**INTERNSHIP REPORT**

**Internship Overview**

**Internship Provider**: INTRAIN TECH, Bangalore (in collaboration with SkillCepha, Hyderabad)

**Duration:** 22 January 2024 to 24 March 2024 (2 months)

**Internship Type**: Online

**Intern**:

**Institution**: Vellore Institute of Technology, AP, India

**Training Supervisor**: Bishalini Sahu

**Project Supervisor**: Swasti Desai

**Training and Project Details**

**Month 1: Training in AI and ML Technologies**

During the first month of the internship, comprehensive training sessions were conducted under the guidance of Bishalini Sahu. The training covered various AI and ML technologies, focusing on:

**Introduction to AI and ML**: Understanding the basics of Artificial Intelligence and Machine Learning, including their applications and importance in the modern world.

**Data Preprocessing**: Techniques for cleaning and preparing data for analysis, including handling missing values, data normalization, and data transformation.

**Supervised Learning**: Learning algorithms such as Linear Regression, Logistic Regression, Decision Trees, and Support Vector Machines.

**Unsupervised Learning**: Understanding clustering algorithms like K-Means and Hierarchical Clustering, and dimensionality reduction techniques such as PCA.

**Neural Networks**: Basics of neural networks, deep learning, and implementation using frameworks like TensorFlow and Keras.

**Model Evaluation**: Techniques for evaluating the performance of machine learning models, including cross-validation, confusion matrices, and ROC curves.

**Python for Data Science**: Utilizing Python libraries such as NumPy, Pandas, Matplotlib, and Scikit-learn for data manipulation and visualization.

**Month 2: Project - "Wine Review Analysis Using AI ML"**

Under the guidance of Swasti Desai, the second month was dedicated to a project titled "Wine Review Analysis Using AI ML." The project involved:

**Problem Statement**: Analyzing wine reviews to understand customer preferences and sentiments, and predicting wine quality based on review texts and other features.

**Data Collection**: Gathering a dataset of wine reviews, including textual reviews, ratings, and other relevant features.

**Data Preprocessing**: Cleaning and preprocessing the data to make it suitable for analysis. This included text preprocessing steps like tokenization, stop-word removal, and stemming.

**Exploratory Data Analysis (EDA):** Conducting EDA to uncover patterns and insights from the data. Visualizing the distribution of ratings, word frequencies in reviews, and correlations between different features.

**Model Building**: Implementing various machine learning models to analyze and predict wine quality. This included:

**Classification Models**: Building classification models to predict wine quality based on review text and other features. Algorithms such as Random Forest, Gradient Boosting, and Neural Networks were used.

**Model Evaluation and Optimization:** Evaluating the performance of the models using metrics like accuracy, precision, recall, and F1-score. Hyperparameter tuning was performed to optimize model performance.

**Results and Insights**: Summarizing the findings and insights gained from the analysis. Highlighting the key factors influencing wine quality and customer preferences. The analysis revealed key factors influencing wine quality and customer preferences. The Random Forest model achieved an accuracy of 85%, with detailed performance metrics provided in the classification report and confusion matrix.

**Report and Presentation**: Documenting the entire project process and results in a comprehensive report and presenting the findings to the INTRAIN TECH team.

**Conclusion**

The internship at INTRAIN TECH provided invaluable hands-on experience in AI and ML technologies. The structured training and the challenging project work significantly enhanced my understanding and skills in this field. I am confident that the knowledge and experience gained during this internship will serve as a strong foundation for my future academic and professional endeavors.

**Internship Completion Certificate**

**Certificate Analysis**

**Internship Period**: The certificate confirms the internship period from 22 January 2024 to 24 March 2024.

**Internship Provider**: INTRAIN TECH, Bangalore, in collaboration with SkillCepha, Hyderabad.

**Acknowledgment**: The certificate acknowledges the successful completion of the internship and highlights the intern's dedication, enthusiasm, and positive attitude.

**Project Contribution**: It mentions the intern's contribution to the "Wine Review" project and commends their commitment to learning and adaptability.

**Future Wishes**: The certificate expresses best wishes for the intern's future academic and professional pursuits.

**Conclusion:** The certificate serves as an official recognition of the successful completion of the internship, reinforcing the skills and experiences gained during the period.