

# **MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR**

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)



**Internship Report**  
**on**  
**Java FullStack Development**  
**at**  
**Persistent Systems**

Submitted By:  
**Mayank Prasad**  
**0901CM181029**

Faculty Mentor:  
**Dr. Manish Dixit**  
**Professor and Head**  
**Computer Science and Engineering**

## **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE**  
**GWALIOR - 474005 (MP) est. 1957**

**MAY-JUNE 2022**

# **MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR**

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)



## **Internship Report**

### **PERSISTENT SYSTEMS**

A final year internship report submitted in partial fulfillment of the requirement for the degree of

### **BACHELOR OF TECHNOLOGY**

in

### **COMPUTER SCIENCE AND ENGINEERING**

Submitted By:

**Mayank Prasad**  
**0901CM181029**

Submitted to:

**Dr. Manish Dixit**  
**Professor and Head**

### **DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

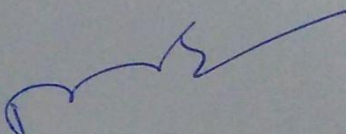
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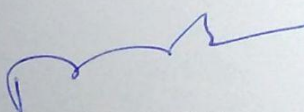
**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR**  
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**CERTIFICATE**

This is certified that **Mayank Prasad** (0901CM181029) has submitted the internship report under the mentorship of **Dr. Manish Dixit**, in partial fulfillment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.



**Dr. Manish Dixit**  
Faculty Mentor  
Professor and Head  
Computer Science and Engineering



**Dr. Manish Dixit**  
Professor and Head  
Computer Science and Engineering  
**Dr. Manish Dixit**  
Professor & HOD  
Department of CSE  
M.I.T.S. Gwalior


# **MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR**

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

## **DECLARATION**

I hereby declare that the work being presented in this project report, for the partial fulfillment of requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Dr. Manish Dixit, Professor and Head, Computer Science & Engineering.**

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.



Mayank Prasad

0901CM181029

4th Year

Computer Science and Engineering

# **MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR**


(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

## **ACKNOWLEDGEMENT**

The full semester project has proved to be pivotal to my career. I am thankful to my institute, **Madhav Institute of Technology and Science** to allow me to continue my disciplinary/interdisciplinary project as a curriculum requirement, under the provisions of the Flexible Curriculum Scheme (based on the AICTE Model Curriculum 2018), approved by the Academic Council of the institute. I extend my gratitude to the Director of the institute, **Dr. R. K. Pandit** and Dean Academics, **Dr. Manjaree Pandit** for this.

I would sincerely like to thank my department, **Department of Computer Science and Engineering**, for **allowing** me to explore this project. I humbly thank **Dr. Manish Dixit**, Professor and Head, Department of Computer Science and Engineering, for his continued support during the course of this engagement, which eased the process and formalities involved.

I am sincerely thankful to my faculty mentors. I am grateful to the guidance of **Dr. Manish Dixit**, Professor and Head, Computer Science & Engineering, for his continued support and guidance throughout the project. I am also very thankful to the faculty and staff of the department.



Mayank Prasad

0901CM181029

4th Year

Computer Science and Engineering

# ABSTRACT

## **ABOUT THE ORGANIZATION:**

### **Persistent Systems,**

We are a trusted Digital Engineering and Enterprise Modernization partner, combining deep technical expertise and industry experience to help our clients anticipate what's next and take action. Our offerings, proven solutions and innovative partner ecosystem create unique competitive advantages for our clients by giving them the power to see beyond and rise above.

We work with many industry leading organizations across 18 countries - including 14 of the 30 most innovative US companies, 80% of the largest banks in the US and India, and numerous innovators across the healthcare ecosystem. In addition, we are recognized across the industry as the market leaders from delivery and customer excellence, as rated by ISG (2020 and 2021 ISG Star of Excellence Awards).

At Persistent, our values are more than a list of ideals to improve our corporate image. We're dedicated to building an inclusive culture that reflects what's important to our employees and is based on what they value.

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# **Chapter 1: GIT & GITHUB**

## **1.1 GIT**

- It is a distributed **version control system (VCS)**.
- It is cross-platform ,free to use and open source.
- It allow developers to :-
  - manage directories and files
  - Keep track of changes made in files and directories
  - Go back and forth to different versions
- It is based on three-tree architecture
  - Repository
  - Staging Area
  - Working Area
- Some commonly used GIT Commands:-
  - git init => Creates new local repository
  - git add <filename> <filename> ... => Add one or multiple files to staging area
  - git commit -m “commit message” => Commits file permanently in version history
  - git push => Push changes to remote repository
  - git status => Show status of repository

## **1.2 GITHUB**

- It is an online platform to host git repositories.
- <https://github.com>
- It acts as a centralized store where teams/developers commit changes.
- Basic commands to connect local repository(GIT) to remote repository (GITHUB) :-
  - git remote add <alias> <URL> => Establish connection b/w local and remote repository
  - Git clone <URL> => Clone remote repository to local repository
  - git push => Push changes to remote repository



## **Chapter 2: SQL**

- SQL => Structure Query Language.
- It is used to communicate with the relational database.
- RDBMS uses SQL to store ,retrieve ,update data.
- MySQL , Oracle , MS Access , Postgres , Sybase etc uses SQL as a standard database language.
- Types of commands in SQL :-
  - DDL => Data Definition Language
  - DML => Data Manipulation Language
  - DCL => Data Control Language
  - TCL => Transaction Control Language
- DDL commands :-
  - CREATE => Used to create dbs and db objects.
  - ALTER => Used to add ,delete ,modify columns in a table
  - DROP => Used to delete database and database objects.
  - TRUNCATE => Used to completely remove rows from a table.
- DML commands :-
  - Select => Used to get data from table.
  - Insert => Used to add row data.
  - DELETE => Used to delete row from a table
  - UPDATE => Used to update row data
- DCL commands :-
  - GRANT => Used to give access right to users
  - REVOKE => Used to take back access right from users
- TCL commands :-
  - COMMIT => Used to save modification in the database
  - ROLLBACK => Used to undo the modification from database

## **CHAPTER 3: Object Oriented Programming**

- It is a programming paradigm used to structure our code by bundling related functionality and properties into individual objects.
- It is based on the concept of Classes and Objects.
- Classes are a blueprint for objects. It tells the programming language how to make objects of that particular type.
- Object is a container which follows a certain blueprint strictly and holds related data and methods that manipulate the data.
- Relationships in OOPs :-
  - Association (Independent existence)
  - Aggregation (Independent existence + container-contained)
  - Composition (container-contained [does exist without container])
  - Inheritance ("Is A" relationship)
- Pillars of OOPs :-
  - Encapsulation => Wrapping up of data and its associated methods into a single unit.
  - Inheritance => Generalization and Specialization of classes.
  - Abstraction => Hiding of irrelevant information
  - Polymorphism => Use of different classes with same interface

## Chapter 4: Core And Advance Java

- It is an object-oriented , high-level language.
- Java follows the concept of **write once , run anywhere.**
- Java code is compiled to bytecode that can run in any system that supports JVM(Java Virtual Machine).
- Topics Covered in Java :-
  - Basic java concepts => Syntax , conditions ,loops ,user I/O ,data types etc.
  - OOPs concept => syntax ,Pillars of OOPs ,Interface in java.
  - File handling
  - Multithreading => Parallel execution of instructions
  - Java 8 features
  - Collections API
- Collections API :- Package that provides Dynamic Containers
  - ArrayList
  - HashMaps
  - Sets
  - LinkedList
  - Stack
  - Queue
- Java 8 Features :-
  - Functional Interfaces
  - Lambdas Expressions
  - Stream API
  - Static and Default Methods in interfaces

## **Chapter 5: HTML , CSS & JAVASCRIPT**

### **5.1 HTML**

- HTML stands for Hyper Text Markup Language
- It is used to create the structure of web documents.
- HTML elements and tags are used to construct the web page.
- Examples :-
  - div, section ,header ,ul ,p ,h1,h2 etc => block level elements
  - button , a , input => Used for interaction
  - link, meta ,script => Used to insert files and provide metadata

### **5.2 CSS**

- CSS => Cascading Style Sheet.
- It is used to style web documents/pages.
- CSS selectors , pseudo-selectors are used to select HTML elements.
- Pseudo-classes are used to apply styles when element states change.
- CSS selectors ,pseudo-selectors and pseudo-classes :-
  - Selectors:-
    - <elementname> => select element based on their name.
    - .<classname> => select element based on class name provided to elements
    - #<elementId> => select element based on id(unique) provided to elements
  - Pseudo-Selectors:-
    - :first-child
    - :last-child
    - :nth-child
    - :only-child
  - Pseudo-Classes:-
    - :hover
    - :active
    - :focus
    - :after

## **5.3 JavaScript**

- JavaScript(Js) is a scripting ,just in time compiled programming language.
- Js is one of the main technologies of the web alongside HTML and CSS.
- It is used to add functionality to web documents i.e. make documents dynamic and interactive.
- Topics cover in JavaScript :-
  - Basic Js concepts => Basic Syntax , basic programming concepts in Js
  - OOPs in Js
  - DOM API => Document Object Model for accessing HTML elements as objects
  - Events => what to do when a user interacts with the application.
  - NodeJS basics
  - Fetch API
  - Asynchronous Programming
  - Functional Programming

## **Chapter 6: ReactJS**

- ReactJS is a javascript framework for building user interfaces.
- Using Reactjs Developers can create single-page web apps.
- It allows developers to create reusable UI components.
- Modules covered :-
  - Building UI components
  - Reactive states
  - React hooks
  - React -router
  - React -Redux
  - React-Bootstrap
  - Building custom hooks
  - React events and forms
  - Handling Http request and response
  - Css Modules
- React-Redux => Javascript library for managing global state.

## **7: Conclusion**

This internship has been an excellent experience for me. I can conclude that there have been a lot I've learnt from my work at Persistent Systems as a Software Developer Intern. The main objective of internship was to learn how to build web based application, I acquired deep Knowledge about Java FullStack Development which include MySQL, Git and GitHub, Core and Advance Java, Spring, Spring Boot, Spring Security, HTML, CSS, JavaScript, NodeJs, ReactJs but Primary focus of my internship is to learn how to build production ready applications.

## **8: References**

1. <https://www.w3schools.com/>
2. <https://www.javatpoint.com/>
3. <https://www.persistent.com/>
4. <https://www.github.com>



## 9: FPR Reports

### First FPR

#### FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Mayank Prasad	Department	CSE		
Industry/Organization	Persistent Systems	Date/Duration	1 FEB - 15 FEB		
<b>Criterion</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge up gradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Track Assigned => Java Fullstack Completed Training in Git , OOPs , SQL Database Ongoing Training => Core Java and JUnit				
<b>OVERALL GRADE (Any one)</b>	✓ <b>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</b>				
<b>Name of Industry Mentor</b>	Payal Batham				
<b>Signature of Industry Mentor</b>					

<b>Receiving Date</b>		<b>Name of Faculty Mentor</b>		<b>Sign</b>	
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## Second FPR

### FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Mayank Prasad	Department	CSE		
Industry/Organization	Persistent Systems	Date/Duration	15 FEB - 28 FEB		
<b>Criterion</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge up gradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Track Assigned => Java Fullstack Completed Training in Java Core, JDBC , JUnit Ongoing Training => Maven				
<b>OVERALL GRADE (Any one)</b>	<b>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</b>				
<b>Name of Industry Mentor</b>	Payal Batham				
<b>Signature of Industry Mentor</b>					

<b>Receiving Date</b>		<b>Name of Faculty Mentor</b>		<b>Sign</b>	
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### Third FPR

#### FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Mayank Prasad		Department	CSE	
Industry/Organization	Persistent Systems		Date/Duration	1 March - 15 March	
<b>Criterion</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge up gradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	Track Assigned => Java Fullstack Completed Training in Java Core, JDBC , JUnit , Maven Ongoing Training => Spring , Spring Boot , Spring Security				
<b>OVERALL GRADE (Any one)</b>	<b>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</b>				
<b>Name of Industry Mentor</b>	Payal Batham				
<b>Signature of Industry Mentor</b>					

<b>Receiving Date</b>		<b>Name of Faculty Mentor</b>		<b>Sign</b>	
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## **Fourth FPR**

### **FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR**

Name of student	Mayank Prasad	Department	CSE
Industry/Organization	Persistent Systems	Date/Duration	16 March - 31 March
<b>Criterion</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>
Punctuality/Timely completion of assigned work			✓
Learning capacity/Knowledge up gradation			✓
Performance/Quality of work			✓
Behaviour/Discipline/Team work			✓
Sincerity/Hard work			✓
Comment on nature of work done/Area/Topic	Track Assigned => Java Fullstack Completed Training in HTML , CSS , Javascript Ongoing Training => ReactJS		
<b>OVERALL GRADE (Any one)</b>	✓ <b>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</b>		
<b>Name of Industry Mentor</b>	Payal Batham		
<b>Signature of Industry Mentor</b>			

<b>Receiving Date</b>		<b>Name of Faculty Mentor</b>		<b>Sign</b>	
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## **Fifth FPR**

### **FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR**

Name of student	Mayank Prasad	Department	CSE		
Industry/Organization	Persistent Systems	Date/Duration	1 April - 15 April		
<b>Criterion</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge up gradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	<p>Track Assigned =&gt; Java Fullstack</p> <p>Completed Training in Javascript , HTML ,CSS , ReactJs</p> <p style="text-align: right;">✓</p>				
<b>OVERALL GRADE (Any one)</b>	<b>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</b>				
<b>Name of Industry Mentor</b>	Payal Batham				
<b>Signature of Industry Mentor</b>					

<b>Receiving Date</b>		<b>Name of Faculty Mentor</b>		<b>Sign</b>	
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## Sixth FPR

### FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Mayank Prasad		Department	CSE	
Industry/Organization	Persistent Systems		Date/Duration	16 April - 30 April	
<b>Criterion</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge up gradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	<p>Track Assigned =&gt; Java Fullstack</p> <p>Training Completed</p> <p>Current Status =&gt; Waiting for Project Allocation</p>				
<b>OVERALL GRADE (Any one)</b>	<b>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</b> ✓				
<b>Name of Industry Mentor</b>	Payal Batham				
<b>Signature of Industry Mentor</b>					

<b>Receiving Date</b>		<b>Name of Faculty Mentor</b>		<b>Sign</b>	
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## Seventh FPR

### FORTNIGHTLY PROGRESS REPORT (FPR) FROM INDUSTRY MENTOR

Name of student	Mayank Prasad		Department	CSE	
Industry/Organization	Persistent Systems		Date/Duration	1 May - 15 May	
<b>Criterion</b>	<b>Poor</b>	<b>Average</b>	<b>Good</b>	<b>Very Good</b>	<b>Excellent</b>
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge up gradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	<p>Track Assigned =&gt; Java Fullstack</p> <p>Training Completed</p> <p>Current Status =&gt; Waiting for Project Allocation</p>				
<b>OVERALL GRADE (Any one)</b>	<b>POOR/AVERAGE/GOOD/VERY GOOD/EXCELLENT</b> ✓				
<b>Name of Industry Mentor</b>	Payal Batham				
<b>Signature of Industry Mentor</b>					

<b>Receiving Date</b>		<b>Name of Faculty Mentor</b>		<b>Sign</b>	
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Offer Letter Body

Page 1 of 3



Reference: Persistent/Academic Intern/1457200/0.2

**Internship Offer Letter  
Confidential**

Jan 06, 2022

**Mr Mayank Prasad  
100, New Jiwaji Nagar, Thatipur  
Gwalior 474011**

Dear Mayank,

Subject: **Your engagement as an Academic Intern with Persistent**

With reference to your application for industrial training with us, and the subsequent selection process, we are pleased to inform you that you have been selected as **an Academic Intern** at grade **0.2** with Persistent Systems (Company). This offer is made to you as part of your Academic Curriculum.

The duration and start date of the internship will be communicated to you in due course of time separately.

During the internship period you will be paid a consolidated monthly stipend of Rs. 10,000 per month. You will also be eligible for benefits such as free lunch, snacks, tea and coffee during your internship period.

All terms and conditions in this document, read with any other document specifically referred herein and incorporated hereto by such reference, collectively shall constitute the entire understanding between the Academic Intern and the Company.

Company does not assure you or commit (a) any extension of this internship beyond the period stipulated under this letter and/or offer you employment with Company and/or absorb you as an employee of the Company in future. Unless otherwise specifically agreed in writing by Company, there shall be no employee-employer relationship between you and Company.

**1. Working days**

Normal working days for Company are Monday through Friday. Company observes Sunday as a compulsory weekly off and Saturday as the other weekly off day. The normal working hours are forty five hours per week.

**2. Holidays and Leaves**

You will not be eligible for any leave or compensatory off during internship period.



### 3.Termination of Internship

The internship can be terminated with one week notice or stipend (if you are eligible for stipend under this letter), in lieu of the notice period on either side.

The Company can terminate your internship without any notice period in case the internship is terminated on grounds of:

- i. Breach of confidentiality or IP related obligations
- ii. Violation of law
- iii. Gross Misconduct
- iv. Material breach of Company policy.

In such event, the Company will not be liable to pay stipend (if payment is otherwise stipulated in this letter) in lieu of notice period.

In case the last day of your internship falls on a non-working day, your last day of internship shall be the immediate previous working day.

The internship period can be terminated by whatsoever reasons by either party by giving one week notice period.

### 4. Dispute Resolution

In case of any dispute or disagreement in relation to the terms of this offer or matters connected thereto, you agree to negotiate in good faith to resolve such dispute or disagreement. In case you and Company fail to settle the dispute/ disagreement amicably, the same may be exclusively referred to arbitration in accordance with the provisions of Arbitration and Conciliation Act, 1996 at Pune. Each party shall bear its own costs for arbitration.

Please contact **Rajeshwari Joshi** (Ph. No.**020-66965038**) on the date of joining. We request you to report at 9 am at the address mentioned below for completion of joining formalities.

#### Pune

**Rigveda-Yajurveda-Samaveda-Atharvaveda Plot No. 39, Phase I, Rajiv Gandhi Information Technology Park,Hinjawadi,Pune, Maharashtra, India 411057.**

### 5. Documents required at the time of joining

At the time of joining, the following original certificates/documents along with one photocopy should be furnished.Original certificates/documents will be returned to you after verification.

Sr. No	Description
1	Certificates of educational qualification - SSC (10th Equivalent), School leaving, HSC (12th equivalent).
2	Certificate of Graduation/Post Graduation and Mark Sheets
3	2 recent passport size color photographs
4	Photo-attested bonafide certificate from college Principal

We welcome you to the Persistent family and look forward to a mutually fulfilling association.

**Yours sincerely,  
For Persistent Systems Ltd**

**Kalpana Kudlingar  
Head - Campus Talent Acquisition**

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#### **Acceptance of the offer**

I have read and understood all the terms and conditions contained in this letter and agree to abide by the same. I am signing this letter as a token of me having accepted the offer and the terms and conditions set out in this letter.

Also, I hereby declare that nothing apart from the above mentioned clauses have been committed to me during the selection process.

I will join the Company on the date communicated to me separately.

**Date:**

**Signature:**

**Name:**

Persistent Systems Limited, Bhageerath, 402, Senapati Bapat Road, Pune 411016 | Tel: +91 (20) 670 30000 | Fax: +91 (20) 6703 009  
CIN – L72300PN1990PLC056696

Persistent Systems Inc., 2055 Laurelwood Rd., Suite 210 Santa Clara, CA 95054 USA | Tel: +1 (408) 216 7010

Persistent Systems France SAS, 1 rue Hector Berlioz, 38600 Fontaine, France | Tel: +33 (0) 4 76 53 35 80