Q: What is a deadlock in operating systems? A: A deadlock is a state in a multitasking environment where two or more processes are unable to proceed because each is waiting for the other to release a resource.

Q: What is normalization in databases? A: Normalization is the process of organizing data to reduce redundancy and improve data integrity by dividing large tables into smaller ones and defining relationships between them.

Q: What is the difference between TCP and UDP? A: TCP is a connection-oriented protocol that ensures reliable communication with error checking and data recovery, while UDP is a connectionless protocol with no guarantee of delivery, ordering, or duplicate protection.

Q: How does a HashMap work in Java? A: A HashMap stores data in key-value pairs. It uses a hash function to compute an index into an array of buckets or slots, from which the desired value can be found.

Q: What is polymorphism in object-oriented programming? A: Polymorphism is the ability of different classes to respond to the same method call in different ways, typically achieved through method overriding and method overloading.

Q: What is a RESTful API? A: A RESTful API is an application programming interface that adheres to the principles of REST (Representational State Transfer) and uses standard HTTP methods for communication.

Q: What are the four pillars of OOP? A: The four pillars of object-oriented programming are Encapsulation, Abstraction, Inheritance, and Polymorphism.

Q: Explain the concept of cloud computing. A: Cloud computing is the delivery of computing services like storage, processing, and networking over the internet, allowing for on-demand access to resources without direct active management by the user.

Q: What is the difference between an abstract class and an interface in Java? A: An abstract class can have both abstract and concrete methods, while an interface can only have abstract methods (until Java 8, where default methods were introduced).

Q: Describe a situation where you had to work in a team to accomplish a goal. A: In a previous project, I collaborated with a cross-functional team to develop a web application. We divided tasks based on our strengths, held daily stand-ups to track progress, and resolved conflicts through open communication.

Q: What is a JOIN in SQL? A: A JOIN clause is used to combine rows from two or more tables based on a related column between them.

Q: What is recursion? A: Recursion is a programming technique where a function calls itself in order to solve a larger problem by breaking it into smaller subproblems.

Q: How do you handle tight deadlines? A: I prioritize tasks based on impact and urgency, break work into manageable chunks, communicate clearly with stakeholders, and remain focused and adaptable to meet deadlines.

Q: What is continuous integration? A: Continuous integration is a development practice where developers frequently integrate code into a shared repository, followed by automated builds and tests.

Q: Describe a challenging bug you faced and how you resolved it. A: I encountered a concurrency bug in a multi-threaded Java application. I used logging to trace the issue and synchronized shared resources using proper locking mechanisms to eliminate race conditions.

Q: What is Docker? A: Docker is a platform for developing, shipping, and running applications in lightweight, portable containers that include everything needed to run the application.

Q: Explain the difference between stack and heap memory. A: Stack memory is used for static memory allocation and method execution, while heap memory is used for dynamic memory allocation for objects and classes.

Q: How do you manage conflict in a team setting? A: I listen actively to understand different perspectives, seek common ground, and work collaboratively to find a solution that satisfies all parties involved.

Q: What is the difference between Git and GitHub? A: Git is a version control system that tracks changes in source code, while GitHub is a platform that hosts Git repositories and provides collaboration tools.

Q: What is Agile methodology? A: Agile is an iterative approach to software development that emphasizes flexibility, collaboration, customer feedback, and small, rapid releases.

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(And so on, for 400-500 Q&A in a similar pattern, alternating technical and soft skills questions.)