

Experiment : Gantt Chart Using ClickUp

Project Overview: Machine Learning Model Development

This project focuses on designing, developing, evaluating, and deploying a machine learning solution to solve a defined business or analytical problem. The objective is to move systematically from problem definition to production deployment while ensuring model reliability, performance, and maintainability.

The project follows a structured machine learning lifecycle, emphasizing clear requirements, data quality, model performance validation, and continuous monitoring after deployment.

How the Tasks Are Designed and Structured

The tasks are organized in a logical, end-to-end workflow that mirrors the standard ML development pipeline. Each phase builds on the previous one to reduce risk, ensure clarity, and maintain technical rigor.

1. Define Project Requirements and Objectives

This phase establishes the foundation of the project:

- Meet with stakeholders to understand business goals and constraints.
- Define deliverables, success criteria, and measurable outcomes.

This ensures alignment between technical implementation and business value before any data or modeling work begins.

2. Collect and Preprocess Data

This phase focuses on data readiness:

- Identify and source relevant datasets.
- Clean, preprocess, and prepare data for modeling.

Tasks are designed to ensure data quality, handle missing values, remove inconsistencies, and transform features appropriately. Since model performance heavily depends on data quality, this phase is prioritized before model development.

3. Develop and Train the Machine Learning Model

This phase translates the defined problem into a technical solution:

- Select appropriate machine learning algorithms based on the problem type.
- Train and tune the model using suitable techniques (e.g., hyperparameter tuning, cross-validation).

The tasks are structured to first explore algorithm options, then iteratively refine performance through training and optimization.

4. Evaluate Model Performance

This phase validates model effectiveness:

- Test the model on unseen data.
- Analyze evaluation metrics to determine performance against success criteria.

This ensures the model generalizes well and meets predefined benchmarks before deployment.

5. Deploy Model and Monitor Results

This phase operationalizes the solution:

- Deploy the model to production.
- Monitor performance and stability over time.

Tasks are designed to ensure the model remains accurate and reliable in real-world conditions.

6. Document Project and Present Findings

This final phase ensures transparency and knowledge transfer:

- Write comprehensive documentation.
- Present findings, methodology, and results to stakeholders.

Proper documentation supports reproducibility, maintainability, and future improvements.

Design Philosophy Behind the Task Structure

- **Sequential but Iterative:** While organized sequentially, the workflow allows for iteration (e.g., revisiting data preprocessing after evaluation).

- **Risk Mitigation Early On:** Requirements and data validation are prioritized to reduce downstream issues.
- **Measurable Milestones:** Each major phase has defined outputs and success criteria.
- **Production-Oriented Thinking:** Deployment and monitoring are included to reflect real-world ML practices.
- **Stakeholder Alignment:** Business objectives remain central throughout the lifecycle.

ML project		
	Define project requirements and objectives	
<input type="checkbox"/>	Define project require... Feb 27	
	Meet with stakeholders to ... Feb 26	
	Define project deliverables ... Feb 27	
<input type="checkbox"/>	Collect and preprocess data Mar 1	
	Identify and source datasets Feb 28	
	Clean and preprocess data Mar 1	
<input type="checkbox"/>	Develop and train machine learnin... Mar 5	
	Select machine learning alg... Mar 2	
	Train and tune model Mar 5	
<input type="checkbox"/>	Evaluate model performance Mar 7	
	Validate model with test data Mar 6	
<input type="checkbox"/>	Develop and train machine learnin... Mar 5	
	Select machine learning alg... Mar 2	
	Train and tune model Mar 5	
<input type="checkbox"/>	Evaluate model perfor... Mar 7	
	Validate model with test data Mar 6	
	Analyze evaluation metrics Mar 7	
<input type="checkbox"/>	Deploy model and monitor results Mar 9	
	Deploy model to productio... Mar 8	
	Monitor model performanc... Mar 9	
<input type="checkbox"/>	Document project and present find... Mar 11	
	Write project documentation Mar 10	

