

# AIRA Technical Question & Answer Bank

## Web Developer

**Q:** What is the difference between HTML and HTML5?

**A:** HTML5 introduced semantic elements, audio/video support, canvas, local storage, and improved APIs compared to earlier HTML versions.

**Q:** Explain the CSS box model.

**A:** The box model consists of content, padding, border, and margin. It defines how elements are spaced and sized on a webpage.

**Q:** What are JavaScript closures?

**A:** A closure is a function that retains access to its outer scope variables even after the outer function has executed.

**Q:** What is REST API?

**A:** REST is an architectural style that uses HTTP methods for communication between client and server.

**Q:** How does event delegation work in JavaScript?

**A:** Event delegation uses event bubbling to handle events at a parent level instead of attaching listeners to individual child elements.

## Full Stack Developer

**Q:** What is Node.js?

**A:** Node.js is a JavaScript runtime built on Chrome's V8 engine used to build scalable server-side applications.

**Q:** Explain database indexing.

**A:** Indexing improves database query performance by creating a data structure that allows faster retrieval.

**Q:** What is JWT authentication?

**A:** JWT is a token-based authentication mechanism used for secure information exchange between parties.

**Q:** Difference between SQL and NoSQL?

**A:** SQL databases are relational and structured, while NoSQL databases are non-relational and flexible in schema.

**Q:** What are microservices?

**A:** Microservices is an architecture where applications are divided into small, independent services communicating via APIs.

## Gen AI Engineer

**Q:** What are embeddings?

**A:** Embeddings are vector representations of text or data that capture semantic meaning for similarity search.

**Q:** Explain Retrieval-Augmented Generation (RAG).

**A:** RAG combines information retrieval with language models to generate context-aware and accurate responses.

**Q:** What is the Transformer architecture?

**A:** Transformer is a deep learning model using self-attention mechanisms, widely used in NLP tasks.

**Q:** Difference between fine-tuning and prompt engineering?

**A:** Fine-tuning updates model weights, while prompt engineering improves output by optimizing input prompts.

**Q:** What is vector similarity search?

**A:** It is a method of retrieving similar items based on distance metrics like cosine similarity in embedding space.

## Gen AI Developer

**Q:** What is prompt engineering?

**A:** Prompt engineering is designing effective prompts to get accurate and relevant responses from language models.

**Q:** How do LLMs generate text?

**A:** LLMs generate text by predicting the next word based on learned probability distributions from training data.

**Q:** What is temperature in LLMs?

**A:** Temperature controls randomness in model output. Higher values increase creativity; lower values increase determinism.

**Q:** Explain tokenization.

**A:** Tokenization is the process of splitting text into smaller units called tokens for model processing.

**Q:** What is hallucination in AI?

**A:** Hallucination refers to AI generating incorrect or fabricated information confidently.

## Quality Assurance

**Q:** What is STLC?

**A:** Software Testing Life Cycle includes requirement analysis, test planning, test case design, execution, and closure.

**Q:** Difference between regression and retesting?

**A:** Regression testing checks impact of changes on existing functionality; retesting verifies specific bug fixes.

**Q:** What is a test case?

**A:** A test case is a document outlining inputs, execution steps, and expected results for validation.

**Q:** What is API testing?

**A:** API testing validates endpoints, request/response structure, and business logic without UI.

**Q:** What is a bug life cycle?

**A:** Bug life cycle describes stages from bug identification to resolution and closure.