**Solar Industry AI Assistant - Internship Assessment**

Overview  
Design and implement an AI-powered rooftop analysis tool that uses satellite imagery to assess solar installation potential. This project evaluates your ability to integrate multiple AI services while solving a critical solar industry challenge.  
  
Project Goal  
Create an intelligent system that analyses any rooftop from satellite imagery and provides accurate solar potential assessments, installation recommendations, and ROI estimates for both homeowners and solar professionals.  
  
Required Knowledge Areas

* **Solar Panel Technology**: Types, efficiency, specifications
* **Installation Processes**: Mounting, electrical, permits
* **Maintenance Requirements**: Monitoring, cleaning, warranties
* **Cost & ROI Analysis**: Pricing, incentives, payback periods
* **Industry Regulations**: Codes, net metering, safety standards
* **Market Trends**: Technology advances, adoption rates

**Technical Assessment Areas (80%)  
AI Implementation (40%)**

* **LLM Integration**: Vision AI for image analysis
* **Prompt Engineering**: Structured output extraction
* **Context Management**: Multi-source data handling
* **Response Accuracy**: Validation and confidence scoring

**Development Skills (40%)**  
**Choice of Implementation:**

* **Backend API Development** OR **Web Interface Creation**
* **Code Quality**: Clean, maintainable, tested
* **Documentation**: Clear, comprehensive
* **Error Handling**: Robust, user-friendly

**Documentation Requirements (20%)**

* **Project Setup Instructions**
* **Implementation Documentation**
* **Example Use Cases**
* **Future Improvement Suggestions**

**Project Deliverables  
Required:**

* Complete codebase
* Implementation documentation
* Example analyses
* Setup guide

**Either**:

* Live deployment link

**OR**

* ZIP folder with local setup instructions including:
* Environment setup
* Required dependencies
* Step-by-step run commands
* Example usage

**Optional**:

* Performance metrics

Suggested Tools  
AI Integration

* OpenRouter API

Development Options

* Gradio
* Streamlit

Deployment

* Hugging Face Spaces

Documentation

* GitHub