AI FOR SOFTWARE ENGINEERING SPECIALIZATION

GROUP 100

PROJECT LEAD:

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WEEK 7 ASSIGNMENT SUBMISSION

AI ETHICS ASSIGNMENT

Theme: *"Designing Responsible and Fair AI Systems"* 🌍 ⚖️

Objective & Guidelines

This assignment evaluates your understanding of **AI ethics principles**, ability to identify and mitigate biases, and skill in applying ethical frameworks to real-world scenarios. You will analyze case studies, audit AI systems, and propose solutions to ethical dilemmas.

The Assignment should be handled in peer groups.

BONUS TASK (EXTRA 10%) WEEK 7

SUBMISSION DEADLINE: END OF JULY, 2025

Bonus Task (Extra 10%)

Policy Proposal: Draft a 1-page guideline for *ethical AI use in healthcare*. Include:

- Patient consent protocols.
- Bias mitigation strategies.
- Transparency requirements.

Solution:

Ethical AI Guidelines for Healthcare

Proposed Policy for Responsible AI Deployment

1. *Patient Consent and Autonomy*

- Explicit Consent: Patient must opt-in to AI-assisted diagnostics/treatment, with clear explanations of how their data will be used.

- Right to Opt-Out: Patients may request human-only care without penalty.

- Dynamic Updates: Consent must be renewed if AI use expands beyond initial scope (e.g., secondary research).

2. *Bias Mitigation*

- Diverse Datasets: Training data must represent all demographics (age, gender, ethnicity, socioeconomic status).

- Regular Audits: Quarterly fairness using metrics (disparate impact ratio, false positive rate parity).

Bias Remediation: If bias is detected (e.g., underdiagnosis in minority groups), pause deployment until corrected.

3. *Transparency & Accountability*

- Explainability: Clinicians and patients must receive plain-language summaries of AI decisions (e.g., "This model flagged your X-ray due to patterns A, B, C").

- Algorithm Disclosure: Hospitals must publicly disclose:

a. AI system's purpose and limitations.

b. Performance metrics (accuracy, known biases).

c. Vendor partnerships (no "black box" contracts).

- Human Oversight: Final decisions must involve a licensed professional; AI cannot act autonomously.

4. _Additional Safeguards_

- Data Security: HIPAA-compliant encryption and strict access controls.

- Error Reporting: Mandatory incident reporting for AI mistakes (e.g., misdiagnoses) to regulatory bodies).

Approval & Compliance:

- Review Board: Oversight by an ethics committee (clinicians, ethicists, patient advocates).

- Penalties: Non-compliance results in suspension of AI tools and fines.

"AI should augment care, never compromise that"

Endorsed by: DOEFI Consulting | Effective Date: [25/07/2025]

Adapted From: WHO's AI Ethics Guidelines, FDA's AI/ML Action Plan.