Task #02: Artificial Intelligence in Healthcare

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| S.no | Application Domain | Complex Problem Identified | Justification | Task Details |
| 1 | AI in Healthcare | Inaccurate disease prediction due to biased datasets | Bias in training data (e.g., underrepresentation of minorities) leads to unreliable AI models. | Develop an AI model that detects and mitigates bias in datasets, using techniques like fairness-aware algorithms. |
| 2 | AI in Healthcare | Lack of interpretability in diagnostic AI systems | Black-box models confuse doctors, reducing trust and adoption in critical healthcare settings. | Create an explainable AI framework integrating SHAP values to interpret diagnostic predictions for clinicians. |
| 3 | AI in Healthcare | Real-time integration of multimodal patient data | Combining EHRs, imaging, and genomics in real-time is computationally intensive and error-prone. | Design a scalable AI system for real-time multimodal data fusion, optimizing for speed and accuracy. |