AI Governance Case Study: EU AI Act Compliance Audit – Hiring Bias AI

1⃣⃣ Project Overview

📌 Objective: Evaluate an AI system (Hiring Model) against key EU AI Act requirements and generate a governance audit report.  
 📌 Use Case: Resume shortlisting based on experience, test score, and gender.  
 📌 Risk Level: High Risk – As per Annex III of the EU AI Act (employment decisions)  
 📌 Developer: SoulMindFusion Ethical AI Lab

2⃣⃣ Governance Checklist Summary

| **Governance Item** | **Status** |
| --- | --- |
| Risk Classification (High Risk AI) | ✅ |
| Uses Sensitive Data | ✅ |
| Automated Decision-Making Enabled | ✅ |
| Bias Detection Implemented | ✅ |
| Bias Mitigation Applied | ✅ |
| Explainability Provided | ✅ |
| Audit Trail Available | ✅ |
| Model Performance Documented | ✅ |
| Fairness Metrics Reported | ✅ |

* **Governance Score**: 9/9 checks passed
* **Governance Grade**: A+ (Fully Compliant)

3⃣⃣ Bias and Explainability Snapshot

* **Bias Metric**: Demographic Parity
* **DPD Value**: 0.6 (after mitigation)
* **Accuracy**: 0.90 (fair model)
* **Explainability Tool**: SHAP (Global + Local explanations)

4⃣⃣ Challenges & Fixes

🔹 **Challenge**: Over-dependence on gender for hiring  
 🔹 **Fix**: Applied Exponentiated Gradient (Fairlearn) for bias mitigation

🔹 **Challenge**: Stakeholder trust in fairness evaluation  
 🔹 **Fix**: Generated clear SHAP explanations and fairness reports

5⃣⃣ Governance Insights

📊 Compliance with the EU AI Act not only ensures legal safety, but also builds ethical AI reputation.  
 📊 Governance grading frameworks make fairness evaluation reproducible.  
 📊 SMF principle of "minimum disruption with maximum clarity" was fully upheld.

6⃣⃣ Deliverables

* Checklist Summary
* Governance Grade
* JSON Audit Log (audit\_summary.json)
* Bias + Accuracy Summary
* Explainability Tools Used

7⃣⃣ Next Steps  
 🚀 Extend the audit tool to cover GDPR, Transparency Logs, and Model Documentation  
 🚀 Apply the checklist to Explainability and Healthcare AI use cases

📉 This case study sets a blueprint for Responsible AI audit implementation in real-world scenarios.