lets move 200ith interprise level coding related to business level like, medical and bussiness domain lets do this

Okay, let's level up. We're moving beyond fundamentals and into the complexities of enterprise-level coding. This round will test your ability to apply coding principles to real-world business challenges in domains like medical and finance. These 200 questions will focus on data modeling, security, scalability, and system design, with a strong emphasis on practical application.

Phase 1: Business & Finance Domain (100 questions)

1. How would you design a database schema for a **Customer Relationship Management (CRM)** system?
2. What are the key tables needed for a **e-commerce platform**'s order management system?
3. How would you handle a **high volume of concurrent transactions** in a financial application?
4. Explain the concept of **idempotency** and why it's crucial for payment gateways.
5. How would you design a system to detect **fraudulent transactions**?
6. What is **ETL (Extract, Transform, Load)** and how is it used in a business intelligence context?
7. How would you create a system for **real-time stock price tracking**?
8. What is a **data warehouse** and what's its purpose in a business?
9. How would you handle **data encryption** for sensitive customer information?
10. Describe a robust system for **user authentication and authorization**.
11. How would you design a solution for **subscription billing**?
12. What are the key considerations for **data privacy regulations** like GDPR or CCPA?
13. How do you ensure **data integrity** in a distributed system?
14. How would you implement a system to generate **monthly financial reports**?
15. What is a **microservices architecture** and why would a company use it?
16. How would you design a system to manage a company's **payroll**?
17. How do you handle **currency conversion** in a global e-commerce application?
18. What is a **CAP theorem**? How does it apply to business systems?
19. How would you design a system to manage a company's **inventory**?
20. What are the pros and cons of using a **serverless architecture** for a financial app?
21. How would you handle **auditing and logging** for financial transactions?
22. What is a **distributed transaction** and how would you manage it?
23. How would you design a system to manage **product reviews and ratings** for an e-commerce site?
24. What are the main challenges when dealing with **legacy systems**?
25. How would you build a system to manage **loyalty points or rewards** for customers?
26. What is the difference between a **relational database** and a **document database**? When would you use each?
27. How would you design a system for **user session management**?

28. What are some strategies for **database sharding**?
29. How do you ensure **high availability** for a critical business application?
30. What is a **message queue** and how would you use it to decouple services?
31. How would you design a system to manage **employee records**?
32. How do you handle **data migration** from an old system to a new one?
33. What is a **load balancer** and what's its role in a scalable system?
34. How would you design a system for **product recommendations**?
35. What's the purpose of **data replication**? What are the different types?
36. How do you ensure **scalability** for a system that's expected to grow exponentially?
37. How would you handle **chargebacks and refunds** in a payment system?
38. What is **version control**? Why is it essential for enterprise-level coding?
39. How would you design a system to manage a company's **marketing campaigns**?
40. What are the key metrics you'd track for the health of a business application?
41. How would you build a system for **real-time dashboarding**?
42. What are the main challenges in a **multi-tenant application**?
43. How would you design a system to manage **customer support tickets**?
44. What's the purpose of a **content delivery network (CDN)**?
45. How would you design a system for **dynamic pricing**?
46. What is a **distributed cache** and why is it used?
47. How would you design a system to manage a company's **supply chain logistics**?
48. What are the main components of a **RESTful API**?
49. How do you handle **API versioning**?
50. What is **GraphQL** and how does it differ from a REST API?

Phase 2: Medical & Healthcare Domain (100 questions)

1. How would you design a database for an **Electronic Health Records (EHR)** system?
2. What are the key security and privacy regulations like **HIPAA** that must be followed in healthcare?
3. How would you handle **patient consent** and data access in a medical system?
4. What's the purpose of **medical imaging data** and how would you store and manage it?
5. How would you design a system to manage **patient appointments and scheduling**?
6. What are the challenges of **interoperability** between different hospital systems?
7. How would you design a system for **remote patient monitoring**?
8. What is the **HL7 standard** and why is it important in healthcare data?
9. How would you handle **audit trails** for every access to a patient's medical record?
10. What are some of the key metrics to track for a hospital's efficiency?
11. How would you design a system to manage **prescriptions and medication dispensing**?
12. What is the difference between **structured and unstructured medical data**?
13. How would you ensure **data quality and accuracy** for clinical research data?
14. How do you handle **secure data transfer** between a patient and a doctor's office?

15. How would you design a system for **telemedicine consultations**?
16. What are the security risks of using **mobile health (mHealth) apps**?
17. How would you design a system for **lab results management**?
18. What is the **ICD-10 or SNOMED CT** coding system?
19. How would you handle **data anonymization and de-identification** for research purposes?
20. What is a **DICOM file** and how would you handle it?
21. How would you design a system to manage a hospital's **inventory of medical supplies**?
22. What are the challenges of using **cloud computing** in the healthcare sector?
23. How would you build a system to predict **patient readmission rates**?
24. What are some of the ethical considerations of using **AI and machine learning** in healthcare?
25. How would you design a system for **clinical trial management**?
26. What is the purpose of a **blockchain** in healthcare?
27. How do you ensure **system uptime and reliability** for a life-critical application?
28. How would you design a system to track a **patient's wearable health data**?
29. What are the key components of a system for **electronic prescribing (e-prescribing)**?
30. How would you handle **emergency data access** for a first responder?
31. What are the challenges of integrating with **legacy EMR systems**?
32. How would you design a system for **vaccine management and distribution**?
33. How do you handle **real-time alerts** for critical patient conditions?
34. What's the purpose of a **biometric authentication system** in a hospital setting?
35. How would you build a system to manage a hospital's **billing and insurance claims**?
36. What is **interoperability** and how can it be achieved using standards like **FHIR**?
37. How would you design a system for a **personalized medicine platform**?
38. What are the main challenges of using **big data analytics** in healthcare?
39. How would you design a system for **remote surgery or telesurgery**?
40. How do you ensure the **traceability of medical devices**?
41. What is the role of a **health information exchange (HIE)**?
42. How would you design a system to manage **patient care plans**?
43. What are the ethical implications of using a **patient's genetic data**?
44. How would you handle **secure video conferencing** for remote patient visits?
45. What are the key components of a system for **hospital asset tracking**?
46. How would you design a system for a **public health disease surveillance**?
47. What are the main challenges of **data standardization** in healthcare?
48. How do you handle **system-wide outages** in a hospital?
49. How would you design a system for a **drug discovery platform**?
50. What is the **value-based care** model, and how does technology supp