**Slide 1: Title Slide**

       **Title**: Gen AI-Based Data Profiling Solution for Regulatory Compliance

       **Subtitle**: Automating Regulatory Reporting with AI and Machine Learning

       **Your Name/Team Name**

       **Date**

**Slide 2: Problem Statement**

       **Title**: Problem Statement

       **Content**:

o   Regulatory reporting involves complex, ever-changing rules.

o   Manual interpretation and validation of regulatory instructions are time-consuming and error-prone.

o   Lack of scalable and explainable solutions for data validation and compliance.

o   Need for dynamic risk scoring and remediation suggestions for flagged transactions.

**Slide 3: Key Challenges**

       **Title**: Key Challenges

       **Content**:

o   Interpreting unstructured regulatory documents.

o   Handling multiple file formats for transaction data.

o   Validating data against complex rules (e.g., cross-currency deviations, future dates).

o   Providing actionable insights and remediation suggestions.

o   Ensuring scalability, explainability, and efficiency.

**Slide 4: Solution Highlights**

       **Title**: Solution Highlights

       **Content**:

o   **AI-Powered Rule Extraction**: Use LLMs (e.g., OpenAI GPT, LLaMA) to extract and interpret regulatory rules.

o   **Dynamic Validation**: Generate executable validation code based on extracted rules.

o   **Anomaly Detection**: Use unsupervised learning (e.g., Isolation Forest) to identify outliers.

o   **Risk Scoring**: Implement a dynamic risk scoring system based on transaction patterns.

o   **Interactive Compliance Assistant**: Allow auditors to refine rules and view results through a conversational interface.

o   **Remediation Suggestions**: Provide automated explanations and remediation actions for flagged transactions.

**Slide 5: Solution Architecture**

       **Title**: Solution Architecture

       **Content**:

o   **Input Layer**: Regulatory documents and transaction data.

o   **Processing Layer**: LLM for rule extraction, unsupervised learning for anomaly detection.

o   **Validation Layer**: Rule-based validation and risk scoring.

o   **Output Layer**: Flagged transactions, risk scores, remediation suggestions.

o   **Interactive Layer**: Streamlit/Gradio-based compliance assistant.

**Slide 6: Technology Stack**

       **Title**: Technology Stack

       **Content**:

o   **LLMs**: OpenAI GPT, Hugging Face Transformers.

o   **Machine Learning**: Scikit-learn, PyCaret.

o   **Data Processing**: Pandas, NumPy.

o   **Code Generation**: LangChain.

o   **Visualization & Interactivity**: Streamlit, Gradio.

o   **Deployment**: Streamlit Sharing, Hugging Face Spaces.

**Slide 7: Key Features**

       **Title**: Key Features

       **Content**:

o   **Support for Multiple File Formats**: CSV, Excel, JSON.

o   **Predefined Metadata**: Dynamic addition of new columns with predefined rules.

o   **Dynamic Risk Scoring**: Adjust scores based on transaction patterns and historical violations.

o   **Explainable AI**: Provide natural language explanations for flagged transactions.

o   **Scalable and Efficient**: Handle large datasets and complex regulatory requirements.

**Slide 8: Example Workflow**

       **Title**: Example Workflow

       **Content**:

1.     Upload regulatory documents and transaction data.

2.     Extract rules using LLM.

3.     Validate data and detect anomalies.

4.     Calculate risk scores.

5.     Suggest remediation actions.

6.     Refine rules and view results through the interactive assistant.

**Slide 9: Demo**

       **Title**: Demo

       **Content**:

o   Show a live demo of the solution:

  Upload a sample dataset.

  Extract rules and validate data.

  View flagged transactions and risk scores.

  Add a new column with predefined metadata.

  Generate remediation suggestions.

**Slide 10: Future Scope**

       **Title**: Future Scope

       **Content**:

o   **Continuous Learning**: Improve rule extraction and validation models using feedback.

o   **Integration with Regulatory APIs**: Automatically fetch and process regulatory updates.

o   **Advanced Anomaly Detection**: Use deep learning models for more accurate outlier detection.

o   **Multi-Language Support**: Extend the solution to handle regulatory documents in multiple languages.

o   **Cloud Deployment**: Deploy the solution on cloud platforms (e.g., AWS, Azure) for enterprise use.

**Slide 11: Conclusion**

       **Title**: Conclusion

       **Content**:

o   The Gen AI-based data profiling solution automates regulatory compliance, reducing manual effort and errors.

o   It provides a scalable, explainable, and efficient way to validate data, detect anomalies, and suggest remediation actions.

o   The solution can be extended to handle more complex regulatory requirements and integrated with enterprise systems.