

**INDUSTRIAL TRAINING REPORT**  
**ON**  
**“MEDICINE RECOMMENDATION SYSTEM”**

**COMPUTER ENGINEERING**

**INTERNSHIP**  
**(315004)**

Under the guidance of

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**GOVERNMENT POLYTECHNIC THANE**

Academic Year:- 2025 – 2026

## **Certificate Of Training**

**Internship (315004)**



**MAHARASHTRA STATE BOARD OF  
TECHNICAL EDUCATION  
Certificate**

This is to certify that Mrs. \_\_\_\_\_ Roll No. \_\_\_\_\_ of Fifth Semester of Diploma in Computer Engineering of Institute, Government Polytechnic Thane (code.0116) has completed the term work satisfactorily in Course **Internship** (315004) for the academic year **2025 to 2026** as Prescribed in the curriculum

Place: Thane

Enrollment No: .....

Date: .....

Exam Seat No: .....

**Subject Teacher**

**Principal**

**Head Of The Department**

## **Abstract**

Industrial training is an important phase of a student life. A well planned, properly executed and evaluated industrial training helps a lot in developing a professional attitude. It develops an awareness of industrial approach to problem solving, based on a broad understanding of process and mode of operation of organization.

The aim and motivation of this industrial training is to receive discipline, skills, teamwork and technical knowledge through a proper training environment, which will help me, as a student in the field of Information Technology, to develop a responsiveness of the self-disciplinary nature of problems in information and communication technology.

The Medicine Recommendation System project presents a comprehensive solution that analyzes patient symptoms and medical history to provide personalized medicine recommendations, utilizing machine learning and NLP to identify patterns and relationships between symptoms, diseases, and medications, with the goal of enhancing patient care and safety, streamlining clinical workflows, and supporting informed decision-making for healthcare professionals.

The purpose of the Medicine Recommendation System project is to improve patient care and safety by providing personalized and accurate medicine recommendations, reducing medication errors, and enhancing treatment outcomes, while also supporting healthcare professionals in informed decision-making, streamlining clinical workflows, and saving time and effort in prescribing medications. The proposed hybrid model ensures more precise, scalable, and user-centric recommendations, thereby enhancing the overall reading experience and user satisfaction.

Throughout this industrial training, I have been learned new programming language that required for the system, the process of the production lines and able to implement what I have learnt for the past year as a Diploma in Computer Engineering student in Government Polytechnic, Thane.

## **Acknowledgment**

I extend my heartfelt gratitude to everyone who supported me throughout this project. I'm deeply thankful to my project guides Mr. Shreyansh Jain Sir and Mr. Ruturaj Chavan Sir and faculty members for their invaluable guidance, encouragement, and constructive feedback.

I appreciate the insights and suggestions from my peers and friends, which helped refine my ideas. I'm grateful to my family for their constant motivation, patience, and moral support.

I also acknowledge the learning resources, research papers, and online platforms that provided essential knowledge and tools, enabling me to complete this project successfully. Their collective support made this project possible, and I'm truly thankful for their contributions

I would like to thank Mrs. Vaishali Chate Mam for providing all the facilities and support during my training period.

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## **Chapter 1**

### **ORGANIZATIONAL STRUCTURE OF INDUSTRY AND GENERAL LAYOUT:**

The online educational platform Concept Simplified that helps students to grow in their career with professional courses. The platform's mission is to empower student with practical skills and knowledge to excel in their careers



## **Chapter 2**

### **INTRODUCTION OF**

#### **INDUSTRY/ORGANIZATION:**

The online educational platform is a leading provider of internship classes and educational resources for students. The platform offers a range of services, including python with data science internship, to help students gain practical skills and knowledge in the field.

#### **2.1. HISTORY:**

It is a trusted partner for college admission, event funding, and student upskilling. It is bridge the gap between colleges and companies, securing support for events while empowering students with expert counselling, exam strategies, and career guidance since more than five years.

#### **2.2. TYPE OF PRODUCTION AND SERVICES:**

The platform doesn't produce physical products but offers online educational services, including internship classes, training and resources for student.

#### **2.3. TURN OVER AND MEMBER OF EMPLOYEES:**

That the platform has a team of instructors, mentors and support staff who guided you during your internship.

Instead of turnover you could focus on what you learned and achieved during the internship.

## Chapter 3

### TYPES OF MAJOR EQUIPMENT'S HARDWARE/SOFTWARE USED IN INDUSTRY:

#### - Software:

- Python IDEs (e.g., PyCharm, Jupyter Notebook)
- Data science libraries (e.g., NumPy, pandas, scikit-learn)
- Machine learning frameworks (e.g., TensorFlow, Keras)
- Tools:
- Data visualization tools (e.g., Matplotlib, Seaborn)
- Version control systems (e.g., Git)

#### - Hardware:

- Your personal computer or laptop (specifications may vary)
- Specific Use:
- Python IDEs for coding and debugging
- Data science libraries for data manipulation and analysis
- Machine learning frameworks for building and training models

## Chapter 4

### PROCESS/MANUFACTURING, MANUFACTURING TECHNIQUES AND METHODOLOGIES AND MATERIAL:

- Processes:
  - Data preprocessing and cleaning
  - Feature engineering and selection
  - Model training and evaluation
  - - Model deployment and maintenance
- Methodologies:
  - CRISP-DM (Cross-Industry Standard Process for Data Mining)
  - Agile methodologies for iterative development
- Manufacturing Techniques:

Techniques used in data science, such as:

  - Data visualization
  - Statistical modelling
  - Machine learning algorithms
- Material Handling Procedures:

Data handling procedures, such as:

  - Data storage and management
  - Data security and access control
  - Data quality and validation

## Chapter 5

### TESTING OF HARDWARE/SOFTWARE AND HANDLING PROCEDURE:

Testing for hardware/software:

- Testing code for errors and bugs: Using techniques like unit testing, integration testing, and debugging to identify and fix issues.
- Validating data for accuracy and consistency: Checking data for missing values, outliers, and inconsistencies to ensure it's reliable for analysis and modelling.
- Using version control and collaboration tools: Utilizing tools like Git and GitHub to manage code changes, collaborate with team members, and track project progress.

For handling procedures:

- Data storage and management: Using databases, data warehouses, or cloud storage solutions to store and manage data.
- Code organization and documentation: Keeping code organized, commented, and documented to ensure its maintainable and understandable.
- Collaboration and communication: Working with team members, stakeholders, or mentors to ensure project goals are met and feedback is incorporated.

## Chapter 6

### SAFETY PROCEDURE FOLLOWED AND SAFETY GEARS USED BY INDUSTRY:

In a data science and machine learning environment, "safety" is a digital concept, focusing on the integrity of data, the reliability of our code, and ethical conduct. The "safety gears" are the digital tools and established protocols that protected our group's project and its outcomes. Our group followed strict procedures to protect sensitive information. This included data anonymization, where we removed or replaced personally identifiable information to safeguard privacy. Access to the datasets was carefully controlled, ensuring each group member only had the permissions necessary for their specific tasks. All our work was conducted within a secure virtual environment to prevent any data from being downloaded or mishandled. To ensure the integrity of our collaborative project, we relied on specific tools. We used Jupyter Notebooks as our primary "gear." It acted as a shared environment where we could write code, add explanations, and run experiments. This allowed our group to work together efficiently and ensure everyone could see and understand the changes being made. We also used Anaconda to maintain a consistent project environment, guaranteeing that all group members were using the same versions of libraries, which prevented compatibility issues and ensured our results were reproducible. Finally, an important part of our safety protocol was adhering to ethical guidelines. We collectively focused on identifying and mitigating bias in the data we used.

## Chapter 7

### PARTICULARS OF PRACTICAL EXPERIENCES IN INDUSTRY /ORGANIZATION IF ANY IN PRODUCTION/ASSEMBLY/TESTING/MAINTANANCE:

- **Production/Assembly:** As a team, we were responsible for the entire life cycle of our data science project. This began with the production and assembly of our dataset. We used SQL to query and extract the necessary data from the company's databases. Following this, we performed extensive data cleaning and preprocessing in Jupyter Notebook, using libraries like Pandas. This involved handling missing values, standardizing formats, and performing feature engineering to prepare the data for our model.
- **Testing:** A significant portion of our work involved rigorous testing. After building our machine learning model, we evaluated its performance using various metrics. We split the data into training and testing sets to ensure the model was not overfitting. We also used techniques like cross-validation to confirm the model's robustness and reliability, ensuring it would perform well on new, unseen data.
- **Maintenance:** Our work on the project also included maintenance. This was a collaborative effort to ensure our code was well-documented and easy to follow. We used Jupyter Notebook to create a comprehensive report that served as a reference for our team and for future updates to the model. This documentation detailed our methodology and results, making it easy to replicate our findings.

## Chapter 8

### DETAIL REPORT OF THE TASKS UNDERTAKEN (DURING THE TRAINING):

- Foundational programming and data structures:
  - Our training began with foundational concepts to ensure a strong base in Python. We completed a series of quizzes and practical programs to master essential programming skills.
  - We worked on programs covering core data structures, including lists, tuples, dictionaries, and sets, to understand their functions and practical applications.
  - We mastered control flow through exercises on loops and conditional statements.
  - We learned to write efficient and reusable code by building functions. -
  - we gained practical experience in file operation to read and write data from various file operation.
- Database and data science core concepts:
  - Our training then progressed to more advanced data science and databaserelated tasks.
  - We learned to manage and query databases using PL/SQL. We mastered different types of joins to combine data from multiple tables.

-A key task was web scraping, which involved collecting data directly from websites. This was a challenging but very important experience that taught us how to gather data from non-traditional sources.

-We explored fundamental machine learning concepts, including shuffling models and understanding probability. We learned how to split datasets into training and testing sets to prepare for model building.

Machine learning project:

- The culmination of our training was working on projects that integrated all the skills we had learned. We applied our knowledge to solve real-world problems. This included the full project lifecycle, from initial data collection and cleaning to building and evaluating machine learning models.



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## Chapter 9

### CHALLENGING EXPERIENCES ENCOUNTERED DURING TRAINING:

While the training was comprehensive, we encountered several challenges that tested our problem-solving skills and teamwork.

- **Working with Real-World Data:** A significant challenge was dealing with messy, real-world data. Unlike datasets in textbooks, the data we worked with was often incomplete and contained inconsistencies. We spent a considerable amount of time troubleshooting and cleaning the data before we could begin any analysis.
- **Collaborative Coding:** As a group, we learned the importance of effective communication while coding. We had to coordinate our work on shared projects to avoid overwriting each other's changes. This experience taught us how to work together efficiently and resolve technical conflicts as a team.

## Chapter 10

### CONCLUSION:

This internship has been an invaluable experience for our group, providing a bridge between our academic knowledge and its practical application in a real-world data science environment.

We successfully navigated the entire project lifecycle, from initial data collection and cleaning to building and evaluating a complete machine learning model. Our training was comprehensive, starting with foundational programming skills and progressing to advanced topics.

The Medicine Recommendation System project offers a promising solution to enhance patient care and safety by providing personalized medicine recommendations. By leveraging machine learning and NLP, this system has the potential to revolutionize healthcare by improving treatment outcomes, reducing medication errors, and streamlining clinical workflows.

The project's focus on accuracy, reliability, and personalization can significantly impact the quality of care provided to patients. By analyzing vast amounts of medical data, the system can identify patterns and relationships that may not be apparent to human clinicians, leading to more effective treatment plans.

Ultimately, the Medicine Recommendation System project has the potential to transform the healthcare industry by providing a valuable tool for healthcare professionals, improving patient outcomes, and reducing healthcare costs associated with medication errors and adverse reactions. Its successful implementation can lead to better patient care, improved health outcomes, and a more efficient healthcare system.

## Chapter 11

### REFERENCES:

The sources of information are typically digital, encompassing official documentation, internal company resources, and online learning platforms (YouTube, GitHub, ChatGPT etc.).

We also refer Kaggle dataset for this project.

We used libraries (NumPy, Pandas, Sklearn, Matplotlib, Joblib etc.) and pkl files (popularity\_model.pkl, collab\_model.pkl)