A REPORT

ON

Software Engineer Intern at Telaverge

Submitted by,

Prince Gupta   - 20211CCS0096

Under the guidance of,

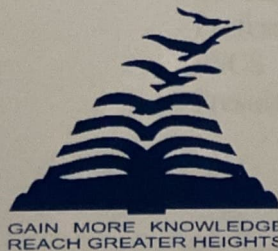**Dr. Sharmasth Vali Y**

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

At

GAIN MORE KNOWLEDGE
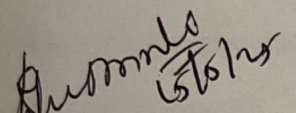REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

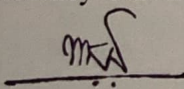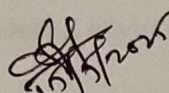**BENGALURU**

MAY 2025

PRESIDENCY UNIVERSITY

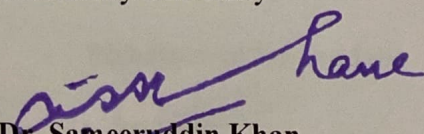## PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Internship/Project report **"Software Engineer Intern at Telaverge"** being submitted by **"Prince Gupta"** bearing roll number "20211CCS0096" in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a bonafide work carried out under my supervision.

Dr. Sharmasth Vali Y
Associate Professor
PSCS
Presidency University

Dr. Anand Raj S P
Professor & HoD
PSCS
Presidency University

Dr. Mydhili Nair
Associate Dean
PSCS
Presidency University

Dr. Sameeruddin Khan
Pro-Vice Chancellor - Engineering
Dean –PSCS / PSIS
Presidency University

PRESIDENCY UNIVERSITY

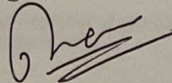## PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

I hereby declare that the work, which is being presented in the report entitled "Software Engineer Intern at Telaverge" in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering**, is a record of my own investigations carried under the guidance of **Dr. Sharmasth Vali Y, Associate Professor, Presidency School of Computer Science and Engineering, Presidency University, Bengaluru.**

I have not submitted the matter presented in this report anywhere for the award of any other Degree.
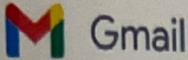
Name:	Roll No:	Signature of the Student
Prince Gupta	20211CCS0096	

INTERNSHIP COMPLETION CERTIFICATE

M Gmail

Prince Gupta <gprince@telaverge.com>

Request for Confirmation of Ongoing Internship for College Submission
2 messages

Prince Gupta <gprince@telaverge.com>
To: Telaverge HR <hr@telaverge.com>   Mon, May 12, 2025 at 1:36 PM
Cc: Prince Gupta <princeguptao741@gmail.com>, PRINCE.20211CCS0096@presidencyuniversity.in

Dear HR,

I hope this message finds you well.

I am writing to kindly request a formal confirmation stating that I am currently interning at Telaverge Communications as part of a 6-month internship program that commenced on December 5, 2024, and is scheduled to conclude in June 2025.

As per the academic requirements of my university, I am required to submit a proof of internship along with my internship report by **May 15, 2025**. Since the internship is still ongoing and the final certificate will be issued upon completion, I would greatly appreciate it if you could provide a confirmation letter or email indicating:

- That I am currently interning at Telaverge Communications

- The internship start and expected end dates

- That an official internship certificate will be issued upon successful completion

This confirmation will serve as interim proof for my university until the final certificate is issued.

Thank you for your time and support. Please let me know if any additional details or documentation are required from my end.

Warm regards,
Prince Gupta
B.Tech – Computer Science & Engineering (Cybersecurity) - **20211CCS0096**
President's University
Personal Email : princeguptao741@gmail.com
College Email: PRINCE.20211CCS0096@presidencyuniversity.in
Phone: 6360276989

Telaverge HR <hr@telaverge.com>
To: Prince Gupta <gprince@telaverge.com>   Mon, May 12, 2025 at 7:00 PM
Cc: Prince Gupta <princeguptao741@gmail.com>, PRINCE.20211CCS0096@presidencyuniversity.in

Hello Prince,

This is to confirm that you are currently interning with Telaverge Communications (India) Pvt. Ltd. as part of an internship program.

Please note that the official internship certificate will be issued upon the successful completion of your internship. In the meantime, this email may be used as a formal confirmation for submission to your university.

Should you require any further details please feel free to let me know.

Wishing you all the best with your academic requirements.

Warm regards,
Leena S
HR | Telaverge Communications (I) Pvt. Ltd.

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ABSTRACT

This report presents the outcomes of my internship at Telaverge Communications Pvt. Ltd., where I was engaged in automating and validating telecom protocol testing, specifically focusing on the Diameter protocol using Telaverge's in-house automation platform, Regal. The internship revolved around ensuring quality assurance (QA), improving test coverage, and integrating essential tools into the automation ecosystem.

My primary contributions included extensive QA for Diameter regression test cases, ensuring conformance to 3GPP and RFC standards across interfaces such as S6a, Sh, and Cx. I was actively involved in the integration of DiamonPro, a commercial Diameter Stack, with Regal. This involved creating automated test workflows, debugging stack communication issues, and validating both functional and performance behavior under varying loads.

In parallel, I also contributed to the product integration of Seagull, an open-source Diameter traffic simulator, with Regal. This integration enabled automated traffic generation and scenario execution for a wide range of test cases. As part of this effort, I developed plugins, helper scripts, and deployment automation using Ansible.

A significant milestone during the internship was my work on the Telaverge Marketplace, where I took ownership of organizing applications and modules into a structured format. I uploaded, versioned, and validated modules like Ro Blackbox, Gx Blackbox, and several others. Additionally, I fixed several functional and performance test cases, ensuring stability and alignment with Regal's execution standards.

Further, I contributed to the integration of DiamonPro 7.9.6 with Multi-Interface support, automating simultaneous testing across multiple Diameter interfaces (S6a, Sh, Cx) using both TCP and SCTP. I also performed QA for the Load Balancer feature in the Diameter stack, ensuring correct peer routing and failover behaviour.

This internship enhanced my understanding of Diameter protocol internals, automated testing frameworks, protocol stack integration, and telecom-grade QA processes. It allowed me to develop strong skills in Python scripting, debugging, system validation, and cross-functional collaboration within a fast-paced engineering team.