AI Python Developer Assessment

1. Project Overview

The objective of this assessment is to evaluate the candidate's ability to develop an AI-powered system that processes document files and checks compliance against English guidelines. The system should consist of:

- A Python-based API to accept input files (PDF or Word)
- An AI agent to assess the document against given English guidelines
- An interactive feature allowing users to request guideline-compliant modifications

2. Scope of Work

API Development:

- Develop an API endpoint in any Python web framework (Flask, FastAPI, Django, etc.) to accept PDF or Word document uploads.
- Ensure secure file upload handling and validation.
- Process the uploaded document for further analysis.

AI Agent Implementation:

- Create an AI agent that checks if the uploaded document complies with the given English guidelines.
- The agent should parse the document, evaluate grammar, sentence structure, clarity, and adherence to writing rules.
- The agent should return a detailed report specifying compliance or violations of guidelines.

User Interaction & Compliance Correction:

- Enable a feature where users can request the AI agent to modify the document to comply with guidelines.
- The modified document should be available for download.

Testing & Validation:

- Implement unit and integration tests to ensure system functionality.
- Validate the AI agent's performance by testing with various document samples.
- Ensure API endpoints function correctly with different file formats.

3. Technical Considerations

API Development:

- Use a Python framework like Flask, FastAPI, or Django.
- Ensure efficient and secure handling of file uploads.
- Implement necessary validation and error handling.

AI Model Implementation:

- Utilize NLP models such as OpenAI GPT, spaCy, or LanguageTool for guideline checking.
- Process text from PDF and Word documents efficiently.
- Generate meaningful compliance reports based on detected errors.

Performance Optimization:

- Optimize text extraction and NLP processing for large documents.
- Ensure API response times remain minimal.

4. Deliverables

- A Python-based API that accepts PDF/Word document uploads.
- An AI agent capable of assessing guideline compliance.
- Test reports with validation results.

5. Timeline

Candidates are expected to complete this assessment within **3 days**. Submit the project via a public GitHub repository and share the URL.

6. Risk Assessment

- **Accuracy of AI Model:** The AI agent may not perfectly detect all compliance issues. Mitigation includes using well-trained NLP models and refining rule sets.
- **Performance Issues:** Processing large files may cause slow responses. Efficient algorithms and caching strategies can help optimize performance.

7. Conclusion

This assessment requires candidates to demonstrate expertise in Python API development, AI-powered text analysis, and interactive system design. A well-executed solution should be functional, efficient, and secure, showcasing the candidate’s ability to develop AI-driven applications.