SOFWARE DEVELOPMENT ENGINEER IN TESTING AT COGNIZANT TECHNOLOGY SOLUTIONS

Internship report submitted in partial fulfillment of the requirement for the degree of Bachelor of Technology

In

COMPUTER SCIENCE ENGINEERING

By:

Sarthak Vinayaka (171368)

Under the supervision

Of

Cognizant Team

To

Department of Computer Science & Engineering and Information Technology

Jaypee University of Information Technology Waknaghat,

Solan-173234, Himachal Pradesh

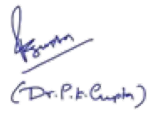
Certificate

Candidate's Declaration

I hereby declare that the work presented in this report entitled "Understanding the concepts of software testing at cognizant technology solutions" in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Computer Science and Engineering submitted in the department of Computer Science & Engineering and Information Technology, Jaypee University of Information Technology Waknaghat is an authentic record of my own work carried out over a period from March 2021 to May 2021.

The matter embodied in the report has not been submitted for the award of any other degree or diploma.

Sarthak Vinayaka,
171368



Dr. Pradeep Kumar Gupta (Associate Professor)
Department of Computer Science and Engineering and Information Technology Date:

Project Report Undertaking

I Mr. /Ms. **Sarthak Vinayaka** Roll No.: **171368** Branch: **Computer Science Engineering** is doing my internship with **Cognizant** from **24/03/2021** to **16/08/2021.**

As per procedure I have to submit my project report to the university related to my work that I have done during this internship.

I have compiled my project report. But due to COVID-19 situation my project mentor in the company is not able to sign my project report.

So I hereby declare that the project report is fully designed/developed by me and no part of the work is borrowed or purchased from any agency. And I'll produce a certificate/document of my internship completion with the company to TnP Cell whenever COVID-19 situation gets normal.

Name: Sarthak Vinayaka

Roll No.: 171368

Date: 20/05/2021

Acknowledgement

I would like to acknowledge my college (Jaypee University of Information Technology) for giving me this opportunity to explore my technical abilities with this internship. I would like to express my sincere gratitude to our TnP officer, Mr. Pankaj kumar and our faculty Coordinator, Dr. Nafis U Khan for this opportunity. I also wish to express my gratitude to my internship supervisor, for their valuable guidance and advice in completing this project.

I would like to show my sincere appreciation and gratitude towards all the officials and the employees of Cognizant Technology Solutions, without whose assistance, my internship program would not have been completed. The facts and figures that are presented in this report wouldn't have been possible without their valuable contribution.

Last but not the least, I would like to thank my friends and family for constantly supporting me during these tough times.

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List of Abbreviations

Abbreviations	Full form
DBMS	Database Management System
JSON	JavaScript Object Notation
UI	User Interface
QEA	Quality Engineering And Assurance

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Abstract

The main motive of the Cognizant Technology Solutions internship was to transform all the fresh graduates into business ready individuals and they planned to achieve this by building a strong foundation of all the required CSE basics and also advanced topics as well.

I was provided with a detailed 19 weeks schedule which included everything ranging from manual testing to java and finally finishing off with automation testing using Selenium. The internship program is divided into two stages:

- Stage 1 – QEA Basics (8weeks)
    - Functional Testing
    - Core Java
    - Web UI and Data Source
- Stage 2 – Selenium with Digital Technologies (11 weeks)
    - Spring Core
    - Spring Boot
    - MVC
    - Automation Testing with Selenium

CHAPTER-1
INTRODUCTION

(1.1) Introduction

Gen C learning program draws in young talents with a thorough learning pathway, offering the recent college grads a chance to collaborate with Subject Matter Experts (SME), comprehend the professional workplace, and man of the actual hour. Conscious underlines on Learner Autonomy where understudies assume responsibility for their own learning, with the accessible apparatuses and assets. More spotlights are on "learning" than "educating".

(1.2) Background

Back in 7th Semester, The placement season began and many amazing companies visited our campus. Cognizant Technology Solutions was one of them and I was fortunate enough to be placed in such an esteemed organization which has its grip in the IT world and is also branched of pretty nicely too.

Cognizant is a USA based IT Services Company but is also one of the top 3 IT companies in India. Cognizant gives data innovation, data security, counselling, ITO and BPO administrations. These incorporate business and innovation counselling, frameworks mix, application improvement and support, IT foundation administrations, Artificial Intelligence, Digital Engineering, investigation, business knowledge, information warehousing, client relationship the executives, inventory network the board, designing and assembling arrangements, venture asset arranging, innovative work re-appropriating, and testing arrangements.

I was selected for the GenC program and was offered a chance to intern at the same company before joining the organization as a full time employee. I accepted the same because I had a chance to have a head start in my career and I didn’t want to let go of this opportunity. So, my internship was scheduled for 19 weeks which included everything ranging from Core Java to Automation Testing.

(1.3) Program at a glance

Learning consisting of 2 Stages:

- Stage 1 – QEA Basics (8weeks)
    - Functional Testing
    - Core Java
    - Web UI and Data Source
- Stage 2 – Selenium with Digital Technologies (11 weeks)
    - Spring Core
    - Spring Boot
    - MVC
    - Automation Testing with Selenium

(1.4) Mission

Mission: The mission of this internship program is to converts fresh out of college graduates into business ready individuals and to get them ready for the corporate IT world.

(1.5) Values

The values are as follows:

- **Valuing People and Relationships**

  We believe that our success depends first and foremost on people. By respecting people in everything we do, we will develop and maintain high quality, mutually beneficial relationships with our clients, professional colleagues, referral sources, vendors, community members and each other.

- **Building Client Relationships**

  We seek to earn long-term client loyalty by developing a deep understanding of each client's business and personal goals, by demonstrating unwavering reliability and integrity in our work and by acting as an independent and objective advisor to our clients.

- **Upholding Quality and Integrity**

  We will maintain an environment where a commitment to quality, honesty, respect, fairness and professional ethics governs the actions and decisions of everyone within our firm.

(1.6) Key to success

The key to success in this internship are as follows:

- Complete the work with full honesty.
- Complete the work on time.
- Complete the assessment.
- Complete the project within schedule time.
- Try to learn as much as possible from the SME, Trainer, and mentor.
- Open to learn anything taught.

(1.7) Road Map

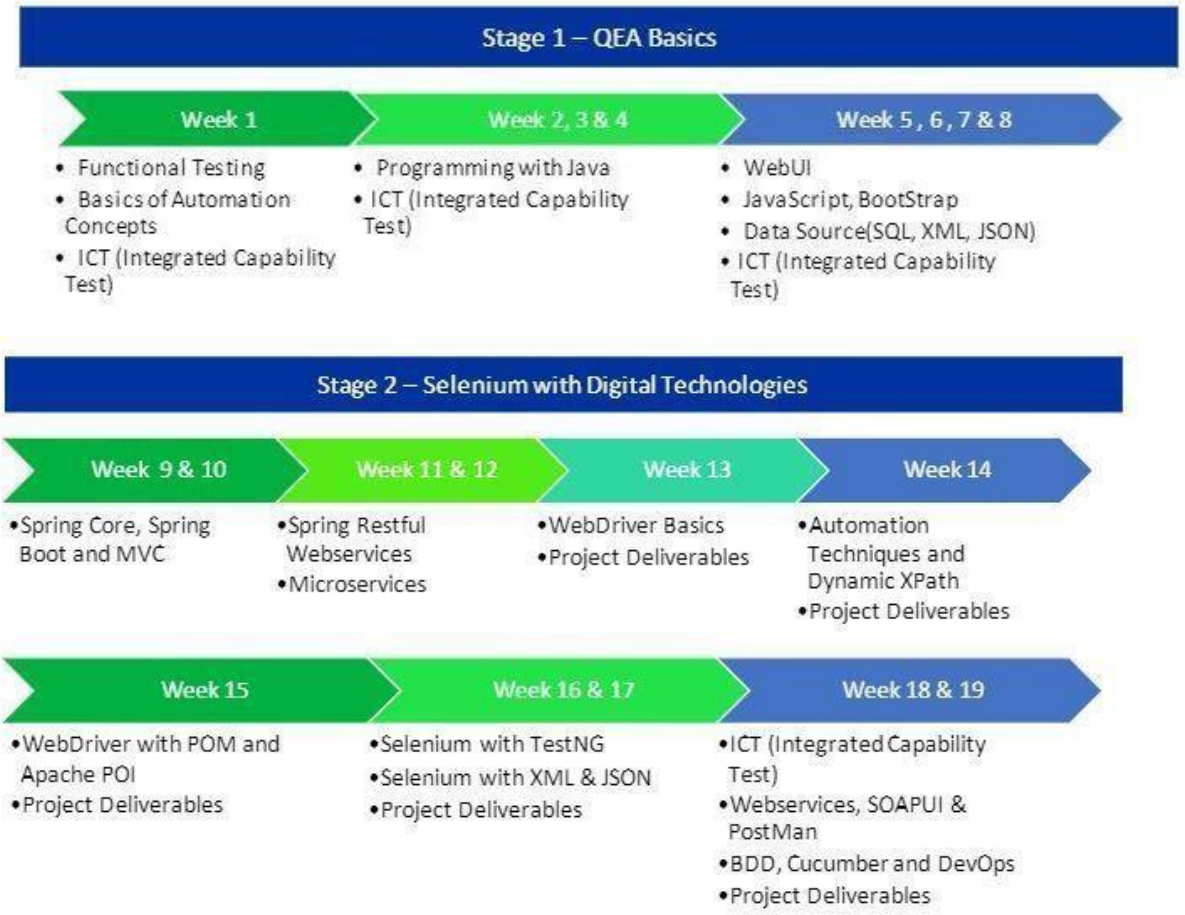


Fig 1.1: Road Map

CHAPTER-2

INTERNSHIP PROGRAM SEQUENCE

- **Week – 1 (Functional Testing)**

  The first week was all about the basics of functional testing and also learning about why testing is an integral part of the software development life cycle.

  Functional testing is a sort of programming testing that approves the product framework against the functional necessities/particulars. The reason for functional tests is to test each capacity of the product application, by giving fitting info, confirming the yield against the functional necessities.

  Functional testing principally includes black box testing and it isn't worried about the source code of the application. This testing checks User Interface, APIs, Database, Security, Client/Server correspondence and other functionality of the Application under Test. The testing should be possible either physically or utilizing robotization.

  In this week we all have to do is to compete Udemy courses provided by the cognizant during the internship, complete the hands-ons, assessment(important), and to complete the integrated capability test also.

  In this week 1 we learned the designing part in which we have to test the applications. After we completed the online Udemy courses, we did the hands-ons and completing the hands- on is mandatory for every intern and then, after completing the hands-ons we use to give assessment, a small test whose marks were taken into account, for the calculation of the in the final overall performance.

  The most important part of this week was making of testing report which was the most crucial part of functional testing.

  It also covered the usage of MS Office Package.

  Hands-on

  We were supposed to solve some specific questions known as hands-on which basically tested us on the knowledge that we have gathered over the week.

  The hands-on were also mandatory for the week's code challenge / integrated capability test. We needed to complete a specific number of hands-on to be eligible for the code challenge / integrated capability test.

  A hands-on example:

Test Scenarios

Module	Scenario ID	Scenario Name	Scenario Description	Requirement id
Hotel Booking	HB1	Location	A user should be able to choose a location for the hotel booking	R1
Hotel Booking	HB2	Time	A user should be able to choose a specific time for the hotel booking	R1
Hotel Booking	HB3	Rooms	A user should be able to choose the number of rooms for the hotel bo	R1
Hotel Booking	HB4	Search	A user should be able to search the desired hotels.	R1

Table 2.1: Test Scenarios

Test Cases

Test Scenario ID	Test case id	Test case description	Prerequisites	Steps to execute
HB1	TC1	Verify that when "India" radio button is clicked, the "Country" list box is inactive	The homepage is opened	1. Click on the "India" radio button under "Book your hotel"
HB1	TC2	Verify that when "International" radio button is clicked, the "Country" list box is active	The homepage is opened	1. Click on the "International" radio button under "Book your
HB1	TC3	Verify that when "India" radio button is clicked, the city list box contains "Delhi", "Mumbai", "Calcutta	The homepage is opened	1. Click on the "India" radio button under "Book your hotel"
				2. Click on "City" list box
HB2	TC4	Verify that an error is thrown after entering a check in date greater than check out	The homepage is opened	1. Click on any radio button
				2. Select any country
				3. Select a check in date larger than check out date
				4. Select any nationality
				5. Select any city
				6. Select a check out date smaller than check in date
				7. Select any number of rooms
				8. Select any number of adults and children
				9. Click on search
HB4	TC5	Verify that the application displays the required details when all the details entered are valid	The homepage is opened	1. Click on any radio button
				2. Select any country
				3. Select a check in date smaller than check out date
				4. Select any nationality
				5. Select any city
				6. Select a check out date larger than check in date
				7. Select any number of rooms
				8. Select any number of adults and children
				9. Click on search
HB4	TC6	Verify that an error is displayed when all the mandatory fields are left empty	The homepage is opened	1. Click on "Search" button
HB4	TC7	Verify that an error is displayed when "Nationality" list box is not filled	The homepage is opened	1. Click on any radio button
				2. Select any country
				3. Select a check in date smaller than check out date
				4. Select any city
				5. Select a check out date larger than check in date
				6. Select any number of rooms
				7. Select any number of adults and children
				8. Click on search
HB2	TC8	Verify that an error is displayed when Check in date is not selected	The homepage is opened	1. Click on any radio button
				2. Select any country
				3. Select any nationality

Table 2.2: Test Cases

Defect Report

Defect id	Description	Reproducible (yes/no)	Steps to reproduce	Severity
DE1	When "International" radio button is clicked, the "Country" list box is not displaye	Yes	1. Open the homepage	Major
			2. Click on the "International" radio button	
DE2	When a check-in date greater than the check-out date is entered along with all the valid credentials and the "Search" button is clicked, the application is displaying all	Yes	1. Open the homepage	Medium
			2. Click on any radio button	
			3. Select a country	
			4. Choose any nationality	
			5. Choose any city	
			6. Select any number of rooms	
			7. Select a check in date larger than the check out	
			8. Select a check out date smaller than the check in	
			9. Click on search	
DE3	When the city is selected as "Delhi" along with all the valid mandatory credentials and	Yes	1. Open the homepage	Medium
			2. Click on "India" radio button	
			3. Select the city as "Delhi"	
			4. Choose any check in date	
			5. Choose any check out date	
			6. Choose any nationality	
			7. Choose any number of rooms	
			8. Click on "Search" button	

Table 2.3: Defect Report

RTM

Serial no	Requirement id	Requirment description	Test scenario id	Test case id	Defect id
1	R1	This Requirement is about Raj Travels website. It is used to Book	HB1, HB2, HB3, HB4	TC1, TC2, TC3, TC4, TC5, TC6, TC7, TC8, TC9, TC10, TC11, TC12, TC13, TC14, TC15, TC16, TC17, TC18	DE1, DE2, DE3

Table 2.4: RTM

- **Week – 2 (Core Java)**

  We started learning Java from the basics taking it as the base language for our internship. We were taught all the basics of Java starting right from the beginning. Java is a programming language and a platform. Java is a significant level, strong, object-arranged and secure programming language.

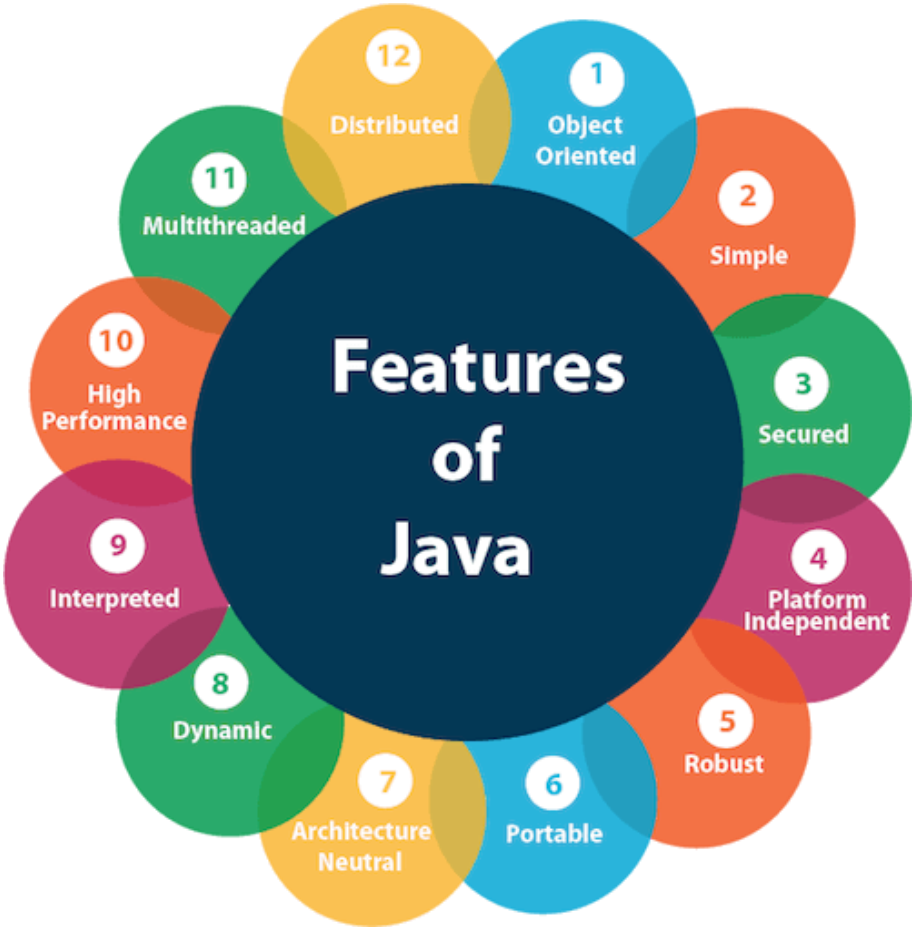


Fig 2.2: Features of Java

Java was created by Sun Microsystems (which is currently the auxiliary of Oracle) in the year 1995. James Gosling is known as the dad of Java. Prior to Java, its name was Oak. Since Oak was at that point an enlisted organization, so James Gosling and his group changed the Oak name to Java.

A simple Java code is as follows:

```
class Simple{
    public static void main(String args[]){
     System.out.println("Hello Java");
    }
}
```

As indicated by Sun, 3 billion gadgets run Java. There are numerous gadgets where Java is as of now utilized. Some of them are as per the following:

- Desktop Applications such as acrobat reader, media player, antivirus, etc.
- Web Applications such as irctc.co.in, etc.
- Enterprise Applications such as banking applications.

- Mobile
- Embedded System
- Smart Card
- Robotics
- Games, etc.

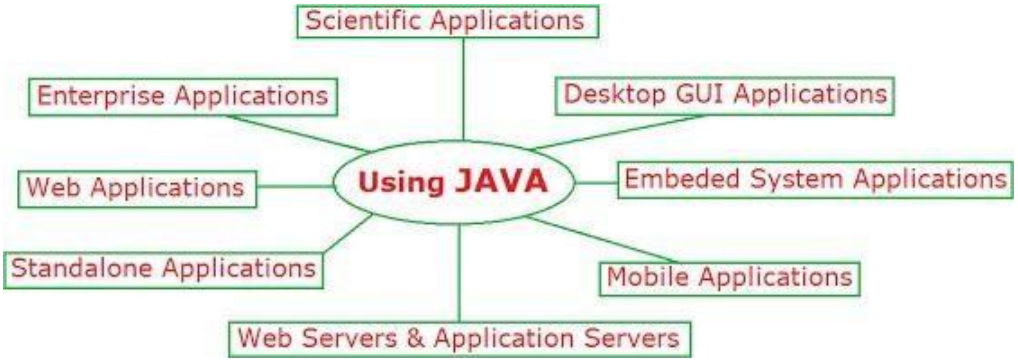


Fig 2.3: Uses of Java

Types of Java applications

There are four types of Java applications and are as follows:

- **Standalone Application**
  Independent applications are otherwise called work area applications or window-based applications. These are conventional programming that we need to introduce on each machine. Instances of independent application are Media player, antivirus, and so forth AWT and Swing are utilized in Java for making independent applications.
- **Web Application**
  An application that sudden spikes in demand for the worker side and makes a unique page is known as a web application. At present, Servlet, JSP, Struts, Spring, Hibernate, JSF, and so forth advances are utilized for making web applications in Java.
- **Enterprise Application**
  An application that is appropriated in nature, like financial applications, and so on is called undertaking application. It enjoys benefits of the great level security, load adjusting, and bunching. In Java, EJB is utilized for making undertaking applications.
- **Mobile Application**
  An application which is made for cell phones is known as a portable application. Right now, Android and Java ME are utilized for making versatile applications.

Difference between JDK, JRE and JVM

Fig 2.4: JVM vs JRE vs JDK

- **Week – 3 & 4 (JDBC)**
  In this week we all have to do is to compete udemy courses provided by the cognizant during the internship, complete the hands-on, assessment (important), and to complete the integrated capability test also.

  After we completed the online udemy courses, we did the hands-on and completing the hands- on is mandatory for every interns and then, after completing the hands-on we use to give assessment, a small test whose marks were taken into account, for the calculation of the in the final overall performance.

  The most important part of this week was covering all the basis aspects of the core java and learning JDBC and database connectivity with database from scratch because learning java and JDBC is very important in application development.

It also covered integrating of Core java and JDBC with the database to form proper webpage.

This part was very long because it was 3 week long, and we started from core java to advance java part also, connecting small core java with database through database connectivity or JDBC.

There are four sorts of JDBC drivers:

- JDBC-ODBC Bridge Driver,
- Native Driver,
- Network Protocol Driver, and
- Thin Driver

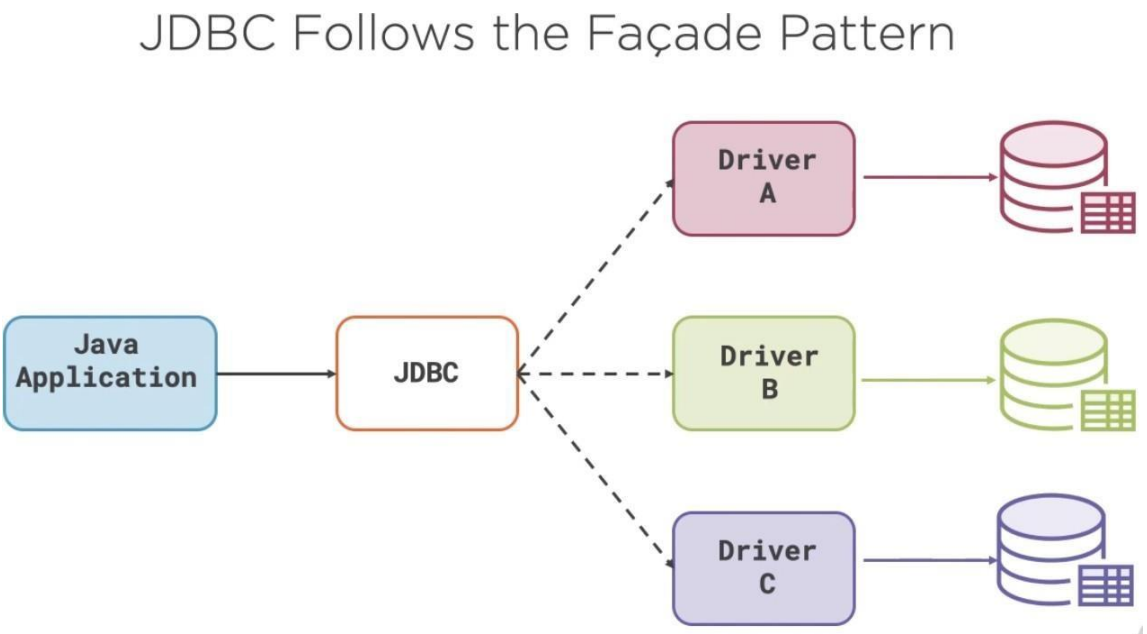


Fig 2.5: JDBC

The current variant of JDBC is 4.3. It is the steady delivery since 21st September, 2017. It depends on the X/Open SQL Call Level Interface. The java.sql bundle contains classes and interfaces for JDBC API. A rundown of mainstream interfaces of JDBC API are given underneath:

- Driver interface
- Connection interface
- Statement interface
- PreparedStatement interface
- CallableStatement interface
- ResultSet interface
- ResultSetMetaData interface
- DatabaseMetaData interface
- RowSet interface

Connecting to the database is very crucial in the application development and also is the major part in the application development.

Our trainer taught that 4 lines of code will we same in very code of JDBC, that 4 lines should known to very java developer who is working with the application development.

We also learned few packages which are very essential in connecting with the database and without that packages, it would we not possible to connect to the database. We also learned 4 types of database connectivity in the java application development.

Below is the sample example of few lines of the codes to store data and retrieve from the table form database.

```java
import java.sql.*;

public class FirstExample {
   static final String DB_URL = "jdbc:mysql://localhost/TUTORIALSPOINT";
   static final String USER = "guest";
   static final String PASS = "guest123";
   static final String QUERY = "SELECT id, first, last, age FROM Employees";

   public static void main(String[] args) {
      // Open a connection
      try(Connection conn = DriverManager.getConnection(DB_URL, USER, PASS);
         Statement stmt = conn.createStatement();
         ResultSet rs = stmt.executeQuery(QUERY);) {
         // Extract data from result set
         while (rs.next()) {
            // Retrieve by column name
            System.out.print("ID: " + rs.getInt("id"));
            System.out.print(", Age: " + rs.getInt("age"));
            System.out.print(", First: " + rs.getString("first"));
            System.out.println(", Last: " + rs.getString("last"));
         }
      } catch (SQLException e) {
         e.printStackTrace();
      }
   }
}
```

- **Week – 5 (HTML)**

Fig 2.6: HTML vs CSS vs JS

In the INS week we learned the designing part from scratch with the help of the HTML5 and CSS and also JavaScript.

After we completed the online udemy courses, we did the hands-on and completing the hands- on is mandatory for every interns and then, after completing the hands-on we use to give assessment, a small test whose marks were taken into account, for the calculation of the in the final overall performance.

The most important part of this week was covering all the basis aspects of the designing and learning html and CSS and JavaScript from scratch because learning html and CSS is very important in designing.
It also covered integrating of html and CSS with the JavaScript to form proper webpage.

HTML
HTML was created with the aim of characterizing the design of archives like headings, passages, records, etc. to work with the sharing of logical data between scientists. Presently, HTML is in effect generally used to arrange site pages with the assistance of various labels accessible in HTML language.

Sample HTML code:

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML+RDFa 1.0//EN" "http://www.w3.org/MarkUp/DTD/xhtml-rdfa-1.dtd">
<html version="HTML+RDFa 1.1"
      lang="en"
      xmlns="http://www.w3.org/1999/xhtml"
      xmlns:iks = "http://www.iks-project.eu/#"
      xmlns:foaf = "http://xmlns.com/foaf/0.1/"
      xmlns:rdfcal="http://www.w3.org/2002/12/cal#">
  <head>
    <title>Palsu - Online meeting tool</title>
    <script src="/js/vie.js" type="text/javascript"></script>
  </head>
  <body class="meetings">
    <header>
        <div id="account" typeof="foaf:Person" about="#user">
          <span class="avatar" rel="foaf:img">
            <img width="40" src="" alt="User Picture"/>
          </span>
          <p> Hello, <span property="foaf:nick">username</span> (<span property="foaf:name">full name</span>)!</p>
        </div>
    </header>

    <article>
      <h1>Meetings in Palsu</h1>
      <div id="main" class="meetings">
        <ul typeof="rdfcal:Vcalendar" about="urn:uuid:e1191010" rel="rdfcal:has_component" rev="rdfcal:component">
          <li about="" typeof="rdfcal:Vevent">
            <a href="" property="rdfcal:summary">Meeting title</a>
            <span property="dc:created">date</span> <div property="iks:agenda">Meeting agenda</div>
          </li>
        </ul>
```

We were taught various different HTML tags. Everything revolves around tags in HTML and some of them are as follows:

Tag	Description
<html> ... </html>	Declares the Web page to be written in HTML
<head> ... </head>	Delimits the page's head
<title> ... </title>	Defines the title (not displayed on the page)
<body> ... </body>	Delimits the page's body
<h *n*> ... </h*n*>	Delimits a level *n* heading
...	Set ... in boldface
...	Set ... in italics
...	Center ... on the page horizontally
...	Brackets an unordered (bulleted) list
...	Brackets a numbered list
...	Brackets an item in an ordered or numbered list
 	Forces a line break here
<p>	Starts a paragraph
<hr>	Inserts a horizontal rule
<img src="...">	Displays an image here
 ... 	Defines a hyperlink

Table 2.5: HTML Tags

- **Week – 6 (CSS & JavaScript)**
  In this week we all have to do is to complete udemy courses provided by the cognizant during the internship, complete the hands-on, assessment (important), and to complete the integrated capability test also.

  After we completed the online udemy courses, we did the hands-on and completing the hands- on is mandatory for every interns and then, after completing the hands-on we use to give assessment, a small test whose marks were taken into account, for the calculation of the in the final overall performance.

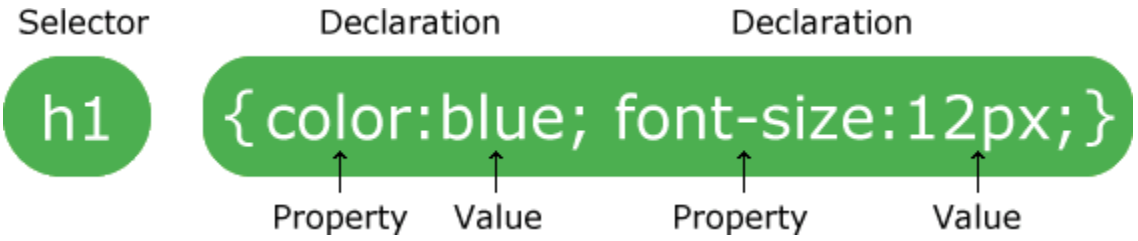
  The most important part of this week was covering all the basis aspects of the database and learning CSS and queries and database from scratch because learning CSS and queries is very important in database.

  CSS

  CSS is utilized to control the style of a web report in a straightforward and simple manner.

  CSS is the abbreviation for "Falling Style Sheet". This exercise covers both the variants CSS1, CSS2 and CSS3, and gives a total comprehension of CSS,

beginning from its fundamentals to cutting edge ideas.



CSS can be used for various different modifications that we can do in our webpage. The webpage should have a HTML and that's it. That should do it. We can use different CSS selectors to modify our webpage and use it further and use it for various reasons.

JavaScript

In this week we all have to do is to compete udemy courses provided by the cognizant during the internship, complete the hands-on, assessment (important), and to complete the integrated capability test also.

After we completed the online udemy courses, we did the hands-on and completing the hands- on is mandatory for every interns and then, after completing the hands-on we use to give assessment, a small test whose marks were taken into account, for the calculation of the in the final overall performance.

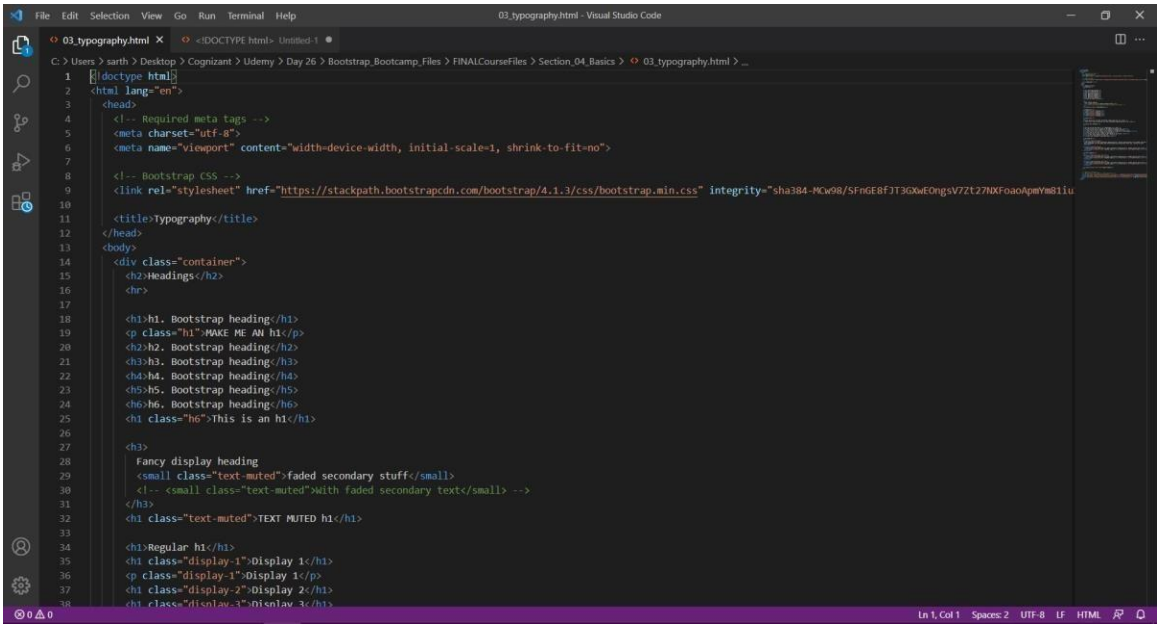
The most important part of this week was covering all the basis aspects of the designing and learning html and CSS and JavaScript from scratch because learning html and CSS is very important in designing.

It also covered integrating of html and CSS with the JavaScript to form proper webpage.

JavaScript is an article based prearranging language which is lightweight and cross-stage.

JavaScript is certifiably not an incorporated language, yet it is a deciphered language. The JavaScript Translator (implanted in the program) is liable for deciphering the JavaScript code for the internet browser.

Sample JavaScript code:



There are following features of JavaScript:

- All famous internet browsers support JavaScript as they give worked in execution conditions.
- JavaScript follows the punctuation and construction of the C programming language. Subsequently, it is an organized programming language.
- JavaScript is a feebly composed language, where particular sorts are certainly projected (contingent upon the activity).
- JavaScript is an article situated programming language that utilizations models as opposed to utilizing classes for legacy.
- It is a light-weighted and deciphered language.
- It is a case-delicate language.
- JavaScript is acceptable in a few working frameworks including, Windows, macOS, and so forth

- It gives great control to the clients over the internet browsers.

Below is all HTML, CSS and JavaScript combined.

CSSpractice.html

```
<!DOCTYPE: html>
<html lang="en-US">
    <head>
        <link rel="stylesheet" href="css/style.css" />
        <title>HTML Page with CSS</title>
    </head>
    <body>
        <header>
            Fake Industry Expo Announcement
        </header>
        <article>
            Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do
            velit esse cillum dolore eu fugiat nulla pariao csstur. Excepte
        </article>
        <footer>
            &copy; Copyright Imaginary Organization 2016
        </footer>
    </body>
</html>
```

style.css

```
body {
    font-family: 'Segoe UI', Tahoma, Geneva, Verdana, sans-serif;
}
article {
    color: #5C373C;
    margin: 10px;
}
footer {
    font-size: x-small;
    font-style: italic;
    background-color: #C14860;
    padding: 10px;
}
header {
    font-size: x-large;
    font-weight: bold;
    text-align: center;
    background: -moz-linear-gradient(#051118, #5C373C);
    color: #CAA893;
    border: thin #CAA893 inset;
    margin: 20px 30px;
    padding: 10px 20px;
}
```

- **Week – 7 (XML & JSON)**

  In this week we all have to do is to compete udemy courses provided by the cognizant during the internship, complete the hands-on, assessment (important), and to complete the integrated capability test also.

  In this week 7 we learned the designing part from scratch with the help of the XML and JSON.

  After we completed the online udemy courses, we did the hands-on and completing the hands- on is mandatory for every interns and then, after completing the hands-on we use to give assessment, a small test whose marks were taken into account, for the calculation of the in the final overall performance.

  The most important part of this week was covering all the basis aspects of the designing and learning html and XML and JSON from scratch because learning XML and JSON is very important.

  It also covered integrating of html and JSON with the XML to form proper webpage.

JSON	XML
Text based format (Not a Language)	Markup Language
Free to define anything	Has some rules
Smaller Size	Big in Size due to markups
JSON is similar to Java script Objects literals. Browser read faster.	Browser need parsers to handle XML. Slow processing.
No support on namespaces and comments	Both are supported.

Table 2.6: JSON vs XML

XML

XML labels recognize the information and are utilized to store and put together the information, as opposed to indicating how to show it like HTML labels, which are utilized to show the information. XML won't supplant HTML soon, yet it presents additional opportunities by embracing numerous fruitful highlights of HTML.

It is important because:

- XML is extensible − XML permits you to make your own self-

illustrative labels, or language, that suits your application.

- XML conveys the information, doesn't present it − XML permits you to store the information regardless of how it will be introduced.
- XML is a public norm − XML was created by an association called the World Wide Web Consortium (W3C) and is accessible as an open norm.

Here is a sample XML code:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<Table>
  <Product>
    <Product_id>1</Product_id>
    <Product_name>Product 1</Product_name>
    <Product_price>1000</Product_price>
  </Product>
  <Product>
    <Product_id>2</Product_id>
    <Product_name>Product 2</Product_name>
    <Product_price>2000</Product_price>
  </Product>
  <Product>
    <Product_id>3</Product_id>
    <Product_name>Product 3</Product_name>
    <Product_price>3000</Product_price>
  </Product>
  <Product>
    <Product_id>4</Product_id>
    <Product_name>Product 4</Product_name>
    <Product_price>4000</Product_price>
  </Product>
</Table>
```

JSON

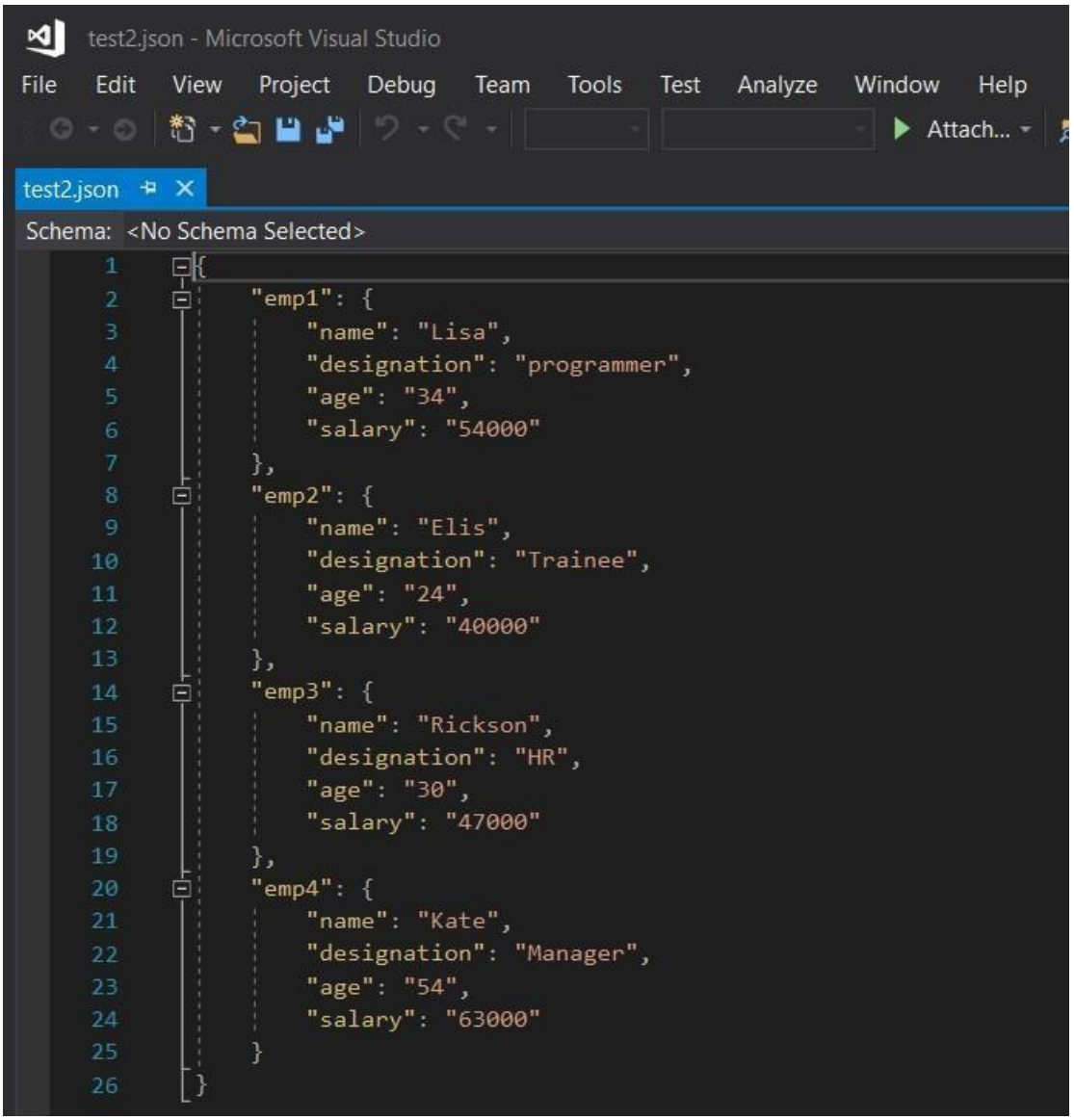
While trading information between a program and a worker, the information must be text.

JSON is text, and we can change over any JavaScript object into JSON, and send JSON to the worker.

We can likewise change over any JSON got from the worker into JavaScript objects.

This way we can work with the information as JavaScript objects, with no convoluted parsing and interpretations.

Here is sample JSON code:



JSON is based on two designs:

An assortment of name/esteem sets. In different dialects, this is acknowledged as an item, record, struct, word reference, hash table, keyed rundown, or affiliated exhibit.

An arranged rundown of qualities. In many dialects, this is acknowledged as a cluster, vector, rundown, or arrangement.

These are widespread information structures. Essentially all advanced programming dialects support them in some structure. It bodes well that an information design that is tradable with programming dialects likewise be founded on these constructions.

Now, we can compare XML and JSON in the following way:

http://localhost:8080/Json/SyncReply/Contacts

```
{
  - Contacts: [
      - {
            FirstName: "Demis",
            LastName: "Bellot",
            Email: "demis.bellot@gmail.com"
        },
      - {
            FirstName: "Steve",
            LastName: "Jobs",
            Email: "steve@apple.com"
        },
      - {
            FirstName: "Steve",
            LastName: "Ballmer",
            Email: "steve@microsoft.com"
        },
      - {
            FirstName: "Eric",
            LastName: "Schmidt",
            Email: "eric@google.com"
        },
      - {
            FirstName: "Larry",
            LastName: "Ellison",
            Email: "larry@oracle.com"
        }
    ]
}
```

http://localhost:8080/Xml/SyncReply/Contacts

```
<ContactsResponse xmlns:i="http://www.w3.org/20
  <Contacts>
    <Contact>
      <Email>demis.bellot@gmail.com</Email>
      <FirstName>Demis</FirstName>
      <LastName>Bellot</LastName>
    </Contact>
    <Contact>
      <Email>steve@apple.com</Email>
      <FirstName>Steve</FirstName>
      <LastName>Jobs</LastName>
    </Contact>
    <Contact>
      <Email>steve@microsoft.com</Email>
      <FirstName>Steve</FirstName>
      <LastName>Ballmer</LastName>
    </Contact>
    <Contact>
      <Email>eric@google.com</Email>
      <FirstName>Eric</FirstName>
      <LastName>Schmidt</LastName>
    </Contact>
    <Contact>
      <Email>larry@oracle.com</Email>
      <FirstName>Larry</FirstName>
      <LastName>Ellison</LastName>
    </Contact>
  </Contacts>
</ContactsResponse>
```

- **Week – 8 (DBMS)**

  In this week we all have to do is to compete udemy courses provided by the cognizant during the internship, complete the hands-on, assessment (important), and to complete the integrated capability test also.

  In this week 8 we learned the designing part from scratch with the help of the DBMS.

  After we completed the online udemy courses, we did the hands-on and completing the hands- on is mandatory for every interns and then, after completing the hands-on we use to give assessment, a small test whose marks were taken into account, for the calculation of the in the final overall performance.

  The most important part of this week was covering all the basis aspects of the designing and learning MySQL from scratch because learning DBMS is very important.

  It also covered integrating of MySQL to form proper knowledge.

  DBMS

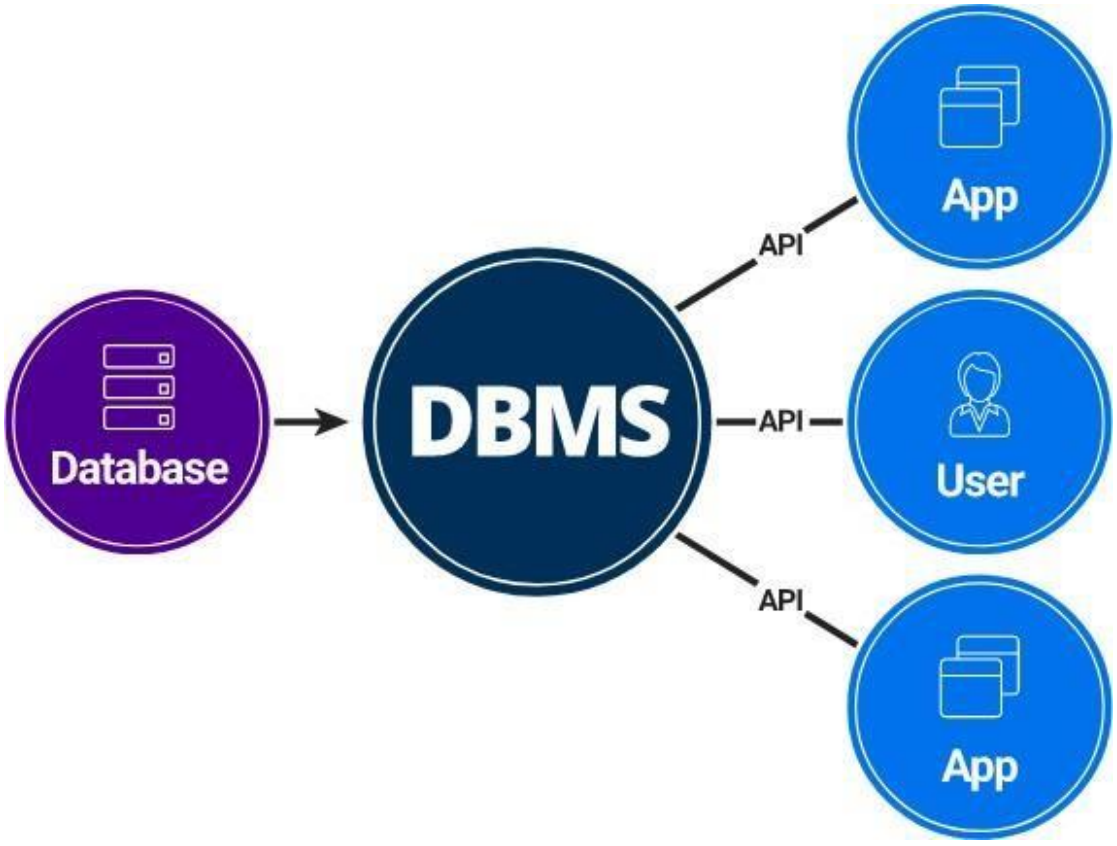


Fig 2.7: DBMS

Database Management System (DBMS) is a product for putting away and recovering clients' information while considering proper safety efforts. It comprises of a gathering of projects which control the database.

Below are the sample MySql code.

```
shell> mysql your-database-name
```

```
CREATE TABLE shop (
    article INT UNSIGNED  DEFAULT '0000' NOT NULL,
    dealer  CHAR(20)      DEFAULT ''     NOT NULL,
    price   DECIMAL(16,2) DEFAULT '0.00' NOT NULL,
    PRIMARY KEY(article, dealer));
INSERT INTO shop VALUES
    (1,'A',3.45),(1,'B',3.99),(2,'A',10.99),(3,'B',1.45),
    (3,'C',1.69),(3,'D',1.25),(4,'D',19.95);
```

```
SELECT * FROM shop ORDER BY article;
+---------+--------+-------+
| article | dealer | price |
+---------+--------+-------+
|       1 | A      |  3.45 |
|       1 | B      |  3.99 |
|       2 | A      | 10.99 |
|       3 | B      |  1.45 |
|       3 | C      |  1.69 |
|       3 | D      |  1.25 |
|       4 | D      | 19.95 |
+---------+--------+-------+
```

CHAPTER-3

SOFTWARE REQUIREMENT SPECIFICATION

- **Microsoft Office Package**

  Microsoft Office, or simply **Office**, it is used for emails and opening files and other sending other important information's.

- **Eclipse**

  Eclipse is an IDE it is used for coding in JAVA language.

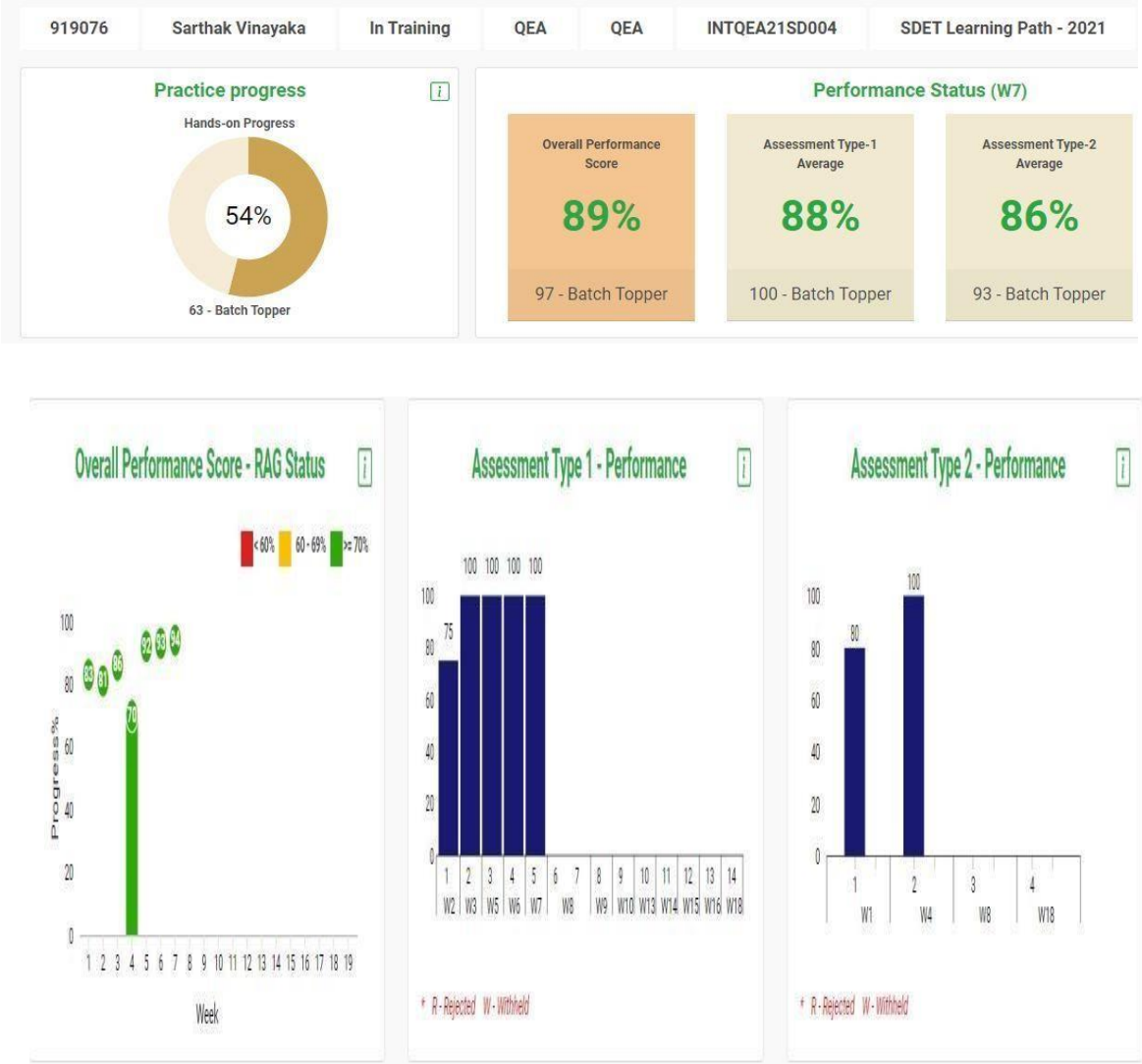
- **Visual Studio Code**

  Visual Studio Code it is used for writing HTML and Java Script scripts and then running it on chrome it's a good tool especially for web development.

CHAPTER-4

Results

(4.1) The status of our internship is as follows:



CHAPTER-5

Conclusion

(5.1) Summary

In our internship, we started off with functional testing then went on to learn core java and after that we proceeded to learn HTML, CSS and JavaScript which gave us great understanding of the Web UI. Then we learnt XML & JSON which helped us learning about the Web UI. Then we learnt DBMS for the backend of the website. We also gave several ICT and CC which helped us in checking our learning.

(5.2) Future Scope

Our internship is still going on and we will learn about the different testing techniques.

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