# Project Design Phase

# Solution Architecture

| | |
|---|---|
| Date | 28 October 2023 |
| Team ID | Team-592716 |
| Project Name | FELINAI: HARNESSING ARTIFICIAL INTELLIGENCE FOR FELIS TAXONOMY CLASSIFICATION |
| Maximum Marks | 4 Marks |

**Solution Architecture:**

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

• Find the best tech solution to solve existing business problems.

• Describe the structure, characteristics, behaviour, and other aspects of the software to project stakeholders.

• Define features, development phases, and solution requirements.

• Provide specifications according to which the solution is defined, managed,
and delivered.

Solution architecture for "FelinAI: Harnessing Artificial Intelligence for Felis Taxonomy Classification " involves designing a comprehensive and effective system that leverages AI/ML technologies to classify and categorize different species within the Felis (cat) taxonomy.

→ *Business Problem Analysis:*

- Understand the specific business problem: In this case, the need to accurately classify and categorize different Felis species for scientific and research purposes.
- Identify the goals and objectives of the project, such as improving taxonomy accuracy and efficiency.

→ *Technology Solution Selection:*

- Identify and evaluate AI/ML technologies: Select the appropriate AI and machine learning tools, frameworks, and models for the task.
- Consider data sources: Determine where the data for Felis taxonomy classification will come from, and how it will be collected, cleaned, and prepared for training the AI model.

→ *System Components:*

- AI/ML Model: Develop or select the machine learning model(s) suitable for Felis taxonomy classification. This may include deep learning models, convolutional neural networks (CNNs), or other relevant algorithms.
- Data Processing and Feature Engineering: Preprocess and engineer features from the data for model training.
- Training Infrastructure: Set up the necessary infrastructure for model training and experimentation, which could involve cloud-based computing resources.
- Application Interface: Create an application or interface through which users can input data for classification and view results.

→ *Software Characteristics and Behaviour:*

- Define the behaviour of the AI/ML model: Specify how it should classify Felis species based on input data.
- Describe the interaction between components: Define how data flows through the system, from input to classification output.

→ *Development Phases and Solution Requirements:*

- Divide the project into phases, such as data collection and preprocessing, model development, testing, and deployment.
- Specify project requirements, including data quality, accuracy thresholds, and scalability requirements.

→ *Specifications and Management:*

- Document specifications: Create detailed technical specifications for the AI model, data, and system architecture.
- Manage the solution: Establish processes for monitoring, maintaining, and updating the AI model and system over time.

## Solution Architecture Diagram: