Charter Element	Detail
Project Title	RUL Prediction Using LSTM for Aircraft Engine
Project Purpose	To develop a machine learning model that accurately predicts the Remaining Useful Life (RUL) of aircraft engines to improve maintenance schedules and prevent engine failure.
Project Description	Implement an LSTM neural network to forecast the RUL of turbofan engines, with a focus on detecting potential HPC failures through data analysis, visualization, and predictive modeling.
Project Objectives	- To record and analyze engine data for accurate low RUL prediction. - To develop a predictive model considering HPC failure modes. - To validate the LSTM model against actual engine lifecycle data.
Scope	- Data collection from NASA C-MAPSS dataset. - Data preprocessing and visualization. - LSTM model development, training, and testing. - Integration of the model into a simulation or real-time monitoring system.
Deliverables	- A trained LSTM model capable of RUL prediction. - A data visualization dashboard. - Documentation and reports on model performance. - A deployment strategy for the model within an engine monitoring system.
Budget Summary	A detailed budget plan covering personnel, software, hardware, and operational costs associated with the project stages.
Project Schedule	- Project initiation: Date - Model development and training: Date Range - Testing and validation: Date Range - Project completion: Date
Risks and Mitigations	- Risk of insufficient data quality, mitigated by rigorous data cleaning processes. - Risk of model overfitting, mitigated by cross-validation techniques. - Technology integration risks, mitigated by phased testing and implementation.
Stakeholders	- Project manager - Data scientists - Maintenance engineers - Safety regulators - Aviation industry partners
Approval Requirements	- Project plan approval by the project board. - Regular milestone reviews and sign-offs. - Final model approval by safety and regulatory stakeholders.
Project Manager	Ahmed Abdi Mohamed
Approval Signatures	- Project Sponsor: Nerushan - Project Manager: Lohadaarshan - Key Stakeholders: Surend