Week – 10 Assignment

Scenario Summary:

A company producing wearable health monitors aims to improve the accuracy of its product using machine learning. They want to analyze real-time data from wearable devices but are concerned about user data privacy and do not want sensitive information to be transmitted to the cloud.

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Q. How can edge inferencing help the company to improve the accuracy of their health monitors while ensuring the privacy of their users' data?

➢ **How Edge Inferencing Helps:**

- Real-time Processing: Edge inferencing allows data to be processed directly on the device (wearable health monitor) instead of sending it to the cloud. This reduces latency and enables real-time decision-making.
- Privacy Preservation: Since data does not need to leave the device, sensitive health information remains local. This greatly reduces the risk of data breaches or unauthorized access.
- Reduced Bandwidth Usage: By avoiding constant data uploads, edge inferencing minimizes bandwidth requirements and improves device efficiency.
- Personalization: Machine learning models can be customized and fine-tuned on the device using local data, resulting in more accurate and personalized health monitoring.
- Compliance with Regulations: Keeping data local helps the company comply with data protection regulations such as GDPR and HIPAA, which emphasize minimal data transfer and stronger privacy controls.
- Offline Functionality: Edge devices can continue to function and analyze data even without an internet connection, ensuring continuous health monitoring.

❖ **Points Related to Wearable Health Monitors:**

- Collect real-time physiological data (e.g., heart rate, steps, oxygen levels).
- Need low power consumption for prolonged use.
- Must ensure data accuracy for health-related decisions.
- Require strong privacy and data protection mechanisms.
- Should support firmware updates for model improvements.