

Final Assignment



In this assignment, you will work on a house price prediction project using the "House Prices: Advanced Regression Techniques" dataset from Kaggle. The focus is on data cleaning and preprocessing tasks, including handling missing values, outliers, and categorical features. You will train a regression model to predict house prices and optimize its performance.

Assignment-8

Task 1: Data Understanding:

Begin by exploring the dataset and understanding its structure, including the meaning and type of each feature. ([Dataset Link](#))

Task 2: Data Cleaning:

Perform data cleaning tasks to handle missing values, outliers, and inconsistencies in the dataset. Some potential cleaning tasks include:

- Handling missing values: Identify features with missing values and decide on an appropriate strategy to handle them (e.g., imputation or removal).
- Dealing with outliers: Identify outliers in numerical features and decide on an appropriate approach (e.g., removing outliers or transforming the data).
- Handling categorical features: Convert categorical variables into numerical representations using techniques like one-hot encoding or label encoding.

Task 3: Feature Engineering:

Perform feature engineering to enhance the predictive power of the dataset. This may include creating new features, transforming existing features, or selecting relevant features.

Task 4: Data Preprocessing:

Prepare the cleaned dataset for model training. This involves scaling numerical features, encoding categorical variables, and splitting the data into training and testing sets.

Task 5: Model Training and Evaluation:

Choose an appropriate regression model (e.g., linear regression, random forest, or gradient boosting) and train it on the preprocessed dataset. Evaluate the model's performance using suitable metrics like mean squared error (MSE) or root mean squared error (RMSE).

Task 6: Model Optimization:

Fine-tune the hyperparameters of the chosen model to improve its performance. You can use techniques like cross-validation or grid search to find the best parameter values.

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Task 7: Creating Webpage:

The creation of a webpage for the model deployment project should incorporate user-friendly design, clear model explanations, and seamless navigation. The webpage must effectively communicate the project's objectives, methodology, and outcomes, ensuring accessibility and engagement for diverse audiences. (You can also use a pre-built template)

Task 8: Creating Requirements:

Generate a requirements.txt for the model deployment project. This file should include all necessary dependencies and their versions to ensure smooth deployment.

Assignment-9

Deploying the machine learning model on a **Google Cloud Platform (GCP)** instance entails configuring a GCP instance, create web application, Upload all the files using Google Cloud SDK, and exposing an API endpoint for predictions. Steps include creating a Compute Engine instance, setting up necessary libraries, deploying the model, and configuring network settings for external access.

Task 9: Model Deployment:

Once you have a satisfactory model, deploy it to make predictions on new, unseen data. You can use the trained model to predict house prices for new instances and assess its real-world applicability.

Task 10: LinkedIn Post:

Once you complete all the above tasks, make a linkedin post from your account for the entire Final Assignment completion.

Submission: The Entire Assignment-8 should be submitted by the date 17/04/2024, You have to upload all the files you created in this assignment in GitHub with the proper Repo Name & also (for Assignment 9) upload a Screenshot of the working deployed ML project in your browser clearly in a different repo name as Assignment-9.