UNVEILING BALDNESS

GENETIC AND ENVIRONMENTAL DYNAMICS

Milestone 1: Project Initialization and Planning Phase

The "Project Initialization and Planning Phase" marks the project's outset, defining goals, scope, and stakeholders. This crucial phase establishes project parameters, identifies key team members, allocates resources, and outlines a realistic timeline. It also involves risk assessment and mitigation planning. Successful initiation sets the foundation for a well-organized and efficiently executed machine learning project, ensuring clarity, alignment, and proactive measures for potential challenges.

Activity 1: Define Problem Statement
Problem Statement: The baldness problem involves identifying the genetic, hormonal, and environmental factors contributing to hair loss. It aims to develop effective prevention and treatment strategies. Understanding these factors can lead to personalized solutions and improve quality of life for affected individuals.

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Hair Loss Prediction Statement Report: [Click here](#)

Activity 2: Project Proposal (Proposed Solution)

This proposal aims to investigate the genetic, hormonal, and environmental causes of baldness through comprehensive research and data analysis. By identifying key contributing factors, we plan to develop targeted prevention and treatment strategies. Our goal is to offer personalized solutions to mitigate hair loss and enhance individuals' quality of life.

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 Hair Loss Prediction Project Proposal Report: [Click here](#)

Activity 3: Initial Project Planning

The baldness project will be structured into three phases: first, conducting extensive literature reviews and genetic studies to identify contributing factors; second, analyzing data from diverse populations to validate findings; and third, developing and testing targeted prevention and

treatment methods. This systematic approach ensures thorough understanding and practical application of research outcomes.

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Hair Fall Prediction Project Planning Report: [Click here](#)

Milestone 2: Data Collection and Preprocessing Phase

The Data Collection and Preprocessing Phase involves executing a plan to gather relevant loan

application data from Kaggle, ensuring data quality through verification and addressing missing values. Preprocessing tasks include cleaning, encoding, and organizing the dataset for subsequent exploratory analysis and machine learning model development.

Activity 1: Data Collection Plan, Raw Data Sources Identified, Data Quality Report

The dataset for "Hair Loss Prediction" is sourced from Kaggle. Data quality is ensured through thorough verification, addressing missing values, and maintaining adherence to ethical guidelines, establishing a reliable foundation for predictive modeling.

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Hair Loss Prediction Data Collection Report: [Click here](#)

Activity 2: Data Quality Report

The dataset for " Hair Loss Salary Prediction " is sourced from Kaggle. It includes applicant details. Data quality is ensured through thorough verification, addressing missing values, and maintaining adherence to ethical guidelines, establishing a reliable foundation for predictive modeling.

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Hair Loss Prediction Data Quality Report: [Click here](#)

Activity 3: Data Exploration and Preprocessing

Data Exploration involves analyzing hair loss prediction dataset to understand patterns, distributions, and outliers. Preprocessing includes handling missing values, scaling, and encoding categorical variables. These crucial steps enhance data quality, ensuring the reliability and effectiveness of subsequent analyses in the hair loss prediction.

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Hair Loss Prediction Data Exploration and Preprocessing Report: Click here

3: Model Development Phase

The Model Development Phase entails crafting a predictive model for hair loss prediction. It encompasses strategic feature selection, evaluating and selecting models (Logistic Regression, Random Forest, Decision Tree, KNN), initiating training with code, and rigorously validating and assessing model performance for informed decision-making in the lending process.

Activity 1: Feature Selection Report
The Feature Selection Report outlines the rationale behind choosing specific features for the hair loss prediction model. It evaluates relevance, importance, and impact on predictive accuracy, ensuring the inclusion of key factors influencing the model's ability to hair loss prediction.

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Hair Loss Prediction Feature Selection Report: Click here

Activity 2: Model Selection Report
The Model Selection Report details the rationale behind choosing Logistic Regression, Random Forest, Decision Tree, and KNN models for hair loss prediction. It considers each model's strengths in handling complex relationships, interpretability, adaptability, and overall predictive performance, ensuring an informed choice aligned with project objectives.

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Hair Loss Prediction Model Selection Report: **Click here**

3: Initial Model Training Code, Model Validation and Evaluation Report
The Initial Model Training Code employs selected algorithms on the Hair loss prediction dataset, setting the foundation for predictive modeling. The subsequent Model Validation and Evaluation Report rigorously assesses model performance, employing metrics like accuracy and precision to ensure reliability and effectiveness in predicting outcomes.

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Hair Loss Prediction Model Development Phase Template: Click here

Milestone 4: Model Optimization and Tuning Phase

The Model Optimization and Tuning Phase involves refining machine learning models for peak performance. It includes optimized model code, fine-tuning hyperparameters, comparing performance metrics, and justifying the final model selection for enhanced predictive accuracy and efficiency.

Activity 1: Hyperparameter Tuning Documentation

The Decision Tree was selected for its superior performance, exhibiting high accuracy during hyperparameter tuning. Its ability to handle complex relationships, minimize overfitting, and optimize predictive accuracy aligns with project objectives, justifying its selection as the final model.

Activity 2: Performance Metrics Comparison Report

The Performance Metrics Comparison Report contrasts the baseline and optimized metrics for various models, specifically highlighting the enhanced performance of the Decision Tree model. This assessment provides a clear understanding of the refined predictive capabilities achieved through hyperparameter tuning.

Activity 3: Final Model Selection Justification

The Final Model Selection Justification articulates the rationale for choosing SVR the ultimate model. Its exceptional accuracy, ability to handle complexity, and successful hyperparameter tuning align with project objectives, ensuring optimal salary predictions.

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Hair fall Optimization and Tuning Phase Report **Click here**

5: Project Files Submission and Documentation

For project file submission in Github, Kindly click the link and refer to the flow. Click here

For the documentation, Kindly refer to the link. Click here

Milestone 6: Project Demonstration

In the upcoming module called Project Demonstration, individuals will be required to record a video by sharing their screens. They will need to explain their project and demonstrate its execution during the presentation.