An Internship Report

on

"Emerson Automation Solutions"

Submitted by:

Prarthana Chandak [B190254230]

Under the Guidance of:

Prof. Poonam Jadhav

In Partial Fulfilment of

[BE-I Computer Engineering]

April-May 2022-23

DEPARTMENT OF COMPUTER ENGINEERING

AISSMS's INSTITUTE OF INFORMATION TECHNOLOGY,

Shivaji Nagar, PUNE– 01

Affiliated in

SAVITRIBAI PHULE PUNE UNIVERSITY

AISSMS
INSTITUTE OF INFORMATION TECHNOLOGY
ADDING VALUE TO ENGINEERING

CERTIFICATE

This is to certify that **PRARTHANA CHANDAK (**Exam Seat No: B190254230 **)** from **Fourth Year** has successfully completed his/her Internship entitled **"Emerson Automation Solutions"** at **Emerson Automation Solutions** in the partial fulfilment of the Bachelor's degree in Computer Engineering.

Poonam Jadhav   **Mr. Dinesh Chaudhari**   **Dr. Sarika Zaware**

ACKNOWLEDGEMENT

Apart from my own, the success of this report depends largely on the encouragement and guidance of many others. I am especially grateful to my guide Prof. Poonam Jadhav who has provided guidance, expertise and encouragement.

I express my heartfelt gratefulness to Prof. Poonam Jadhav, Internship coordinator and Prof. S.N. Zaware, Head of computer engineering Department, AISSMS's IOIT, for their stimulating supervision whenever required during my Internship work. I am also thankful to the staff of the Computer Engineering Department for their cooperation and support.

I would like to put forward my heartfelt acknowledgement to all my classmates, friends and all those who have directly or indirectly provided their overwhelming support during my internship work and the development of this report.

Prarthana Chandak

INTERNSHIP OFFER LETTER

Emerson Export Engineering Centre Emerson Tower, Matrix Complex,

Near College of Engineering Pune Shivajinagar, Old Mumba i-Pune Highway Pune - 411 005, India

Tel : +91 (20) 67047000, 67047001 Fax : +91 (20) 67047998, 67047999

24-Jan-23

Ms. Prarthana Chandak
22, Devendra Nagar, Mahabal, Jalgaon,
Maharashtra-425001

Dear Ms. Chandak,

With reference to your application and the interview you had with us, we would be willing to appoint you as a **"Graduate Engineer Trainee"** for a One year period.

You will be required to take up the assignment with us latest by 3-July-2023. The date of joining mentioned here is of indicative nature and can be preponed or postponed depending upon the business exigencies

Your remuneration, inclusive of all benefits and targeted Performance Incentive works out to be Rs. **802358/-** per annum. Please refer the Annexure for the details. Company shall deduct TDS from this amount in accordance with applicable income tax rules. Your appointment is subject to you being declared fit in the Medical test post joining.
Depending upon your performance, company will be willing to extend your services further and take you as a regular employee at the end of one-year period.

This offer letter is subject to your passing Semester VI, VII & VIII of **BE (Computer Engineering)** successfully and your clear intent to serve our organization on a long term basis as has been confirmed by you during above interview. You are also required to submit your mark sheet for Semester VI, VII & VIII upon declaration of results of respective semesters. We expect that you would make every effort to ensure academic excellence by way of securing atleast 1st class in the remaining 2 semesters.

A detailed letter shall be issued by us upon taking up the assignment.

This letter is being issued in duplicate and you are requested to please sign the 2nd copy as a token of your acceptance and returning back to us.

For Emerson Export Engineering Centre

Ajay Savargaonkar
Sr. Director-EEEC

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CHAPTER 1
Internship Place Details

☐ Location :

GVM3+98X, Emerson Tower, Matrix Complex, Old Mumbai - Pune Hwy, beside Shopper's Stop, Wakadewadi, Pune, 411005

☐ Company background-organization and activities:

Emerson Automation Solutions business helps process, hybrid, and discrete manufacturers maximize production, protect personnel and the environment while optimizing their energy and operating costs.

Emerson Automation Solution Consumer Products-

Asset Performance Management

Operator Performance

Digital Twin and Simulation

Wireless Location

Manufacturing Operations Management

Technologies worked on:

Worked on various emerging technologies like

- Angular
- Nest.js
- Jest
- Cypress
- Neo4j
- Azure Devops

☐ Scope and objective of the study:

- To learn web development and write efficient code used in the industry

☐ **Personal observations:**

- Learnt emerging technologies like Angular, Nest, Jest, Neo4j, Graph Databases, Cypress
- Built web application from scratch that uses efficient code
- Learnt teamwork and industry discipline
- Learnt to write clean and organized code that is used by a large team

CHAPTER 2
INTRODUCTION

2.1 Title

Emerson Automation Solutions

2.2 Problem statement

Full-stack web development, enhancement of software features, research, writing test cases

2.3 Objectives/ Motivation
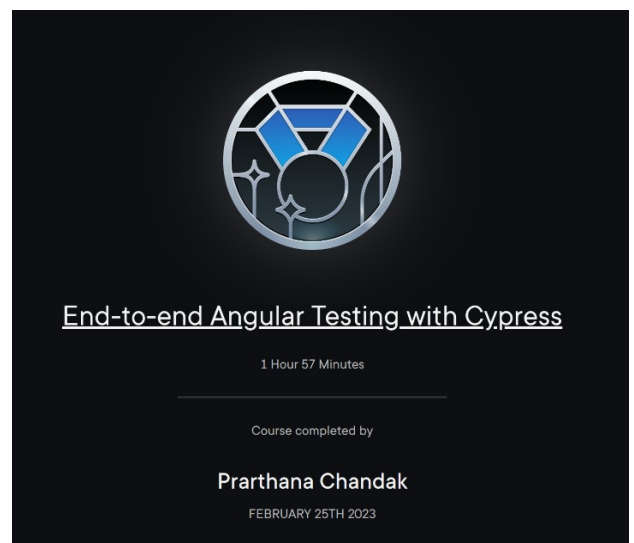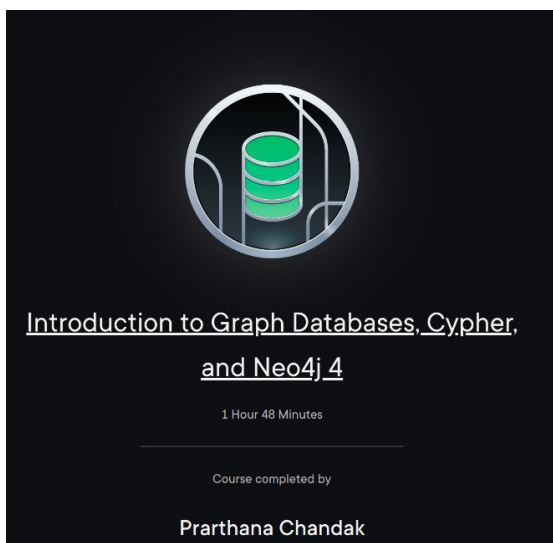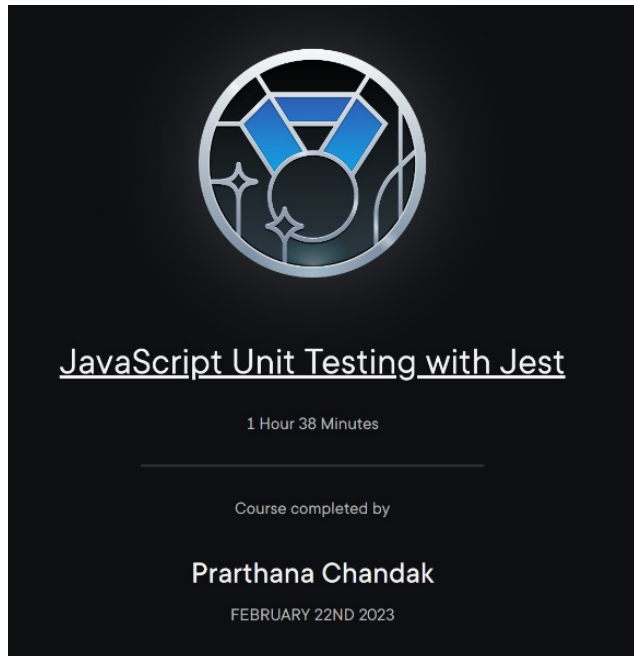
Working on the latest and emerging technologies in the market.

Design Elements and Concepts

- **Nest.js** - A progressive Node.js framework for building efficient, reliable and scalable server-side applications.

- **Neo4j** - Neo4j is a graph database management system developed by Neo4j, Inc. The data elements Neo4j stores are nodes, edges connecting them, and attributes of nodes and edges.

- **Angular** - Angular is a TypeScript-based, free and open-source web application framework led by the Angular Team at Google and by a community of individuals and corporations. Angular is a complete rewrite from the same team that built AngularJS.

- **Cypress** - Cypress is a frontend testing tool for web applications. Cypress runs on Windows, Linux, and macOS. Cypress app is open-source software released under the MIT License while the Cypress Cloud is a web application. Cypress has been compared to Selenium.

- **Jest** - Jest is a JavaScript testing framework built on top of Jasmine and maintained by Meta.

2.4 Results:

Angular: Getting Started
5 Hours 52 Minutes
Course completed by
Prarthana Chandak
FEBRUARY 17TH 2023

JavaScript Unit Testing with Jest
1 Hour 38 Minutes
Course completed by
Prarthana Chandak
FEBRUARY 22ND 2023

Introduction to Graph Databases, Cypher, and Neo4j 4
1 Hour 48 Minutes
Course completed by
Prarthana Chandak

End-to-end Angular Testing with Cypress
1 Hour 57 Minutes
Course completed by
Prarthana Chandak
FEBRUARY 25TH 2023

2.5 Analysis

Purpose of Emerson Automation Solutions:

The project I have been working on automates the instrumentation projects of Emerson. The project gives a visual layout of all the connections in the field which are not easy to analyze manually by instrumentation engineers.

2.6 Inferences and conclusion:

It was a wonderful experience to work on a live-project that will be used by millions of users. I worked on top-notch technologies and wrote end-to-end code including frontend, backend, test cases and deployment.

2.7 Suggestions:

Making the platform more user-friendly will be a bonus.

2.8 Recommendations for improvement to industry:

None. The team has been very supportive and mentored me at every step during the entire duration of the internship. The team also allowed me to have flexible work hours and work at my pace.

CHAPTER 3

Internship Diary (Daily / Weekly)

Day/Date/Timing	Details of Work done	knowledge gained or skills acquired
Day 1 to Day 10 06/02/23 to 15/02/23	- Onboarding and team allocation - Understanding project - Knowledge transfer sessions on the project - Setting up the Assets - Installation	Working of the system
Day 11 to Day 20 16/02/23 to 28/02/23	- Learning Angular through a course on PluralSight - Completed 5 hours course on Angular - Create a project on Angular	Angular
Day 21 to Day 30 01/03/23 to 10/03/23	- Learning Nest.js and Neo4j - Learning about graph databases - Setting up and studying the project's database	Nest.js Neo4j
Day 31 to Day 40 11/03/23 to 20/03/23	- Learning to write test cases - Learnt Cypress for end-to-end testing - Learnt Jest for unit testing - Created project to perform testing	Unit testing End-to-End testing Cypress Jest

Day 40 to Day 50 21/03/23 to 31/03/23	- Project set-up - Analyzing the project	Understanding the project
Day 51 to Day 90 01/04/23 to 30/04/23	LIVE PROJECT - started to work on Live Project of Emerson Automation Solutions - Making feature enhancements - Optimizing code - Creating new features	Angular, Nest, Jest, Cypress, Neo4j

CHAPTER 4

Feedback from Industry

Name of Industry: Emerson Automation Solutions

Address: GVM3+98X, Emerson Tower, Matrix Complex, Old Mumbai - Pune Hwy, beside Shopper's Stop, Wakadewadi, Pune, 411005

Roll No.	Name of Student	BE (Semester)	Branch
16	Prarthana Chandak	8th SEM (2022-23)	Computer Engineering

The student was associated with industry through:

1. Internship ✔ Mode: Offline

2. Training ✔ Self - Angular, Nest.js, Neo4j, Cypress, Jest, Devops

3. Project ✔ Title : Emerson Automation Solutions

Number of days (or duration) for which the student was associated with industry: 90 days

S.N.	Please rate the student on 5 point scale (Tick whichever is applicable)	5 Excellent	4 Very Good	3 Good	2 Satisfactory	1 Poor	Not Applicable
1.	Technical knowledge	✔					
2.	Ability to use technical skills	✔					
3.	Ability to learn and use modern tools	✔					
4.	Professional ethics	✔					

No.	Criteria						
5.	Ability to work in team	✔					
6.	Leadership quality	✔					
7.	Communication skills	✔					
8.	Project management	✔					
9.	Attendance and Punctuality	✔					
10.	Sincerity of student towards his/her work	✔					
11.	Ability to cope up with the stressful situations	✔					

Name of Industry Person: Dinesh Chaudhari	**Mobile No.:** -
Designation: Senior Manager	**Email ID:** dinesh.chaudhari@emerson.com
Signature: Dinesh Chaudhari	**Date:** 16/05/2023

CHAPTER 5
List of reference

Websites:

1. https://nodejs.org/en/docs/

2. https://app.pluralsight.com/achievements/share/3e61f065-cf6f-4e9f-bdac-150 b02b8e88e

3. https://app.pluralsight.com/achievements/share/ac0fc8fb-86ee-4625-812a-caf 8831b14b7

4. https://app.pluralsight.com/achievements/share/3e61f065-cf6f-4e9f-bdac-150 b02b8e88e

5. https://app.pluralsight.com/achievements/share/6f3d5628-44e0-4c44-9522-b3 d646307c83

6. https://app.pluralsight.com/achievements/share/e2aca934-2eee-453f-9562-4f 4e638ad8df