pursued: \_\_\_\_\_SDSI\_\_\_\_\_

\_\_\_\_\_

Office Address: \_\_\_\_\_3<sup>rd</sup> Phase gurugaon(Hariyana) sector 24\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date of Evaluation: \_\_\_\_\_5/12/202\_\_\_\_\_

Name of Supervisor/Reporting Manager: \_\_\_\_\_Ajit Kumar\_\_\_\_\_

Signature of Supervisor/Reporting Manager: \_\_\_\_\_Ajit\_\_\_\_\_

Contact No: \_\_\_\_\_ E-mail ID: \_ajit.k5@samsung.com\_\_\_\_\_

Company Seal:

\_\_\_\_\_

## Acknowledgement

I would like to express my gratitude towards **Mr. Ajit Kumar** for taking the valuable time for me and the project, and helping us in the ability to master the concepts with the resources provided.

I am highly indebted to Director **Dr. O. G. Kakde** and Dean **Dr. Ashwin Kothari**, for the facilities provided to accomplish this internship.

I would also like to thank **Mrs. Meera Jagdale**, Training and Placement Coordinator for her support throughout helping me to complete the internship in the above said organisation.

SAI TEJA KMVP

## Table of Contents

List of Figures & Tables	4
Internship Organisation Profile	5
Internship Profile Description	6
Introduction	7
Java Training	12
Task Done	9
Productivity Tools Used	15
References	17
Training at Samsung SDS, Gurgaon, Haryana	11
Challenges Faced & Solutions	12
Learnings from the Internship	13



## List of Figures & Tables

<b>Title</b>	<b>Page No</b>
Spring boot	14
Hibernate	16
Json	17
Samsung	12
Java	17
Competitive Coding Challenge	20

## **Internship Organisation Profile**

Samsung SDS is a vast organisation, part of Samsung where it is focusing on gathering data operated on a global scale. It focuses broadly on IT services and is also highly successful in the fields of providing Solutions & Platforms, IT Infrastructure, Logistics BPO along with exploring a diverse set of Technologies. They have been highly regarded by proper media outlets such as Forbes, Forrester, Brand Finance etc., over 37 years of its inception.

Samsung is a company well-known for its successful stint happening in the electronics business and is definitely not limited to that. It is indeed continually growing to be so even today and flourishes in Research & Development, Sales & Marketing, Design and General Management sectors considering all the factors required for its end product and the customer. Today we all know and do have any one of the products such as mobile phones, daily appliances etc., because they believe that their integrity helps them in responding to not only rapid changes in the global business environment, but also a vehicle for building trust with its various stakeholders including customers, shareholders, employees, business partners and local communities.

Samsung SDS currently has 71 offices with 8 regional HQs and 13 data centres available with 29% of Global Employees according to the 2019 census.

Built upon the foundation businesses such as captive SI and outsourcing while evolving as a Global Top Tier IT Solution & Services provider, Samsung SDS has managed to merge with various other Samsung divisions such as Samsung SNS and Samsung Networks. Our organisation also shows its diversity in

- Technology Landscape

- Industry Experience

### **1.1 Technology Landscape**

Samsung SDS takes this sector into consideration to a very important extent so that the intern can tackle these technologies chosen and stay updated. They include-

- Java, Spring Boot, Python
- Angular, ReactJS, Vue.js
- Docker, Kubernetes
- .NET Framework
- AWS
- NodeJS, Git
- MariaDB, MongoDB, Redis

and many more.

### **1.2 Industry Experience**

Samsung works with their clients in ensuring proper Manufacturing, providing Financial Services, Construction and Engineering Services.

Manufacturing includes Electronics, Semiconductor Display, Apparel, Biopharmaceutical and provides Electronic Components. Financial Services include Banking, Asset Management, Insurance and Securities. Construction and Engineering include Heavy Industry and Construction. Services include Education, Defence, HealthCare, Hotels/Resort and Government.

## **Internship Profile Description**

Samsung SDS brings up many graduate, post-graduate, and doctoral students from academic institutions around the world assigned the role of Software Development Intern and also provides you the opportunity to convert to a full-time employee. The opportunity is valid until June 30, 2022.

## 2.1 Role of an intern



To be responsive to their mentors assigned in the past 5 months who send us assignments every week and share the status of your work by the end of the week.

Interns are given the opportunity to attempt the Software Test conducted every Saturday and clear the test by the end of your Internship. The concepts asked are mostly based on Graphs in Data Structure and the level of difficulty stands at moderate most of the time.

## 2.2 The areas of responsibility

### **JAVA TRAINING**

After the SW certification training, the company conducted java training. The focus of the training was the java language and related technologies. This training includes :-

1. Java (Basic to advance level)
2. Spring boot (A java framework)
3. Hibernate (Object relational mapping tool)

It was 2 weeks training. Separate mentors were assigned for solving doubts and conducting sessions. Mentors also used to give us some tasks based on the training. Company also conducted several quizzes based on the training.

## Introduction

### 3.1 Induction

Samsung SDS has started our internship tenure with the 3 day Induction Program. Here, we were told about how Samsung has created an establishment for itself since 1935. It started establishing markets, chemical industries and the General Trading Company in the 70s. Then later on, they realised the development of technology and started naming their conventions in the form of foundation numbers. Today Samsung is in the 3<sup>rd</sup> foundation and is progressing to make sure we are updated with the use of their latest deployments coming up. This is the first day of our Induction.

### 3.2 Sessions

**Due to the NDA signed we could not reveal to you the portal we've used to view these sessions.**

Our company was interested in providing us with Data Structure sessions conducted by Korean employees working in Samsung. Also we explored DSA from scratch up to Graphs and focused on the important concepts to use in our daily working life. Also it was mentioned that they conduct SW Test every Saturday and report to the office to attempt the examination. On this day we also had a session with the HR and asked queries regarding the parameters of our Internship.

### 3.3 Mentors talk

We had Friday meetings during our continuing tenure until March 2022. Every week we were given a question asked from Samsung focusing on Graphs and expressed our difficulties limited to the problem. Our mentor Mr.Ajit Kumar was very open with us regarding the difficulties we're facing and always motivated us to keep solving questions and give our best shot by staying for the complete duration of the exam.

## **Mentor Sessions**

As we were told that we need to conduct SW Test or Software Assessment Test every Saturday, our mentor published queries every Wednesday and submitted them on Friday.

We also discussed the solution of the weekly problem without any disclosure to the other interns who were assigned different mentors and made our base with the Graphs concepts better.

## **TASK DONE**

### **SPRING BOOT APPLICATION**

During Java Training, creating a spring boot application task was given. A database was given which includes information about samsung employees. We need to create a spring boot application that performs CRUD operations in the database. Steps involved were :-

- **Starting with spring initializr** :- Spring Initializr is a Web-based tool that generates the Spring Boot project structure.



Above figure shows the basic structure of the application. Gradle and maven are different tools used to build software. I have used Gradle in my project because it is based on developing domain specific language projects like java, C, C++ and Groovy. While Maven is completely based on java language based projects.

- a. Application.java : A class with a main() method to bootstrap the application.
- b. ApplicationTests.java : An empty JUnit test class used to load a Spring application

context using Spring Boot auto-configuration.

- c. application.properties : An empty properties file to add configuration properties.

- **Setup Database** :- Setting up SQL database which contains information about the samsung employees and then connect this database with the spring boot application. To connect the MySQL database, add the MySQL dependency into our build configuration file (build.gradle).
- **Create JPA Entity Class** :- Used hibernate to create an Employee entity to store and retrieve employee information from the database. Hibernate is an ORM which means Object relational mapping. It is used for mapping the created model to the relational database.
- **Creating Repository** :- Spring JPA provides a transparent integration with the underlying JPA layer using the JPA repositories. It

will take care of creating repository implementations automatically, at run-time, from a repository interface.

- **Service and Controller** :- Create a simple service which will interact with the JPA repository to perform database operations like Create, Read, Update, Delete.

## PRODUCTIVITY TOOLS USED

Spring Boot is an open source, microservice-based Java web framework. The Spring Boot framework creates a fully production-ready environment that is completely configurable using its prebuilt code within its codebase. Spring Boot automatically configures your application based on the dependencies you have added to the project.

In short, Spring Boot is the combination of Spring Framework and Embedded Servers. In Spring Boot, there is no requirement for XML configuration. It uses convention over configuration software design paradigm that means it decreases the effort of the developer. We can use Spring STS IDE or Spring Initializr to develop Spring Boot Java applications.

### ● **Hibernate**

Hibernate is an object-relational mapping tool for the Java programming language. It provides a framework for mapping an object-oriented domain model to a relational database. Hibernate implements the specifications of JPA (Java Persistence API) for data persistence.

It simplifies data creation, data manipulation and data access. It is a programming technique that maps the object to the data stored in the database.





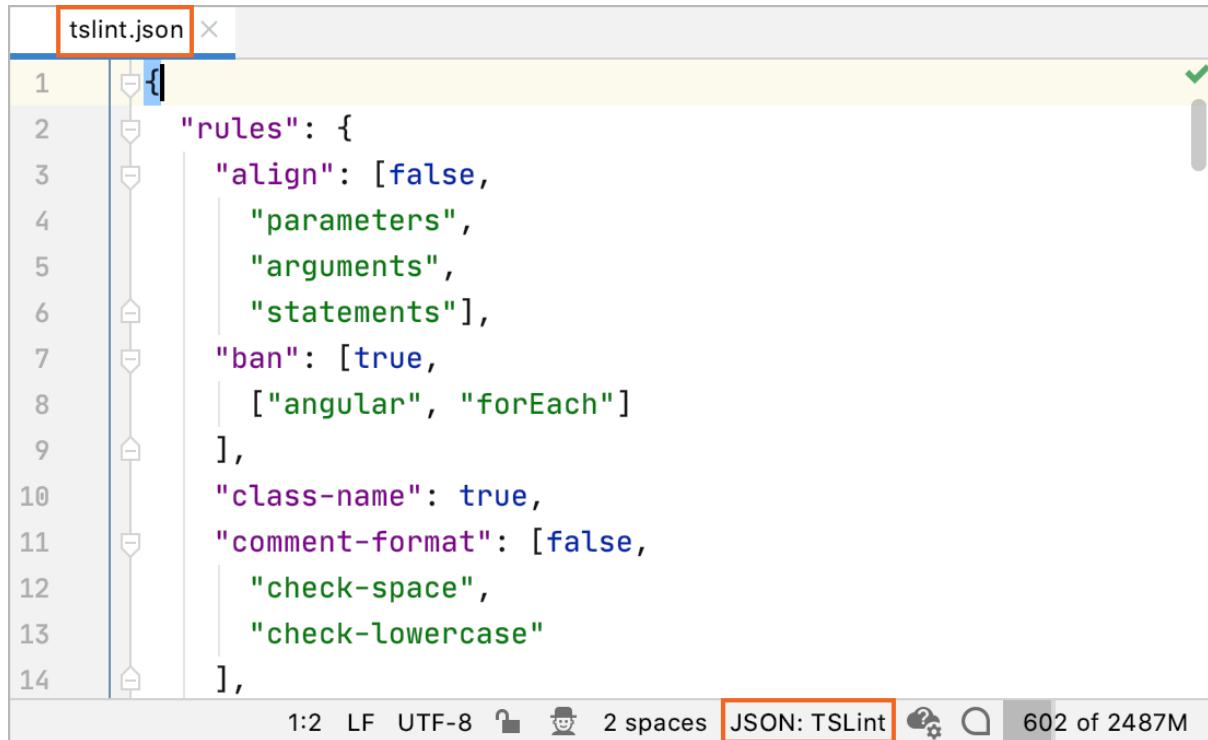
- **Java**

Java is a high-level, class-based, object-oriented programming language that is designed to have as few implementation dependencies as possible. It is a general-purpose programming language intended to let programmers write once, run anywhere (WORA), meaning that compiled Java code can run on all platforms that support Java without the need for recompilation.



## • JSON

JavaScript Object Notation (JSON) is a standard text-based format for representing structured data based on JavaScript object syntax. It is commonly used for transmitting data in web applications (e.g., sending some data from the server to the client, so it can be displayed on a web page, or vice versa).



```
1 {  
2   "rules": {  
3     "align": [false,  
4       "parameters",  
5       "arguments",  
6       "statements"],  
7     "ban": [true,  
8       ["angular", "forEach"]  
9     ],  
10    "class-name": true,  
11    "comment-format": [false,  
12      "check-space",  
13      "check-lowercase"  
14  ],  
  }
```

## REFERENCES

- <https://spring.io/guides/gs/spring-boot/>
- <https://www.javadevjournal.com/spring-boot/spring-boot-with-hibernate/>
- <https://www.jetbrains.com/mps>
- <https://www.baeldung.com/spring-boot-hibernate>
- <https://www.javadevjournal.com/spring-boot/>

**Training at Samsung SDS, Gurgaon, Haryana**

Samsung has conducted Training Sessions from Korea and has provided us enough information about the DSA and its applications in competitive coding. Also they have brought up a 10 Day Training Program in tie-up with Stalwart Learning.

Following is the list of courses that I pursued during my internship stint at Samsung SDS,Gurgaon.

<b>Sr. No.</b>	<b>Title</b>	<b>Issue Data</b>
1	Data Structures upto Stacks and Queues	20/02/2022
2	Trees and Heap Data Structure	22/02/2022
3	Graphs and Competitive Coding	26/02/2022
4	JavaScript and SQL Theory	07/03/2022
5	SQL in practice and Java	11/03/2022
6	Java_Generics	15/03/2022
7	SpringBoot and Hibernate	17/03/2022

## **Challenges Faced & Solutions**

The current stay at Samsung SDS, Gurugram gives me takeaways in the following ways Here is a list of challenges faced during the internship tenure and solutions were discussed and developed to solve the same.

- Competitive Coding Challenges



Since I have faced difficulty in Graph concepts there was a new mentor who sent us questions every week. Thanks to him I was able to be regular with the coding on LeetCode and that motivation helps me be regular.

- **Training Task**

We were given an end task to perform connection of SQL server using SpringBoot. Coding was required in Java. Then I have gone through the tutorials and managed to complete some part of it. Approached the trainers then for the solution and they resolved my issue.

- **Project Challenges faced**

While building the Budget Tracker I have faced issues of Internal Server Error. Then it got resolved by simply adding the JSX wrapping, then also learned how to import into the right directory which was a confusion to me. Then aligning the Containers and Stacks inside using JS code was one and I watched some videos to keep optimising the final view.

- SW Test

Faced difficulty with dealing with the questions in the examination due to my weakness in Graphs. But the solution always lies in working on the same weakness and performing for that 3 hour test conducted with full composure.

## **Learnings from the Internship**

- Literature review and analysis:

The basis of any research work lies in facing challenges from the problem statement you are given in the 3 hour test and also the short project we have done. Making sure that we need to stay regular to what we do is the key to getting what you want.

- ReactJS understanding with npm

React is a JavaScript library for creating user interfaces. The react package contains only the functionality necessary to define React components. It is typically used together with a React renderer like react-dom for the web, or react-native for the native environments. By default, React will be in development mode. The development version includes extra warnings about common mistakes, whereas the production version includes extra performance optimizations and strips all error messages.

- SW Test Mistakes

Need to be more optimizable when it comes to coding in Graphs with brute force being my favourite approach. More conceptual understanding of STL in C++ for me is personally required and solving questions regularly by keeping a target of difficulty level is a must.

- General Communication and Presentation Skills:

Besides the technical skills and knowledge, an intern must have good communication and presentation skills. At Tata Research one gets to learn how to present one's work and effectively communicate it to others.