

Frappe Activity- Mobile Phone Activity Classification

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: This project is to develop a machine learning model that can accurately classify different types of mobile phone activities based on sensor data. This classification can help in understanding user behaviour, optimizing app performance, and improving user experience by tailoring app functionalities according to the user's current activity.

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Frappe Activity Problem Statement Report: [Click Here](#)

Activity 2: Project Proposal (Proposed Solution)

proposal report aims to transform loan approval using machine learning, boosting efficiency and accuracy. It tackles system inefficiencies, promising better operations, reduced risks, and happier customers. Key features include a machine learning-based credit model and real-time decision-making. Using a comprehensive dataset including item, count, city, name. the project seeks to classify the activity of the phone.

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Frappe Activity Project Proposal: [Click Here](#)

Activity 3: Initial Project Planning

Develop a mobile phone activity classification system. The project aims to deliver a machine learning model, a mobile app, and related documentation Key requirements are to collect sensor data, preprocess it, train and deploy the model, and provide real-time activity classification. The project plan outlines milestones for requirement analysis, data collection, model development, app development, and testing. Technical challenges are identified, with mitigation strategies in place. Resources needed include a skilled team and appropriate tools and technologies. Regular communication and feedback will ensure project alignment and progress.

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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 "Frappe Activity -Mobile Phone Activity Classification" is sourced from Kaggle. It includes applicant details and financial metrics. Data quality is ensured through thorough verification, addressing missing values, and maintaining adherence to ethical guidelines, establishing a reliable foundation for predictive modelling.

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Frappe Activity Data Collection Report: [Click Here](#)

Activity 2: Data Quality Report

The dataset for "Frappe Activity -Mobile Phone Activity Classification" is sourced from Kaggle. It includes applicant details and financial metrics. Data quality is ensured through thorough verification, addressing missing values, and maintaining adherence to ethical guidelines, establishing a reliable foundation for predictive modelling.

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Activity 3: Data Exploration and Preprocessing

Dataset variables will be statistically analysed to identify patterns and outliers, with Python employed for preprocessing tasks like normalization and feature engineering. Data cleaning will address missing values and outliers, ensuring quality for subsequent analysis and modelling, and forming a strong foundation for insights and predictions

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Frappe Activity Data Exploration and Preprocessing Report: [Click Here](#)

Milestone 3: Model Development Phase

The Model Development Phase entails crafting a predictive model for mobile activity analysis. It encompasses strategic feature selection, evaluating and selecting models (Random Forest, Decision Tree, KNN, XGB), initiating training with code, and rigorously validating and assessing model performance for informed decision-making in understanding and predicting user behaviour on mobile activities.

Activity 1: Feature Selection Report

The Feature Selection Report outlines the rationale behind choosing specific features (e.g., User, Activity, Cost) for the activity classification model. It evaluates relevance, importance, and impact on predictive accuracy, ensuring the inclusion of key factors influencing the model's ability to predict the activity of mobile.

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Frappe Activity Feature Selection Report: [Click Here](#)

Activity 2: Model Selection Report

The Model Selection Report details the rationale behind choosing Random Forest, Decision Tree, for activity 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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Frappe Activity Model Selection Report: [Click Here](#)

Activity 3: Initial Model Training Code, Model Validation and Evaluation Report

The Initial Model Training Code employs selected algorithms on the mobile activity dataset, setting the foundation for predictive modeling. The subsequent Model Validation and Evaluation Report rigorously assesses model performance, employing metrics like accuracy, precision, recall, and F1-score to ensure reliability and effectiveness in classifying mobile activities.

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Frappe Activity 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 model 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 Gradient Boosting model. This assessment provides a clear understanding of the refined predictive capabilities achieved through hyperparameter tuning.

Activity 3: Final Model Selection Justification

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.

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Frappe Activity Model Optimization and Tuning Phase Report: [Click Here](#)

Milestone 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.