



Sadguru Balumama Shikshan Prasarak Mandal's
K.P. PATIL INSTITUTE OF TECHNOLOGY

(DTE CODE : 6814) (MSBTE Code : 1661)

Approved by AICTE, DTE Mumbai & Govt. of Maharashtra, Affiliated to MSBTE Mumbai

Internships Daily Diary(2025-26)

Department of Artificial Intelligence & Machine Learning

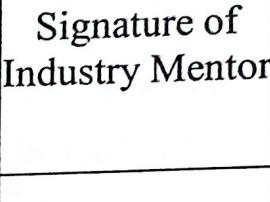
Program Code : AN5K

Name of the Student: Samruddhi Bhikaji chougule

Name of the Mentor (Faculty): Mrs. P. M. Kumbhar

Name of the Mentor (Industry): Mr. Abhijit Gratitude

Enrollment Number: 23213500039

Week	Day & Date	Discussion Topics/Activity	Details of Work Allotted Till Next Session /Corrections Suggested/Faculty Remarks	Signature of Industry Mentor
Week 8	Mon, Date 21.7.25	Project intro and dataset study	studied heart disease dataset & features like cp, thalach, etc	 
	Tue, Date 22.7.25	Data cleaning & Preprocessing	Handled nulls, encoded categorical data, scaled numericals	
	Wed, Date 23.7.25	EDA & visualization	Created plots, checked correlations, reviewed class balance	
	Thu, Date 24.7.25	Model training	Trained LR, DT, KNN, RF using K-fold and evaluated metrics	
	Fri, Date 25.7.25	Model tuning and saving	Tuned models with GridSearch CV, selected final RF model	
	Sat, Date 26.7.25	App Planning & future scope	Designed structure of app, listed inputs, planned improvements	



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Week No: 8

Day: Monday

Date: 21.7.25

Topic :- New Project & Dataset Understanding

Today, I began working on healthcare based machine learning project titled "Heart Disease Prediction".

I explored the dataset heart-disease-dataset.xls, which contains important clinical parameters such as age, sex, chest pain type, resting blood pressure, cholesterol, fasting blood sugar, and ECG result. I also researched the medical meaning of features like thalach, oldpeak and slope which were new to me.

This day set the foundation for the entire week's work.



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Week No: 8

Day: Tuesday

Date: 22.7.25

Topic : Data Preprocessing & Cleaning

Today's task was to clean the dataset and prepare it for model training. In the notebook preprocessing_heart-dataset.ipynb, I began by checking for null values and inconsistent data entries.

I also generated summary statistics to ensure the transformations made sense. The cleaned data was saved in cleaned_heart-disease-data.xls. This step taught me how important it is to transform healthcare data cautiously to preserve its medical meaning. I learned how data imbalance and noisy data can misguide model training if not handled carefully.



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Week No: 8

Day: Wednesday

Date: 23.7.25

Topic :: Exploratory Data Analysis (EDA).

Today's I explored the cleaned dataset visually & statistically using the EDA.ipynb notebook. I created histogram, box plots, features. Heatmaps showed that cp, thalach, and oldpeak had strong correlations with the target variables. I learned that patients with higher maximum heart rate (thalach) and lower ST depression (oldpeak) generally had lower risk. Through EDA I could extract features importance intuitively, which will guide me in model selection and optimization. This phase felt like detective work and gave me confidence in handling health data with insight.

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Week No: 8

Day: Thursday

Date: 24.7.25

Topic :- Model selection & Initial Training

In the model-selection.ipynb notebook, I began testing several classification models including Logistic Regression, Decision Tree, K-Nearest Neighbors (KNN), and Random Forest. I split the dataset into 80% training and 20% testing sets. Random Forest gave the best initial result with high accuracy and better generalization on the validation set. I also plotted learning curves to check for overfitting. This step taught me how different algorithms behave on real-world healthcare data and how critical it is to evaluate them beyond just accuracy, especially in sensitive domains like medical prediction.



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Week No: 8

Day: Friday

Date: 25.7.25

Topic : comparing Multiple models and finalizing

Today's I focused on model comparison and performance tuning in the Three-different Models.ipynb file. I fine-tuned hyperparameters using "GridSearchCV" especially for Decision Tree and Random Forest. I plotted I finalized and exported the model using pickle as HeartDisease.pkl. I also tested the model on a few synthetic patient records to validate it's output.
I now have a trained, validated model ready for deployment.



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Internships Daily Diary (2025-26)

Week No: 8

Day: Saturday

Date: 26.7.25

Topic :- Application Planning & Future Scope.

on the last day of the week, I planned the next steps: turning this into a usable applications

I drafted a basic design for a "streamlit-based web app" where users can input parameters & get a risk prediction in real-time.

I also researched real-world case studies of ML in cardiology & considered ideas like adding "risk categorization" to improve interpretability. This project gave me a deep sense of purpose - using my skills to build something that could potentially save lives or assist doctors in early detection. A truly fulfilling learning experience.