

Internship Report
On
“Machine Learning Internship at Slash Mark”

Submitted to the
Savitribai Phule Pune University
In partial fulfilment for the award of the Degree of
Bachelor of Engineering
in
Information Technology

By
Siddhi Jadhav (TE-IT)
Exam seat no- T190078523
Roll no- 21003081



Department Of Information Technology
Pune Vidyarthi Griha's College of Engineering & Technology
and G K Pate (Wani) Institute of Management Pune-09

2023-24

INDEX

SR No	TITLE		PAGE NO
1	Title Page		1
2	Letter of undertaking		2
3	Completion certificate		3
4	Overview of an Organization		5
	4.1	Introduction	5
	4.2	Organization Communication details	7
	4.3	Internship supervisor name & communication details	7
	4.4	company address / website URL	9
5	Completed Internship		10
	5.1	Brief description of number of internships completed during Academic Year 2021-22.	10
6	Internship Training Program Report Details		11
	6.1	Acknowledgement	11
	6.2	Abstract / Summary of internship.	12
	6.3	Objectives	14
	6.4	Introduction of internship program	15
	6.5	Detailed description of the task(s) assigned	17
7	Critical Analysis		21
8	Methodologies		22

	8.1	Methodology for recruitment	22
9		References & Sources	25
10		Conclusion	26
11		Internship Log Book	27
12		Annexure	29

I. TITLE PAGE

- **Organization Name:** Slash Mark IT Startup

- **Contact person Details:**

Name: Ms. K Mukesh Raj

Contact Number: 9307213851

- **Submission date of report:** 7th April 2024

- **Duration of Internship:** 1 Month

- **Company logo:**



2. LETTER OF UNDERTAKING



PVG's College of Engineering and Technology & G. K. Pate (Wani) Institute of Management, Pune-09

I Siddhi Yogesh Jadhav third year student of information technology department, PVG's COET & GKP (W) IOM, Pune-9 hereby confirm that the internship report I have provided is solely my own effort. I did not copy my report partially or completely from any other student or from any other source either against payment or free and I did not provide any plagiarized material in any section of my report. I further confirm that the document (internship completion certificate) that I have provided is genuine (i.e. not forge/fake) and has been issued by the authorized person in the organization. If I am found guilty of misstating, misleading or concealing the facts about my activities (either academic or non academic but relevant to this course) at any stage, the university is authorized to take disciplinary action against me according to university policies and regulations. I assure that I will follow the instructions regarding presentation. and will appear on the scheduled date for presentation which will be intimated to me by the department. In case of any negligence, I shall be held responsible.

Name: Siddhi Yogesh Jadhav

Signature:

Date: 7th April 2024

**Pune Vidyarthi Griha's College of Engineering and Technology &
G.K. Pate (Wani) Institute of Management, Pune- 411009.**

3. COMPLETION CERTIFICATES



सूक्ष्म, लघु और मध्यम उद्यम मंत्रालय
MINISTRY OF
MICRO, SMALL & MEDIUM ENTERPRISES

INTERNSHIP COMPLETION CERTIFICATE

This certificate awarded to

Siddhi Yogesh Jadhav

for successfully completing in Machine Learning Internship

During **March 31, 2024 to April 30, 2024**

This program was conducted in collaboration with
All India Council for Technical Education (AICTE)

Organization Reference ID : CORPORATE65117748884741695643464

Shri Buddha Chandrasekhar
Chief Coordinating Officer(CCO)
AICTE

Shri P Abhishek
Human Resources(HR)

Shri K Mukesh Raj
Chief Executive Officer(CEO)
Slash Mark IT Startup

Intern ID : SMI66742



**Pune Vidyarthi Griha's College of Engineering and Technology & G.K.
Pate (Wani) Institute of Management, Pune- 411009.**



CERTIFICATE

This is to certify that the Internship report entitled “**Machine Learning Internship**”, submitted by, T190078523 is a record of Bonafede work carried out by her, in the partial fulfilment of the Presentation & Term-work of Third year in Information Technology Engineering of Savitribai Phule Pune University at Pune Vidyarthi Griha's College of Engineering and Technology & G.K. Pate (Wani) Institute of Management, Pune under Savitribai Phule Pune University, Pune. This work is done during, Academic Year 2023-24.

Date: - 7th April 2024

Place : - Pune

Internal Examiner :

External Examiner :

4. OVERVIEW OF THE ORGANIZATION

4.1 Introduction

During my internship at Slash Mark IT Startup, I had the opportunity to delve into various aspects of Machine Learning and its applications. This report aims to provide an overview of my work, the skills I've developed, and the contributions I've made during my time at Slash Mark Internship.

The company has Following domains for the internship.

- Web Development Internship
- Machine Learning Internship
- Full Stack Web Development Internship
- Technical pods - C\C++\React\Python\Angular developer.

This internship report documents my experience at Slash Mark, an innovative IT startup at the forefront of machine learning technologies. Throughout this internship, I had the opportunity to delve into the dynamic and rapidly evolving domain of machine learning, gaining hands-on experience and insight into real-world applications of cutting-edge algorithms.

Machine learning has emerged as a transformative force across industries, revolutionizing how businesses analyze data, make predictions, and automate processes. At Slash Mark, I was immersed in a culture of innovation and collaboration, working alongside experienced professionals who are pushing the boundaries of what's possible in artificial intelligence.

This report aims to provide a comprehensive overview of my internship journey, from initial learning objectives to project execution and outcomes. It encompasses the skills acquired, challenges faced, and achievements made during my time at Slash Mark. Additionally, it reflects on the broader implications of machine learning in today's tech landscape and its potential for future advancements.

Core Focus Areas:

1. **Natural Language Processing (NLP):** Developing models and algorithms to understand and process human language, enabling tasks such as sentiment analysis, language translation, text summarization, and chatbot development.
2. **Computer Vision:** Leveraging machine learning techniques to analyze and interpret visual data, including image recognition, object detection, image segmentation, and video analysis for applications like autonomous driving, medical imaging, and security systems.
3. **Predictive Analytics:** Building predictive models and algorithms to forecast trends, behaviors, and outcomes based on historical data, enabling businesses to make data-driven decisions in areas such as sales forecasting, customer churn prediction, risk assessment, and demand forecasting.
4. **Recommendation Systems:** Designing personalized recommendation engines that use machine learning to analyze user preferences and behavior, providing tailored recommendations for products, services, content, and experiences in e-commerce, media streaming, and personalized marketing.

Technological Proficiency:

1. **Programming Languages:** Proficiency in languages such as Python, R, and Scala for machine learning development, data manipulation, and model deployment.
2. **Machine Learning Libraries and Frameworks:** Experience with popular machine learning frameworks and libraries such as TensorFlow, PyTorch, scikit-learn, and Keras for developing and training machine learning models.
3. **Deep Learning:** Knowledge and expertise in deep learning techniques, including neural networks, convolutional neural networks (CNNs), recurrent neural networks (RNNs), and deep reinforcement learning.
4. **Data Processing and Analysis:** Skills in data preprocessing, cleaning, and transformation using tools like pandas, NumPy, and Spark for handling large datasets efficiently.
5. **Model Deployment:** Understanding of deployment frameworks such as Flask, Django, FastAPI, and cloud platforms like AWS, Google Cloud Platform (GCP), and Azure for deploying machine learning models into production environments.

Clientele and Industry Verticals:

Slash Mark Technologies serves clients across various industry verticals, including:

- Finance and Fintech
- Healthcare and Biotech
- Retail and E-commerce
- Education and EdTech
- Energy and Utilities

Commitment to Quality and Innovation:

Slash Mark is committed to delivering high-quality solutions and services to its clients. This commitment is reflected in its rigorous development processes, adherence to industry best practices, and continuous improvement initiatives. The company focuses on understanding client needs, developing scalable and reliable solutions, and ensuring robust testing and quality assurance procedures before deployment. By prioritizing quality in its work, Slash Mark aims to build long-term partnerships with clients and establish itself as a trusted provider of technology solutions.

➤ The Values of company

- Excellence
- Exploration
- Integrity
- Collaboration
- Customer Centricity

➤ Goal of a company

1. **Customer Satisfaction:** Slash Mark aims to achieve high levels of customer satisfaction by delivering innovative, high-quality solutions that address client challenges effectively and add measurable value to their businesses.
2. **Market Leadership:** The company seeks to establish itself as a leader in the machine learning and IT solutions space, known for its technical expertise, innovation capabilities, and customer-centric approach.

3. **Talent Development:** Slash Mark is committed to nurturing talent within its teams, providing opportunities for professional growth, skill enhancement, and meaningful contributions to impactful projects.
4. **Social Responsibility:** Beyond business goals, Slash Mark may have a commitment to social responsibility, such as environmental sustainability, diversity and inclusion, and community engagement, aligning its actions with broader societal values.

4.2 Organization Communication details

- Company email: Official@Slashmark.Cloud
- Other Social media links:
- Instagram: <https://instagram.com/official.slashmark?igshid=MzRlODBiNWFlZA==>
- LinkedIn: <https://www.linkedin.com/company/slash-mark/>
- Whatsapp: <https://whatsapp.com/channel/0029VaItWhv2kNFz0gZoPS0v>
- Facebook: <https://www.facebook.com/profile.php?id=61551722465570>

4.3 Internship supervisor name & communication details

1. **Name:** Ms. K Mukesh Raj

Position: Founder & Chief Executive Officer (CEO)

Contact Details : official@Slashmark.Cloud

2. **Name:** Mr. P Abhishek

Position: Human Resources (HR)

Contact Details : HR@Slashmark.Cloud

4.4 company address / website URL

- **Address:** Head Office : Nelson Mandela Road, Vasant Kunj, New Delhi-110069.
- **Website URL:** <https://slashmark.cloud/>

5. COMPLETED INTERNSHIPS

5.1 Brief description of number of internships completed during Academic Year 2023-24.

Sr.No	Internship Position	Organization Name, Address	Internship Starting date	Internship End date	Duration of Internship
1	Android Development Intern	Guruji AIR , Pune, Maharashtra India.	15/10/2023	30/05/2024	8 month
2	ML Development Intern.	Shalk Mark New Delhi, India.	31/03/2024	30/04/2024	1 month
3	Web Development Intern.	Cognifyz Technologies,	06/01/2024	06/02/2024	1 month
4.	Web Development Intern.	LetsGrowMore,	01/03/2024	31/03/2024	1 month

6. INTERNSHIP TRAINING PROGRAM REPORT DETAILS

6.1 Acknowledgement

First, I would like to thank Mr. K Mukesh Raj, Founder & Chief Executive Officer, of Slash Mark Technologies, New Delhi for giving me the opportunity to do an internship within the organization.

I also would like all the people that worked along with me in the organization, with their patience and openness they created an enjoyable working environment. It is indeed with a great sense of pleasure and immense sense of gratitude that I acknowledge the help of these individuals.

My heartfelt gratitude to our internship in charge Prof. N. R. Sonawane, professor in Information Technology, for his guidance in the preparation of internship presentation and report.

My sincere gratitude towards our principal, Dr. M. R. Tarambale and Head of the department Dr. S. A. Mahajan for providing necessary facilities.

Last but not the list; I would like to thank my parents, and friends for all the encouragement and support that I received from them. With all respect and gratitude, I would like to thank all the people who helped, encouraged, guided and supported me throughout the duration of my internship, directly or indirectly.

6.2 Abstract / Summary of internship.

During my internship at Slash Mark in the field of machine learning, I embarked on a journey of hands-on learning, collaboration, and skill development. The experience provided a valuable insight into the practical applications of machine learning techniques and their impact on real-world problems.

Learning Objectives and Projects: At the onset of the internship, my learning objectives were clear: to deepen my understanding of machine learning algorithms, gain proficiency in relevant programming languages and frameworks, and apply these skills to meaningful projects. Throughout the internship, I had the opportunity to work on diverse projects that spanned areas such as natural language processing (NLP), computer vision, predictive analytics, and recommendation systems.

Hands-on Experience: The internship provided a conducive environment for hands-on learning. I worked with experienced mentors who guided me through project milestones, provided valuable feedback, and encouraged independent problem-solving. This practical exposure helped solidify theoretical concepts and improve my coding proficiency.

Challenges and Learning Opportunities: Alongside the exciting projects, I encountered challenges that tested my problem-solving abilities and encouraged me to think critically. From data preprocessing complexities to model optimization challenges, each hurdle presented a learning opportunity and contributed to my growth as a machine learning practitioner.

Collaborative Culture and Skill Enhancement: Slash Mark's collaborative culture fostered teamwork and knowledge sharing. I engaged in brainstorming sessions, code reviews, and collaborative discussions that enriched my learning experience. Interacting with diverse team members exposed me to different perspectives and approaches, broadening my understanding of machine learning workflows and best practices.

Outcome and Achievements: By the end of the internship, I successfully completed several projects, each with tangible outcomes and deliverables. These included deployed machine learning models, data visualizations, performance evaluations, and comprehensive documentation.

These achievements not only showcased my technical skills but also demonstrated my ability to deliver impactful solutions in a professional setting.

Reflection and Future Growth: Reflecting on my internship journey, I am proud of the skills gained, challenges overcome, and contributions made to the team. The experience has sparked a passion for machine learning and inspired me to pursue further studies and certifications in this domain. I am excited about the future possibilities and confident in applying my newfound knowledge and experiences to future endeavors.

6.3 Objectives :

1. **Deepen Understanding of Algorithms:** Develop a comprehensive understanding of various machine learning algorithms such as regression, classification, clustering, and deep learning models like neural networks.
2. **Master Data Preprocessing Techniques:** Learn data preprocessing techniques including data cleaning, feature scaling, feature engineering, and handling missing values to prepare data for modeling.
3. **Explore Model Evaluation and Optimization:** Gain expertise in evaluating machine learning models using performance metrics like accuracy, precision, recall, F1 score, and explore techniques for model optimization and hyperparameter tuning.
4. **Work with Machine Learning Frameworks:** Gain proficiency in popular machine learning libraries and frameworks such as TensorFlow, PyTorch, scikit-learn, and Keras for model development, training, and deployment.

6.4 Introduction of internship program.

Our internship program is designed to provide aspiring students like all of us with a hands-on learning experience in a dynamic and innovative work environment. As a leading IT firm specializing in machine learning solutions, Slash Mark Technologies is committed to nurturing talent and empowering individuals to excel in the ever-evolving field of technology.

Program Objectives:

1. **Hands-on Experience:** The internship program offers you the opportunity to work on real-world projects and tasks, gaining practical experience that complements your theoretical knowledge.
2. **Develop Skills in Natural Language Processing (NLP) or Computer Vision:** Depending on the project scope, focus on developing skills in NLP for tasks like sentiment analysis, text classification, or computer vision for image recognition, object detection, and image processing.
3. **Enhance Programming Skills:** Improve coding proficiency in languages commonly used in machine learning such as Python, and gain familiarity with related tools and libraries for data manipulation, analysis, and visualization.
4. **Understand End-to-End ML Workflow:** Learn about the complete machine learning workflow including data collection, preprocessing, model selection, training, evaluation, deployment, and monitoring in a production environment.
5. **Collaborate and Communicate Effectively:** Develop collaborative skills by working in teams, participating in code reviews, and communicating project progress, challenges, and solutions effectively with peers and supervisors.
6. **Document and Present Findings:** Practice documenting project methodologies, results, and insights comprehensively, and gain experience in presenting findings and recommendations through reports, presentations, or demonstrations.

Mentorship and Guidance:

Throughout the internship, I am receiving mentorship and guidance from seasoned professionals who are passionate about technology and dedicated to my growth. My mentors provided feedback,

answer your questions, and support you in overcoming challenges, ensuring a valuable and enriching learning experience.

6.5 Detailed description of the task(s) assigned

➤ **Task 1: XGBoost Home Price Prediction**

➤ **Description:**

Predict home prices using XGBoost with factors like income ,schools,hospitals and crime rates

➤ **Detailed description of some tasks:**

1. Data Collection and Preparation:

- Technologies: Python (programming language), pandas (data manipulation), NumPy (numerical operations), data collection from relevant sources (datasets, APIs).

2. Feature Engineering:

- Technologies: Python (programming language), pandas (data manipulation), NumPy (numerical operations), scikit-learn (feature engineering tools), geospatial libraries for calculating distances (e.g., GeoPandas, geopy).

3. Data Exploration and Visualization:

- Technologies: Python (programming language), Matplotlib, Seaborn (data visualization libraries), pandas (data manipulation), Jupyter Notebook or similar tools for interactive exploration.

4. Data Preprocessing:

- Technologies: Python (programming language), pandas (data manipulation), scikit-learn (data preprocessing tools), one-hot encoding or label encoding for categorical variables.

5. Model Training with XGBoost:

- Technologies: Python (programming language), XGBoost (gradient boosting library), scikit-learn (machine learning tools), Jupyter Notebook or Python scripts for model training.

6. Hyperparameter Tuning:

- Technologies: Python (programming language), scikit-learn (grid search or random search for hyperparameter tuning), cross-validation techniques (e.g., K-fold cross-validation).

7. Model Evaluation and Interpretation:

- Technologies: Python (programming language), scikit-learn (evaluation metrics such as MSE, R2 score, MAE), XGBoost (feature importance scores), data visualization libraries for result interpretation.

8. Model Deployment and Documentation:

- Technologies: Python (programming language), Flask or FastAPI (web frameworks for model deployment), Docker (containerization), cloud services (AWS, Azure, Google Cloud) or a local server for hosting the deployed model, documentation tools (Jupyter Notebook, Markdown, Word) for project documentation and reporting

➤ **Problem statement:** Blood Donation Forecast. Use machine learning to predict future blood donations, addressing a critical issue in the healthcare.

➤ **Description:**

1. **Project Overview:**

- Objective: Develop a machine learning model to forecast future blood donations, addressing a critical issue in healthcare resource management and ensuring adequate blood supply for medical facilities.
- Technologies: Python, pandas, scikit-learn, data visualization libraries (e.g., Matplotlib, Seaborn), machine learning algorithms (e.g., regression, time series forecasting).

2. **Data Collection and Preparation:**

- Collect historical data on blood donation records, including donation dates, donor demographics, donation quantities, and any relevant external factors (e.g., seasonal trends, public events, health campaigns).
- Technologies: Python for data collection, pandas for data manipulation and cleaning.

3. **Feature Engineering:**

- Engineer features such as donation frequency, donor age groups, donation trends over time (monthly, quarterly), and incorporate external factors like public holidays, awareness campaigns, and seasonal patterns.
- Technologies: Python, pandas for feature engineering.

4. **Data Exploration and Visualization:**

- Explore the dataset using descriptive statistics, time series plots, histograms, and correlation matrices to understand donation patterns, trends, and potential relationships with external factors.
- Visualize trends and patterns in blood donation data to identify recurring patterns or seasonality.
- Technologies: Python, Matplotlib, Seaborn for data visualization.

5. **Data Preprocessing:**

- Split the dataset into training and testing sets, considering time-based splitting to preserve chronological order.

- Perform feature scaling or normalization if necessary for machine learning algorithms.
- Encode categorical variables such as donor demographics or donation types.
- Technologies: Python, scikit-learn for data preprocessing.

6. Model Selection and Training:

- Select appropriate machine learning models for time series forecasting, such as ARIMA (AutoRegressive Integrated Moving Average), SARIMA (Seasonal ARIMA), or machine learning regression models (e.g., linear regression, decision tree regression).
- Train the selected model(s) on the training dataset, tuning hyperparameters as needed for optimal performance.
- Technologies: Python, scikit-learn, statsmodels (for ARIMA or SARIMA models).

7. Model Evaluation and Validation:

- Evaluate the trained model(s) using appropriate time series forecasting metrics such as Mean Absolute Error (MAE), Mean Squared Error (MSE), Root Mean Squared Error (RMSE), and forecast accuracy measures.
- Validate the model(s) using the test dataset to assess generalization performance and ensure robustness.
- Technologies: Python, scikit-learn, statsmodels for model evaluation.

8. Forecasting and Future Predictions:

- Utilize the trained model(s) to make future blood donation forecasts based on input variables such as upcoming dates, donor demographics, and external events.
- Generate forecasts for various time intervals (e.g., monthly, quarterly) to provide actionable insights for blood donation management.
- Technologies: Python for forecasting using trained models.

9. Results Analysis and Reporting:

- Analyze the forecasted results to identify trends, seasonality, and actionable insights for blood donation planning and resource allocation.
- Prepare reports or visual presentations summarizing the forecasting results, model performance metrics, insights gained, and recommendations for blood donation management strategies.
- Technologies: Python, data visualization libraries for result analysis and reporting.

7. CRITICAL ANALYSIS

My internship experience in machine learning at Slash Mark provided a valuable opportunity to bridge the gap between theoretical knowledge and practical application in a professional setting. Engaging in real-world projects such as the XGBoost home price prediction and blood donation forecast projects allowed me to apply machine learning algorithms and techniques to solve meaningful problems. These projects not only enhanced my technical skills but also deepened my understanding of data preprocessing, feature engineering, model training, and evaluation processes.

One of the strengths of my internship was the collaborative environment fostered at Slash Mark. Working alongside experienced mentors and team members allowed me to gain insights into industry best practices, receive constructive feedback on my work, and engage in meaningful discussions on algorithm selection, hyperparameter tuning, and model evaluation strategies. This collaborative approach not only accelerated my learning but also instilled a sense of teamwork and shared responsibility in delivering high-quality solutions.

Throughout the internship, I encountered various challenges that provided invaluable learning experiences. From handling complex datasets with missing values and outliers to fine-tuning model hyperparameters for optimal performance, each challenge pushed me to think critically, troubleshoot effectively, and explore alternative solutions. These challenges not only improved my problem-solving skills but also reinforced the iterative nature of machine learning projects, where continuous refinement and experimentation are key to success.

8 METHODOLOGIES

1. Project Initiation and Understanding Requirements:

- Begin by understanding the project objectives, requirements, and expectations from stakeholders and supervisors.
- Conduct meetings or discussions to clarify project scope, deliverables, timelines, and success criteria.

2. Research and Literature Review:

- Conduct a comprehensive literature review and research relevant to the project domain (e.g., machine learning, predictive modeling, healthcare analytics).
- Explore existing methodologies, algorithms, and best practices related to the specific tasks (e.g., XGBoost for home price prediction, time series forecasting for blood donation prediction).

3. Data Collection and Exploration:

- Collect relevant datasets from reliable sources or generate synthetic data if necessary for experimentation.
- Explore and analyze the data using descriptive statistics, data visualization techniques (e.g., histograms, scatter plots), and domain knowledge to gain insights into data characteristics, distributions, and potential patterns.

4. Data Preprocessing and Feature Engineering:

- Preprocess the raw data by handling missing values, outliers, and inconsistencies using techniques such as imputation, outlier detection, and data cleaning.
- Perform feature engineering to create new features, transform existing features, and extract meaningful information that can enhance the predictive power of machine learning models.

5. Model Selection and Training:

- Select appropriate machine learning algorithms based on the project objectives, data characteristics, and performance requirements (e.g., regression algorithms for home price prediction, time series forecasting models for blood donation prediction).

- Split the dataset into training, validation, and test sets to train the models, tune hyperparameters, and evaluate performance robustly.
- Train the selected models using the training data, adjusting hyperparameters through techniques like grid search, random search, or Bayesian optimization to optimize model performance.

6. Model Evaluation and Validation:

- Evaluate the trained models using appropriate evaluation metrics specific to each task (e.g., Mean Squared Error for regression tasks, forecast accuracy metrics for time series forecasting).
- Perform cross-validation to assess model generalization and prevent overfitting, ensuring the models can perform well on unseen data.
- Validate the models using the validation or test set, comparing performance against baseline models or benchmarks to gauge improvement.

7. Hyperparameter Tuning and Optimization:

- Fine-tune model hyperparameters based on validation results to improve model accuracy, generalization, and robustness.
- Explore different hyperparameter combinations using techniques like grid search, random search, or automated hyperparameter tuning frameworks (e.g., Hyperopt, Optuna).
- Conduct sensitivity analysis to understand the impact of key hyperparameters on model performance and behavior.

8. Results Analysis and Interpretation:

- Analyze model predictions, errors, and insights gained from feature importance analysis (e.g., XGBoost feature importance scores) to interpret model behavior and understand factors driving predictions.
- Visualize model predictions, actual values, and trends over time (for time series forecasting) to communicate findings effectively.
- Derive actionable insights from the analysis that can inform decision-making or business strategies related to the project domain (e.g., real estate pricing, healthcare resource planning).

9. Documentation and Reporting:

- Document the entire methodology, data preprocessing steps, feature engineering techniques, model training procedures, hyperparameter tuning results, and model evaluation metrics comprehensively.

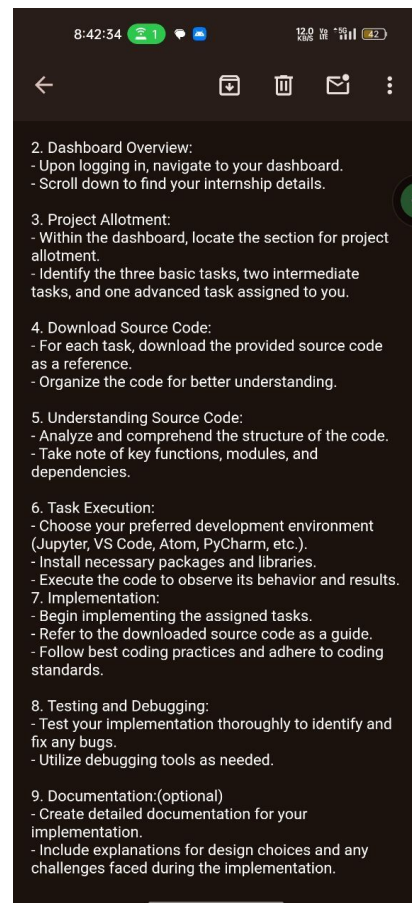
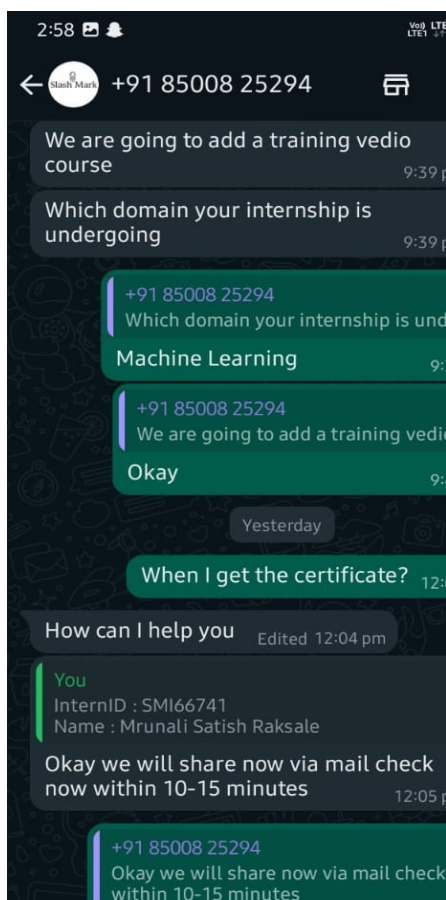
- Prepare detailed reports or presentations summarizing the project objectives, methodologies, findings, challenges faced, lessons learned, and recommendations for future work or improvements.
- Include visualizations, tables, and explanations to make the documentation clear, informative, and accessible to stakeholders, team members, and future researchers.

9. REFERENCES & SOURCES

All the information incorporated in this report has been collected from primary sources as well as secondary sources.

➤ Primary sources:

- Discussion with other assistant manager of administration & HR-In Charge.
- Weekly giving progress through email to the admin.



10. CONCLUSION

My internship experience at Slash Mark in the domain of machine learning has been a transformative and enriching journey that has significantly contributed to my professional growth and development. Over the course of the internship, I had the opportunity to delve into real-world projects, collaborate with experienced mentors and peers, and apply cutting-edge machine learning techniques to solve complex problems.

One of the key takeaways from this internship is the practical application of machine learning methodologies in addressing diverse challenges. Projects such as the XGBoost home price prediction and blood donation forecast not only allowed me to apply theoretical knowledge but also sharpened my skills in data preprocessing, feature engineering, model selection, and evaluation. The hands-on experience provided insights into the iterative nature of machine learning projects, emphasizing the importance of experimentation, iteration, and continuous improvement.

Collaborating within the dynamic environment at Slash Mark was instrumental in my learning journey. Engaging in discussions, receiving feedback, and participating in team-driven projects fostered a sense of teamwork, shared learning, and professional camaraderie. The mentorship provided by seasoned professionals not only guided me through technical challenges but also encouraged critical thinking, problem-solving, and effective communication.

Throughout the internship, I encountered challenges that pushed me out of my comfort zone and encouraged creative problem-solving. Whether it was optimizing model hyperparameters, handling complex datasets, or interpreting model predictions, each challenge served as a learning opportunity and reinforced the importance of resilience, adaptability, and perseverance in the face of complex problems.

In conclusion, my internship at Slash Mark has equipped me with valuable skills, practical experience, and a deeper appreciation for the transformative potential of machine learning in driving innovation across industries. I am grateful for the support, mentorship, and opportunities provided during this internship, and I am excited to leverage these experiences as I continue to explore and contribute to the ever-evolving field of data science and artificial intelligence.

11. INTERNSHIP LOG BOOK

Week 1: Orientation and Project Setup

- **Day 1:**
 - Introduction to Slash Mark, team members, and mentorship structure.
 - Overview of the machine learning projects I will be working on.
- **Day 2-3:**
 - Set up development environment: Installed Python, Jupyter Notebook, and required libraries (pandas, NumPy, scikit-learn, etc.).
 - Reviewed project documentation and requirements.
- **Day 4-5:**
 - Explored sample datasets for XGBoost home price prediction and blood donation forecast projects.
 - Conducted initial data exploration and familiarization with data structures.

Week 2: Data Preprocessing and Feature Engineering

- **Day 6-7:**
 - Preprocessed XGBoost home price prediction dataset: handled missing values, encoded categorical variables, and scaled features.
 - Began feature engineering: Created new features such as income per capita, distance to amenities, and crime rate normalization.
- **Day 8-10:**
 - Preprocessed blood donation forecast dataset: Imputed missing values and transformed data for time series analysis.
 - Continued feature engineering: Extracted temporal features, identified seasonality, and incorporated external factors.

Week 3: Model Training and Evaluation

- **Day 11-12:**
 - Selected XGBoost as the primary model for home price prediction based on project requirements and initial data analysis.

- Split datasets into training and testing sets for both projects.
- **Day 13-15:**
 - Trained initial XGBoost models for both projects and evaluated performance using baseline metrics.
 - Identified areas for model improvement and hyperparameter tuning.
 - Explored alternative models such as SARIMA for blood donation forecast.

Week 4: Model Optimization, Validation, and Reporting

- **Day 16-17:**
 - Conducted hyperparameter tuning for XGBoost models using grid search and cross-validation techniques.
 - Validated optimized models using test datasets and compared performance metrics
- **Day 18-20:**
 - Generated final predictions for both projects and analyzed results.
 - Documented methodologies, findings, challenges, and insights in project reports.
- **Day 21:**
 - Prepared a presentation summarizing internship projects, methodologies, and outcomes.
 - Presented findings to team members and received feedback.

12. ANNEXURE

Offer letter for the position Machine Learning Intern :



Slash Mark

OFFER LETTER

Dear Siddhi Yogesh Jadhav,
Intern ID: SMI66742
PVG'S COET,Pune
Organization Reference ID : CORPORATE65117748884741695643464

Congratulations!

We are delighted to present you with an offer for the position of Machine Learning Internship commencing from March 31, 2024 to April 30, 2024.

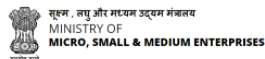
As an intern, you will have the opportunity to gain valuable experience. As a temporary employee, please be aware that you won't receive the same benefits as our regular staff.

Kindly adhere to our company's policies, including those related to conduct, safety, and confidentiality. We have every confidence that your internship with us will prove to be fulfilling and we extend our best wishes for success in this promising opportunity.

We look forward to welcoming you to our team and witnessing your growth and contributions firsthand.

Shri Buddha Chandrasekhar
Chief Coordinating Officer(CCO)
AICTE

P Abhishek
Human Resources (HR)
Slash Mark IT Startup



#startupidia

Offer Letters of Other Internships :

