PostLab:-

1.Why Bitcoin and Ethereum Use ECDSA for Signing Transactions:

1. **Security**: ECDSA provides strong security by using elliptic curve mathematics, which is resistant to attacks compared to traditional cryptographic algorithms like RSA.
2. **Efficiency**: ECDSA offers high security with smaller key sizes, which reduces computational and storage requirements. This is crucial for blockchain networks, where efficiency and scalability are important.

2.ECDSA's Advantages:

1. **Strong Security with Smaller Keys**: ECDSA provides equivalent security to other cryptographic algorithms like RSA but with much shorter key lengths (e.g., 256-bit keys in ECDSA versus 2048-bit keys in RSA). This results in faster computations and lower resource usage.
2. **Efficient Computations**: The smaller key sizes and efficient mathematical operations of ECDSA lead to faster signature generation and verification processes, which enhances the overall performance of blockchain networks.
3. **Reduced Storage and Bandwidth**: Due to shorter key sizes and signatures, ECDSA reduces the amount of data that needs to be stored and transmitted, saving both storage space and bandwidth on the network.