



CODING SAMURAI

CODING YOUR ASCENT: LEARN, CODE, UPSKILL

ABOUT THE COMPANY

At Coding Samurai, we strongly believe that practical knowledge is really important for doing well in the tech industry. Our main goal is to help students who might be missing some basic skills. We do this by giving them chances to learn in a hands-on way, where they work on real projects and see how things work in the real world. we know how valuable it is for future tech experts to actually try things themselves. That's why our internship program lets students learn by doing real projects. They get to work with experienced mentors who guide them along the way. Our team is made up of experts who have a lot of experience in the industry. They really care about helping interns learn and get better at what they do. We create a friendly and welcoming environment where everyone can learn, grow, and come up with new ideas

INSTRUCTIONS

1-Update your LinkedIn profiles.

2-For the **MACHINE LEARNING** internship, you will need to complete at least 1 tasks for successful completion of the internship.

3-Upload it on your GITHUB and name it as **CODING SAMURAI INTERNSHIP TASK** for all the tasks and share the link of the profile in the task submission form(it will be given later through email).

4-You can refer to online resources such as Google Search and read tutorials. Watch videos(For Help).

SUBMISSIONS

1-A TASK SUBMISSION FORM will be shared later through email . Till then please continue your task.

2-A video need to be created to showcase your work, a demo of your effort. 3- For the **MACHINE LEARNING** internship, you will need to complete at least 1 tasks for successful completion of the internship.

4-The video can be hosted on LinkedIn for proof of your work and to build credibility among your peers. You can tag **CODING SAMURAI** in such posts.

5-Please add #codingsamurai in each of your task video postings on LinkedIn, Additionally, you can also add hashtags such as #internship #MACHINELEARNING. For more visibility.

6-Best Interns will be given **LOR** and a chance to win stipend.

MACHINE LEARNING

MACHINE LEARNING INTERNSHIP (TASK 1)

Project Title: Predicting Flower Species

Project Description: In this project, you will create a simple machine learning model to predict the species of flowers based on their features. You can use the famous Iris dataset, which contains measurements of four features (sepal length, sepal width, petal length, and petal width) for three different species of iris flowers (setosa, versicolor, and virginica).

Steps to you can Implement:

Data Collection: Download the Iris dataset, which is readily available in many machine learning libraries, such as scikit-learn or seaborn.

Data Exploration: Explore the dataset to understand its structure, the distribution of data points, and the relationship between the features and the target variable (flower species).

Data Preprocessing: Preprocess the data by handling missing values (if any), encoding the categorical target variable (species), and splitting the dataset into a training set and a testing set.

Model Selection: Choose a simple machine learning algorithm like Logistic Regression or Decision Tree Classifier for this beginner project. You can later explore more complex algorithms as you gain experience.

Model Training: Train the selected model using the training dataset. This involves feeding the model with input features (sepal length, sepal width, petal length, and petal width) and the corresponding target labels (flower species).

Model Evaluation: Evaluate the model's performance using the testing dataset. Common evaluation metrics for classification tasks include accuracy, precision, recall, and F1-score.

Prediction: Use the trained model to make predictions on new data points (flower measurements). You can create a simple command-line interface or a basic web application where users can input the measurements, and your model predicts the flower species.

Visualization: Create visualizations such as scatter plots, confusion matrices, or bar charts to help you and others understand how well the model is performing.

Model Tuning: Experiment with different hyperparameters of the model to see if you can improve its performance. This step will give you insight into hyperparameter tuning.

Documentation: Keep detailed notes on your project, including the steps you took, challenges you faced, and any improvements you made. Documenting your work is essential for learning and future reference.

LINK TO DATASET-[click here](#)

MACHINE LEARNING INTERNSHIP (TASK 2)

Project Title: Movie Recommendation System

Project Description: Build a basic movie recommendation system that suggests movies to users based on their viewing history or preferences. This project will introduce you to the concepts of collaborative filtering and content-based recommendation.

Steps you can Implement:

Data Collection: Gather movie data, including titles, genres, and user ratings. You can find movie datasets on websites like Kaggle or use publicly available data sources.

Data Preprocessing: Clean and preprocess the data, handling missing values and ensuring it's in a suitable format for your recommendation system.

Exploratory Data Analysis: Explore the data to gain insights, such as the distribution of movie ratings, the most popular genres, and user preferences.

Collaborative Filtering: Implement a collaborative filtering algorithm, which recommends movies to users based on the preferences of other users with similar tastes. You can use techniques like user-based or item-based collaborative filtering.

Content-Based Filtering: Implement a content-based recommendation system that suggests movies similar to the ones a user has already watched and liked. You can use movie genres, directors, and actors as features.

User Interface: Create a simple user interface where users can input their movie preferences or view their recommended movies. This could be a command-line interface or a basic web application.

Recommendation Engine: Combine the collaborative filtering and content-based filtering approaches to provide more accurate and diverse recommendations.

Evaluation: Evaluate the recommendation system's performance using metrics like Mean Absolute Error (MAE) or Root Mean Squared Error (RMSE) for collaborative filtering and precision, recall, or F1-score for content-based filtering.

Testing: Test the recommendation system with sample users and collect feedback to improve its accuracy and user experience.

Documentation: Document your project, including the data sources, algorithms used, and any challenges you faced. This documentation will be valuable for future reference.

LINK TO DATASET - [Click Here](#)

MACHINE LEARNING INTERNSHIP (TASK 3)

Project Title: Sentiment Analysis for Social Media Posts

Project Description: Build a sentiment analysis tool that can analyze and classify the sentiment (positive, negative, or neutral) of social media posts or text messages. This project will help you gain experience in natural language processing (NLP) and text classification.

Steps you can Implement:

Data Collection: Collect a dataset of social media posts or text messages. You can use publicly available datasets or scrape data from platforms like Twitter (while adhering to their terms of service).

Data Preprocessing: Clean and preprocess the text data. This includes removing special characters, tokenizing, and stemming or lemmatizing words.

Labeling: Annotate the dataset with sentiment labels (e.g., positive, negative, neutral). You can manually label a subset of the data or use pre-labeled datasets if available.

Feature Extraction: Convert the text data into numerical features that machine learning models can use. Common methods include TF-IDF (Term Frequency-Inverse Document Frequency) or word embeddings like Word2Vec or GloVe.

Model Selection: Choose a machine learning algorithm for text classification, such as Naive Bayes, Support Vector Machine (SVM), or a neural network-based approach like a simple feedforward neural network or LSTM.

Model Training: Split your dataset into a training set and a testing set. Train your chosen model on the training set.

Model Evaluation: Evaluate the model's performance using metrics like accuracy, precision, recall, F1-score, and confusion matrices. Make adjustments to the model if needed.

User Interface: Create a user-friendly interface where users can input text, and the sentiment analysis model provides the sentiment classification.

Deployment: Deploy your sentiment analysis tool, so it's accessible to users. You can deploy it as a web application, a mobile app, or a command-line tool.

Feedback and Improvement: Gather user feedback and continuously improve your sentiment analysis model to enhance its accuracy and usefulness.

Documentation: Document your project, including the data sources, data preprocessing steps, and the model architecture. This documentation will be helpful for others who want to understand and use your tool.

LINK TO DATASET-[Click Here](#)

Remember tools are just a means to reach the desired results, it's all about the process, so feel free to use any technology or tool you are comfortable with.

It's up to you whether you Brainstorm, use your existing knowledge , Google it or can take Reference from youtube and follow step by step. The main goal of these task is to make you learn and gain hands on experience. Results of individual may vary and its absolutely fine. You can use your creativity.

ASK FOR HELP!

1-THE PURPOSE OF THIS INTERNSHIP IS TO LEARN AND GROW

2-We have no desire to dictate to you. It is entirely up to you whether you seek guidance or not.

3-The given tasks may seem very easy or very difficult. We expect you to approach the tasks with professional diligence and give them the attention they deserve.

CONNECT WITH US

LINKEDIN-[Click Here](#)

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