1. Title: AI-Based Intelligent Tender Evaluation & Decision Support System for Government of Odisha

2. Short Description:

The Government of Odisha currently uses an e-Tendering system that facilitates online bid submission and fee collection but does not intelligently evaluate proposals against predefined technical, financial, and compliance criteria. This results in manual scrutiny, delays, inconsistencies, and potential subjectivity in bid assessment. An AI-driven Tender Processing System will automate bid evaluation, ensure rule-based compliance, improve transparency, and significantly reduce turnaround time in procurement decisions.

3. Goals / Expected Deliverables

A strong solution should include:

Core Functional Deliverables:

- **Automated Technical Evaluation Engine**
  AI-based scoring of bids against predefined eligibility and qualification criteria (experience, turnover, certifications, manpower strength, etc.).
- **Document Intelligence Module**
  NLP-powered extraction and validation of data from uploaded PDFs (balance sheets, work orders, compliance documents, affidavits).
- **Rule-Based Compliance Validation**
  Auto-flagging of non-compliant submissions (missing documents, invalid formats, expired certificates).
- **Financial Bid Analysis Engine**
  Automated comparative statement (BOQ comparison), anomaly detection (abnormally low/high bids), and deviation analysis.
- **Audit Trail & Explainability Layer**
  Transparent scoring logic with downloadable evaluation reports for audit and vigilance purposes.
- **Dashboard for Decision Makers**
  Real-time insights: number of bids, disqualifications, compliance ratio, risk flags, and recommendation summaries.

A "Good" Submission Should:

- Demonstrate measurable reduction in evaluation time (ex: 50–70%).
- Ensure configurable scoring templates department-wise.

- Maintain legal defensibility and audit readiness.
- Provide integration capability with existing Odisha e-Procurement portal.
- Include data security, encryption, and role-based access control.

4. Difficulty / Skill Level

Advanced

This requires expertise in:

- Artificial Intelligence / Machine Learning
- Natural Language Processing (NLP)
- Government procurement domain knowledge
- Secure enterprise-grade architecture
- Regulatory compliance & audit standards

It is not just a software problem; it is a governance transformation project.

5. Suggested Tech Stack / Constraints

Recommended Tech Stack:

Backend:

- Python (FastAPI / Django)
- Node.js (for integration APIs)

AI / ML Layer:

- NLP using Transformers (BERT / IndicBERT for regional documents)
- OCR using Tesseract / Google Vision / Azure Form Recognizer
- ML models for anomaly detection & scoring

Database:

- PostgreSQL (structured data)
- Elasticsearch (document indexing & search)

Frontend:

- React.js / Angular
- Role-based dashboards

Infrastructure:

- NIC Cloud / State Data Centre compliant hosting
- Containerization using Docker & Kubernetes
- End-to-end encryption (AES-256), SSL, and compliance with MeitY guidelines

Constraints / Considerations:

- Must comply with Government of India procurement norms.
- Should be configurable across departments (PWD, Tourism, IT, Energy, etc.).
- Must provide explainable AI outputs (no black-box scoring).
- Should support regional language documents if required.
- Must ensure zero bias and transparent scoring logic.