



# GUJARAT TECHNOLOGICAL UNIVERSITY

## (Established under Gujarat Act No. 20 of 2007)

ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી

(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Enrollment no: 210280116082

### STUDENT'S WEEKLY RECORD OF INTERNSHIP

**NAME OF STUDENT:** VINAYAK TUSHARBHAI CHAVDA

**DIARY OF THE WEEK:** Dt: 16/01/2025 TO 24/01/2025

**DEPARTMENT:** INFORMATION TECHNOLOGY    **SEM:** 8th

**NAME OF THE ORGANISATION:** BUCHANAN TECHNOLOGIES LLP

**NAME OF THE PLANT/SECTION/DEPARTMENT:** EMERGING TECHNOLOGIES

**NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT:** HARDIK SHETH

#### DESCRIPTION OF THE WORK DONE IN BRIEF

I familiarized myself with company policies, role expectations, and essential tools, ensuring a smooth transition into my responsibilities. Engaging in initial tasks provided hands-on experience and a deeper understanding of workflows. This foundation set the stage for efficient collaboration within the team.

I successfully installed Visual Studio, Git GUI, Visual Studio Code and equipping myself with the necessary development tools. Exploring their functionalities allowed me to understand their role in the software development process. This experience enhanced my ability to navigate and utilize these tools effectively.

To strengthen my understanding of version control, I delved into Git workflows and completed a hands-on command implementation tutorial. This practical approach reinforced key concepts and best practices. Applying these learnings ensures efficient code management and collaboration.

Gaining insights into ASP.NET Core MVC, I explored its capabilities and studied various Concepts. Understanding these features provided clarity on how Model-View-Controller processes Data in different scenarios. This knowledge is valuable for optimizing Web-based applications.

To build on this, I also started exploring database management with SQL and Entity Framework, gaining a better understanding of data handling within applications. Participating in team discussions about software architecture further improved my ability to contribute to the team's overall design and performance goals. These experiences have helped me prepare for more complex tasks and strengthened my problem-solving skills.



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**TOTAL HOURS: 40 HOURS**

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Enrollment no: 210280116082

### STUDENT'S WEEKLY RECORD OF INTERNSHIP

**NAME OF STUDENT:** VINAYAK TUSHARBHAI CHAVDA

**DIARY OF THE WEEK:** Dt: 17/01/2025 TO 31/01/2025

**DEPARTMENT:** INFORMATION TECHNOLOGY    **SEM:** 8th

**NAME OF THE ORGANISATION:** BUCHANAN TECHNOLOGIES LLP

**NAME OF THE PLANT/SECTION/DEPARTMENT:** EMERGING TECHNOLOGIES

**NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT:** HARDIK SHETH

#### DESCRIPTION OF THE WORK DONE IN BRIEF

This week, I focused on refining my skills with various tools and frameworks, tackling both existing issues and exploring new areas.

On **27 Jan**, I worked on fixing errors in previous code while diving deeper into SQL, learning about query types, attributes, and syntax for different problem-solving approaches. I also revisited key .NET concepts to strengthen my foundation.

By **28 Jan**, I successfully set up SQL Server Management Studio and explored the "Database First" approach. I built a simple CRUD application that interacts with a database, and also learned about Sessions in .NET, improving my understanding of how they work across the application.

On **29 Jan**, I started working with ASP.NET Core Web API, creating a basic API with multiple endpoints to understand the workflow. I also explored Swagger for API documentation and saw firsthand how it visualizes different API calls.

On **30 Jan**, without access to SQL Server Management Studio, I focused on learning ASP.NET Core Web API concepts through videos. I explored how to create APIs, handle requests, and use HttpClient to call APIs from the frontend.

Finally, on **31 Jan**, I applied the concepts I learned earlier in the week, integrating them into both the API and frontend. I tested API calls with Swagger to verify the incoming data and ensure everything was functioning correctly.

Overall, this week has been a mix of hands-on coding and expanding my knowledge in APIs, SQL, and .NET, setting a solid base for future tasks.



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### STUDENT'S WEEKLY RECORD OF INTERNSHIP

**NAME OF STUDENT:** VINAYAK TUSHARBHAI CHAVDA

**DIARY OF THE WEEK:** Dt: 03/02/2025 TO 07/02/2025

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#### DESCRIPTION OF THE WORK DONE IN BRIEF

This week has been a productive and insightful learning journey. I began by developing a .NET Core Web API for a To-Do application and then integrated it with an ASP.NET Core MVC frontend, focusing on building a functional interface for users to interact with the API data. I successfully implemented basic CRUD operations and deepened my understanding of how to connect the frontend and backend in a full-stack application.

Next, I took a step further by writing unit tests for the API using Moq and xUnit, gaining hands-on experience in testing and ensuring the stability of my code. I also explored more advanced ASP.NET Core concepts through videos and tutorials, enhancing my overall knowledge of the framework.

While I encountered challenges, particularly with the code-first approach, I persisted in troubleshooting and learning from my mistakes. I spent some time experimenting with project workflows in ASP.NET MVC, which helped me understand how different components come together.

Towards the end of the week, I shifted gears and started working on a small project—an expense tracker. I made progress by creating basic pages for displaying and adding expense categories. Overall, the week was a mix of successes and learning opportunities, and I feel more confident in my abilities with ASP.NET Core and its ecosystem.



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### STUDENT'S WEEKLY RECORD OF INTERNSHIP

**NAME OF STUDENT:** VINAYAK TUSHARBHAI CHAVDA

**DIARY OF THE WEEK:** Dt: 10/02/2025 TO 14/02/2025

**DEPARTMENT:** INFORMATION TECHNOLOGY    **SEM:** 8th

**NAME OF THE ORGANISATION:** BUCHANAN TECHNOLOGIES LLP

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#### DESCRIPTION OF THE WORK DONE IN BRIEF

This week, I made solid progress on the task management project, beginning with the setup of a basic template provided by my mentor. I worked on implementing models using the database-first approach, which helped establish a structured foundation for the data layer. This allowed me to gain a better understanding of how the application's data is managed and how it will interact with the database as the project develops.

Once the models were set up, I focused on building the API, where I successfully implemented CRUD operations for user management. I created the necessary endpoints to allow users to be created, updated, read, and deleted. I tested these operations thoroughly to ensure the API was functioning correctly and was ready for further integration with the frontend.

On the 12th, I shifted focus to security by integrating JWT Authentication and Authorization into the API. I took the time to understand how JWT tokens work and learned how claims are used for role-based access control, ensuring users can only access data they are authorized to view. This was an important step in securing the application and controlling user permissions effectively.

Finally, I worked on the frontend, where I developed pages to allow users to manage and view their tasks. I also integrated user and admin authentication, ensuring that different roles had access to the appropriate features. Towards the end of the week, I made updates to both the frontend and backend to improve functionality, ensuring everything worked smoothly together. Overall, it was a productive week filled with new challenges and a lot of hands-on learning.



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**DIARY OF THE WEEK:** Dt: 17/02/2025 TO 21/02/2025

**DEPARTMENT:** INFORMATION TECHNOLOGY    **SEM:** 8th

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#### DESCRIPTION OF THE WORK DONE IN BRIEF

During the week of January 17 to January 21, I focused on both enhancing and securing the backend API while also collaborating with teammates to address bugs and improve project functionality. Starting with January 17, I worked on developing new endpoints needed for the UI. I ensured these endpoints were secure by implementing role-based authentication, which is crucial for user access management. It helped me understand how to balance between providing functionality and maintaining the security of the application.

On January 18, I focused on integrating new UI components with the corresponding backend APIs. This involved not only creating new features but also debugging and handling some critical errors. Working on the backend, I had to ensure smooth communication between the front end and back end, as well as managing exceptions effectively to ensure a seamless user experience. This was a significant learning moment because it highlighted the importance of error handling in production environments.

January 19 was dedicated to adding an admin page and securing the associated API. I implemented role-based access control, making sure that only admin users could access specific pages and API endpoints. This required deepening my understanding of user authentication and authorization mechanisms. Along the way, I also worked on resolving complex database issues, including eliminating conflicts and preventing unwanted loops. This experience reinforced the significance of good database design and API structure.

By January 20, I had completed the task management system, which was an important milestone in the project. During my free time, I also helped my teammates with their projects by resolving bugs and troubleshooting API issues. This collaborative work gave me a chance to improve my debugging skills and work effectively in a team. Additionally, I began learning about Optical Character Recognition (OCR) as part of a new series I started. OCR is an exciting topic, and I look forward to diving deeper into it.



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**NAME OF STUDENT:** VINAYAK TUSHARBHAI CHAVDA

**DIARY OF THE WEEK:** Dt: 24/02/2025 TO 28/02/2025

**DEPARTMENT:** INFORMATION TECHNOLOGY    **SEM:** 8th

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**NAME OF THE PLANT/SECTION/DEPARTMENT:** EMERGING TECHNOLOGIES

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#### DESCRIPTION OF THE WORK DONE IN BRIEF

This week, I focused on both enhancing my skills in Python and diving into a new project with my team. I began by exploring Python's internal workings, particularly how mutable and immutable data types function. Understanding these concepts gave me a deeper insight into how Python handles data. Additionally, I set up the Python runtime engine and ensured my environment was ready for development.

I then moved on to mastering the basics of Python syntax. I familiarized myself with variables, data types, loops, and conditionals, which formed the foundation of my Python knowledge. Alongside this, I discovered FastAPI, a powerful framework for building APIs with Python. It seemed like a great tool for rapid API development, and I also learned about using virtual environments to manage dependencies in different projects, helping me keep my work organized.

After solidifying my grasp on Python basics, I shifted focus to building a simple API. Using Python's built-in `HTTPServer` class, I successfully created an API that connected to a Microsoft SQL Server instance, retrieved data from it, and exposed it through an endpoint. This hands-on project allowed me to apply my Python knowledge while also learning how to interact with databases and build a functional web service.

Later in the week, I joined forces with my teammates, Aditya and Brijesh, to discuss and plan a new project—a blogging website. We decided to add complexity beyond just basic CRUD operations and brainstormed features that would make the platform more dynamic and engaging. We set up the initial project structure and configured GitHub for version control and collaboration, ensuring we would be able to work efficiently as a team.

We also began the actual development of the blogging website by focusing on the database design. We discussed the key entities that the platform would need to support its features, and we outlined the structure for the data. Alongside this, we started working on the basic frontend layout, creating the foundational pages necessary for the website. It's an exciting start, and I'm looking forward to seeing how the project evolves.



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#### DESCRIPTION OF THE WORK DONE IN BRIEF

This week, I focused on both enhancing the functionality of our blogging website and collaborating closely with my teammates, Aditya and Brijesh. We began by creating several key features for the platform, including the ability to create blogs, edit user profiles, and fetch blog posts. We also worked on the frontend, developing the main page where users can view the most recent blog posts. Additionally, we implemented the comment section, which will allow users to interact with the content.

As the week progressed, we moved on to more complex features. We developed the saved blog API, which allows users to save blogs to their profiles, and integrated it with the frontend. This included building the index page, the "Read More" page, and adding image functionality.

I also worked on the functionality for liking and unsaving blogs, providing users with more control over their saved content. To achieve this, I completed the API for liking and unsaving blogs and connected it to the frontend using ASP.NET Core MVC. During this time, I also resolved several conflicts that arose during pull and push requests on GitHub, ensuring that our codebase remained clean and well-organized.

By the end of the week, our project was nearly 80% complete. We had implemented most of the core features, and the platform was coming together nicely. We wrapped up the week by finalizing all the main functionality for the blogging website. With everything in place, we are now preparing to move on to new learning challenges, particularly focusing on OCR (Optical Character Recognition) starting next week.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Enrollment no: 210280116082

### STUDENT'S WEEKLY RECORD OF INTERNSHIP

**NAME OF STUDENT:** VINAYAK TUSHARBHAI CHAVDA

**DIARY OF THE WEEK:** Dt: 10/03/2025 TO 14/03/2025

**DEPARTMENT:** INFORMATION TECHNOLOGY    **SEM:** 8th

**NAME OF THE ORGANISATION:** BUCHANAN TECHNOLOGIES LLP

**NAME OF THE PLANT/SECTION/DEPARTMENT:** EMERGING TECHNOLOGIES

**NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT:** HARDIK SHETH

#### DESCRIPTION OF THE WORK DONE IN BRIEF

This week, I focused on diving into image processing and exploring the fundamentals of machine learning libraries to broaden my understanding of these fields. I began by learning the basics of image processing, which gave me a good foundation for tackling more complex tasks in the future. To deepen my knowledge, I also started studying popular machine learning libraries such as TensorFlow and scikit-learn. These libraries are essential for building machine learning models, and understanding them will be crucial for my next steps in the field.

I then shifted my attention to data extraction from images. Although this concept initially felt overwhelming, I took the time to explore various Python tools and libraries commonly used in the process. This helped me build a clearer understanding of how these techniques work together to enable efficient data extraction from images.

As the week progressed, I focused on learning about specific libraries used for Optical Character Recognition (OCR) and PDF scanning. I gained hands-on experience with popular libraries like OpenCV, which is widely used for image and video processing tasks. This exposure has helped me become more comfortable with using OpenCV for basic image manipulation and processing tasks.

The week also included a couple of holidays, allowing me to recharge and reflect on what I've learned so far. I'm looking forward to continuing my journey into machine learning and image processing in the upcoming weeks.



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**TOTAL HOURS: 40 HOURS**

**SIGNATURE OF STUDENT**

- ★ The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

**Signature of Faculty Mentor**

**Signature of officer-in-charge  
of Dept. / Section / Plant**

**Date:**

**Date:**

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Enrollment no: 210280116082

### STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: VINAYAK TUSHARBHAI CHAVDA

DIARY OF THE WEEK: Dt: 17/03/2025 TO 21/03/2025

DEPARTMENT: INFORMATION TECHNOLOGY SEM: 8th

NAME OF THE ORGANISATION: BUCHANAN TECHNOLOGIES LLP

NAME OF THE PLANT/SECTION/DEPARTMENT: EMERGING TECHNOLOGIES

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HARDIK SHETH

#### DESCRIPTION OF THE WORK DONE IN BRIEF

This week, I focused on improving both the user interface (UI) of my previous projects and addressing specific needs in my current project. I started by exploring **Tailwind CSS**, which helped me tackle the UI issues that had been affecting my earlier work. I learned about various classes Tailwind provides, which enabled me to create more **beautiful** and **responsive** UIs for my applications.

In my current project, which involves extracting data from **PDFs**, I realized that **regular expressions (regex)** would play a critical role in identifying and differentiating data within the documents. To better understand how regex can be applied in this context, I dedicated time to **learning and practicing regular expressions**. This hands-on approach gave me a clearer understanding of how to parse and extract data efficiently.

As the project progressed, I did extensive research on **PDF data extraction** techniques, especially focused on extracting data from **invoices**. I came across multiple methods for extracting data, including using **Tesseract**, **pdfPlumber**, and **easyOCR**. However, the most efficient method I found was leveraging the **Gemini Pro API** (AI-based) for invoice data extraction. I wrote a tool in Python using the Gemini API to extract data from invoices and convert it into **JSON format**, making it easier to process the data further.

To improve the tool's accuracy and flexibility, I spent the next day refining it to generate **invoice-specific JSON data**. After completing this modification, I shifted my focus to learning **Docker**, an essential tool for working on projects with multiple people and systems. Understanding Docker will allow me to containerize applications and streamline development and deployment, especially when collaborating in a team setting.



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Enrollment no: 210280116082

### STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: VINAYAK TUSHARBHAI CHAVDA

DIARY OF THE WEEK: Dt: 24/03/2025 TO 28/03/2025

DEPARTMENT: INFORMATION TECHNOLOGY SEM: 8th

NAME OF THE ORGANISATION: BUCHANAN TECHNOLOGIES LLP

NAME OF THE PLANT/SECTION/DEPARTMENT: EMERGING TECHNOLOGIES

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HARDIK SHETH

#### DESCRIPTION OF THE WORK DONE IN BRIEF

This week, I focused on enhancing my **invoice data extraction tool**. I implemented a feature that allows users to **upload PDFs**, which the tool scans to extract text and returns the data in **JSON format**. This enhancement improved the functionality of the tool and brought it closer to being production-ready.

Alongside working on the tool, I also explored various **AI models** designed for **data extraction**. This research helped me identify ways to improve the tool's accuracy and efficiency in processing different types of data. In parallel, I continued my practice with **frontend development**, using **Tailwind CSS** to refine my UI design and create responsive layouts.

I spent time testing the tool with multiple **invoice formats**, which led to identifying some errors in the output data. I worked on fixing these issues to ensure better accuracy in the results. During this time, I also worked on **React** and **Tailwind CSS**, building components and improving my frontend skills.

I experimented with **Amazon Textract** to implement and analyze **test cases** for document data extraction. This allowed me to compare its performance with other tools and further optimize my extraction process. Additionally, I created a **basic landing page** with navigation using **React** and **Tailwind CSS**, continuing to practice and solidify my skills in both technologies.

Finally, I continued learning through a **React playlist** to improve my frontend development, while also conducting additional research into **Python data extraction tools** to optimize my ongoing work with the tool.



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