GTT Foundation's
NES Innovation Awards 2025

Project Title: **LogicLink (Reasoning Model)**

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LogicLink

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Project Overview

The reasoning model is the cutting-edge AI technology which is aimed for the making a bridge between general machine learning & the subtle requirements of domain-specific problem-solving. Here our concept is to develop a system that not only processes data but also incorporates deep, expert-level knowledge to provide accurate, context-sensitive recommendations in the areas like healthcare, finance & law.

Deep Contextual Understanding: Capturing the intricate details and nuances of specific domains.

User-Centric Design: Providing intuitive interfaces for easy interaction and understanding of AI recommendations.

Expert Integration: Merging data-driven insights with explicit expert knowledge.

How it Addresses the Problem :

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Key Issues and Needs

Key Issues

✓ **Generic Solutions:** Existing models offer generalized insights that lack the precision needed for domain-specific challenges.

✓ **Limited Reasoning:** Standard machine learning techniques often fail to integrate the expert rules and logical frameworks essential for nuanced decision-making.

✓ **User Trust:** Without clear, context-aware explanations, professionals may find it difficult to trust automated recommendations.

Needs

✓ **Domain-Specific Precision:** AI must provide tailored insights instead of generic solutions.

✓ **Expert Knowledge Integration:** Combining machine learning with expert rules for better reasoning.

✓ **Explainability & Transparency:** Delivering clear, context-aware explanations to build user trust.

✓ **Intelligent Data Interpretation:** Customized data feeding requires intelligent processing.

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Pain Points

Professionals in Specialized Fields: Healthcare providers, legal experts, financial analysts, and similar domain experts.

High Costs
They require significant computational resources and time. This makes them expensive and less scalable.

Slow Decisions
Traditional reasoning models take too long to process information.

User Interface and Integration
Current systems often feature complex setups, hindering adoption by non-technical users.

Limited Decision-Making Support
Existing tools offer oversimplified analysis, resulting in misinterpretations in critical, high-stakes environments.

Lack of Domain-Specific Insights
Generic AI systems do not capture the unique intricacies of specialized fields

Transparency and Trust
Professionals struggle to trust opaque AI recommendations due to a lack of clear, understandable explanations

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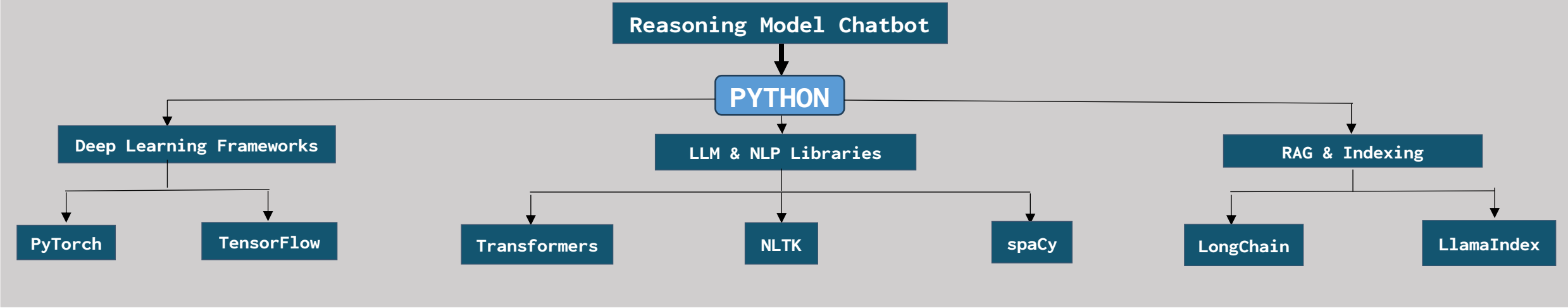
Technical Stack

Primary Programming Language : Python

Pandas NumPy TensorFlow SK-Learn OpenAI LlamaCPP



- **Model Explainability:** ELI5
- **Architecture Pattern:** MVC(Model View Controller)
- **GUI:** Desktop: PyQt or Web: React.js (with Flask backend)
- **APIs:** REST, WebSocket (Flask-SocketIO)
- **UI/UX Design:** Adobe XD
- **Deployment:** Desktop: PyInstaller or Web: Docker & Heroku

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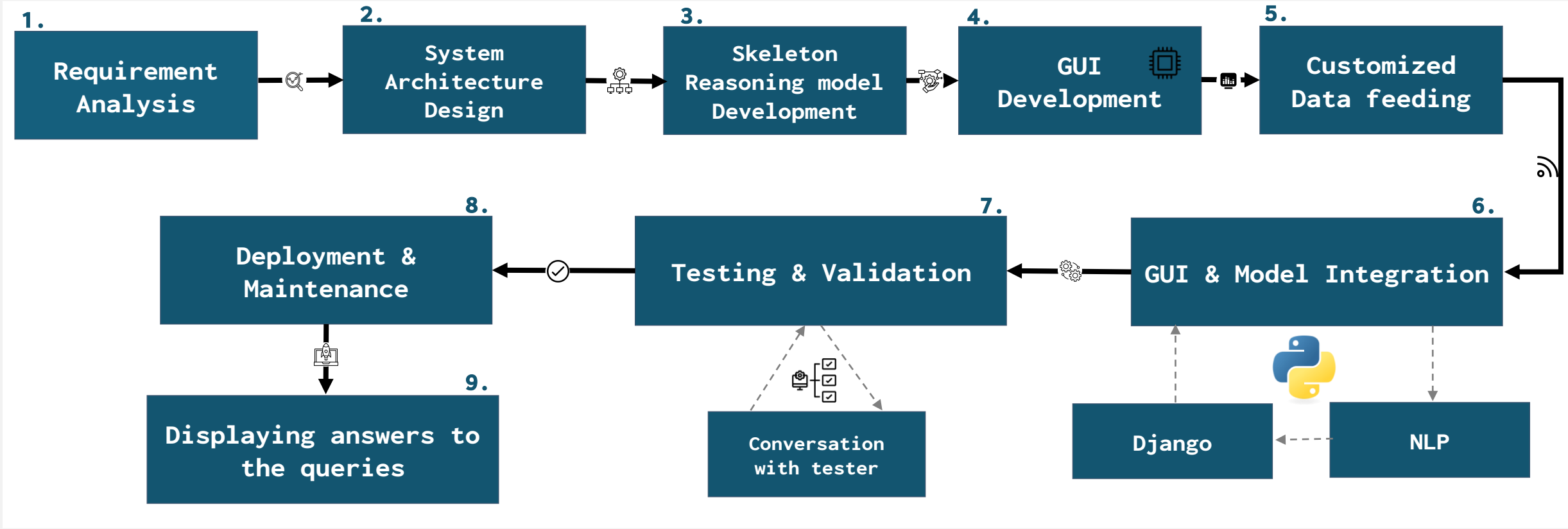
Solution Architecture



LogicLink is a hybrid reasoning model that delivers transparent, dual-output responses by providing both detailed chain-of-thought reasoning and a concise final answer.

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Implementation

- Backend Development

  We build and train our machine learning models using Python and frameworks like **TensorFlow, PyTorch, LlamaCPP, OpenAI, etc.** Fine-Tuned with **domain-specific datasets.**

  Rule-based reasoning engine that incorporates expert knowledge into decision-making.

- Integration Layer

  ML models and the reasoning engine are integrated to work seamlessly, ensuring that data flows efficiently between them.

- Testing and Iteration

  Rigorous testing is conducted at both the backend and frontend levels. **User feedback is incorporated** to refine both the model's accuracy and the mobile interface's usability.

- Deployment and Maintenance

  The final integrated **solution** is **deployed using cloud-based services** for scalability, with ongoing **maintenance** and updates based on continuous **performance monitoring** and user feedback.

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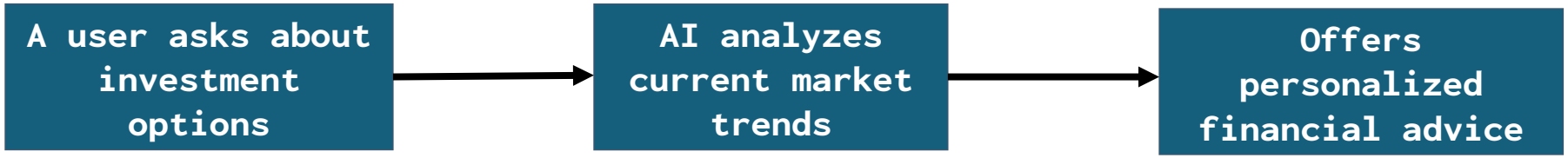
LogicLink in Action

Healthcare Scenario:

Finance Scenario:



Agriculture Scenario:

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Solution Addressing Video

Video Link (Google Drive)

https://drive.google.com/file/d/1XLR9iYxYGtHNEUQpaDUdu2coSdsJjpy6/view?usp=drive_link

Thank You