

Explainable AI (XAI) focuses on making AI models and their decisions transparent and understandable to humans, fostering trust and accountability by providing insights into the reasoning behind AI outputs.

Here's a more detailed explanation:

Purpose:

XAI aims to bridge the gap between complex AI algorithms and human understanding, allowing users to comprehend how and why AI systems arrive at their conclusions.

Why it's important:

In many applications, especially those involving critical decisions (e.g., healthcare, finance), understanding the reasoning behind AI predictions is crucial for building trust and ensuring fairness and accountability.

Write the answer of following questions in HANDWRITTEN manner.

Scan this answer and paste it on Page 2 of this document.

Q1 What is the need of Explainable AI (XAI) ? What are the design aspects of XAI?

Q2 What are the components of XAI system in Healthcare?

Q3 Analyse various aspects of XAI in City Design. What are the benefits of XAI in city design.

PASTE YOUR SCANNED ANSWER HERE :

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Need for Explainable AI (XAI) & its Design Aspects:

→ Need for XAI:

Explainable AI (XAI) is essential because AI Systems are often seen as black boxes, making it difficult to understand their decision-making process. Key reasons for XAI include:

1. Trust & Transparency - Users need clear explanations of AI decisions, especially in sensitive areas like healthcare and finance.
2. Regulatory Compliance - Regulations like GDPR & AI ethics guidelines require AI systems to justify their outputs.
3. Bias Detection & Fairness - Helps uncover and eliminate bias in AI models, ensuring fair decision making.
4. Model Debugging & Improvements - Allows researchers & developers to refine AI models based on explainable outputs of XAI.

Design Aspects of XAI:

To achieve explainability AI models should incorporate:

1. Interpretability - AI outputs should be easily understood by non technical users.
2. Human-Centred Design - Explanations should be tailored for different stakeholders (City planners, Govt, users).
3. Data provenance - Ensures data

- 2> Interpretable AI models - Uses decision tree, chap, or Line to explain AI prediction
- 3> Use Interface Visualization - Display AI insights in an understandable format for doctors & patients
- 4> Ethical & regulatory compliance - Adherence to healthcare regulations (HIPAA, GDPR) for responsible AI deployment.

Q3> Aspects & Benefits of XAI in city design

- Aspects of x-AI in city design
- 1> Traffic & Transportation management - optimize urban mobility with interpretable AI driven insights
 - 2> Energy Efficiency - enhances power grid distribution & sustainability
 - 3> Smart Infrastructure - Enabling AI-driven construction and zoning decision are transparent.
 - 4> Environmental Monitoring - identifies pollution trends and urban heat effects for sustainable planning.

Benefits of x-AI in city Design

- Better Decision - Making - provides transparent recommendation for urban planning
- Fair & Inclusive Development - prevent bias in resource allocation & zoning
- Sustainability - helps optimize energy use, reduce environmental pollution
- Citizen Participation & Engagement - enhances public AI driven governance