INSERT INTO questions (question, answer)

VALUES ('What is git? Why do we use it?',

'Git is a distributed version control system that tracks changes to source code, enabling multiple developers to work on a project simultaneously. We use Git for its capabilities in version control, collaboration, branching and merging, and its integration with platforms like GitHub.');

INSERT INTO questions (question, answer)

VALUES ('What is a variable? Can you give an example of an integer expression? A boolean expression?',

'A variable is a symbolic name for a value that can change. In programming, its used to store data. An example of an integer expression is 3 + 4 \* 2, which equals 11. A boolean expression could be 10 > 9, which evaluates to True.');

INSERT INTO questions (question, answer)

VALUES ('What controls whether the “if” or the “else” portion of an if-else should execute?',

'The "if" or "else" portion of an if-else statement executes based on the result of the condition in the "if" statement. If the condition is true, the "if" block executes; if the condition is false, the "else" block executes.');

INSERT INTO questions (question, answer)

VALUES ('Why should the code for each if or else be enclosed in a scope “{ }”',

'The {} braces define a block of code or a scope. They ensure that multiple statements under an if or else execute together. If you omit {}, only the immediate next line is considered part of the if or else, which could lead to logic errors.');

INSERT INTO questions (question, answer)

VALUES ('What programming problem does a loop solve? Why would we use a loop?',

'A loop solves the problem of repeating tasks in code. We use a loop to perform an operation multiple times without writing the same code repeatedly. This makes our code more efficient, easier to read, and simpler to maintain.');

INSERT INTO questions (question, answer)

VALUES ('How do we display information on the console? How do we take in information from the user in a console program?',

'In C#, you use Console.WriteLine() to display information on the console. For example, Console.WriteLine("Hello, World!");. To take in information from the user, you use Console.ReadLine(). For example, string userInput = Console.ReadLine();. In Java, you use System.out.println()');

INSERT INTO questions (question, answer)

VALUES ('What is an object? What is a class?',

'An object is an instance of a class. Its a data structure that contains data and methods. A class is a blueprint for creating objects. It defines the data and behavior that the created objects can have.');

INSERT INTO questions (question, answer)

VALUES ('How is an array like a List(C#)/ArrayList(Java)? How are they different?',

'Arrays and Lists in C#(or ArrayLists in Java) both store multiple values. They can be accessed using indices. However, arrays have a fixed size once defined, while Lists (ArrayLists) are dynamic and can grow or shrink at runtime. Also, Lists provide more built-in methods such as Add(), Remove(), etc. compared to arrays.');

INSERT INTO questions (question, answer)

VALUES ('Tell me about a Dictionary(C#)/HashMap(Java).',

'A Dictionary in C#(or HashMap in Java) is a collection of key-value pairs. Keys are unique, while values may not be. Unlike arrays or Lists, data in a Dictionary or HashMap is accessed via keys, not numeric indices. This allows for efficient retrieval of values when the key is known.');

INSERT INTO questions (question, answer)

VALUES ('What is Encapsulation? Why is it important?',

'Encapsulation is a principle of object-oriented programming where the data (variables) and methods operating on that data are bundled together in a class. Its important because it hides the internal state of one object from others. This enhances security, prevents data corruption, and makes code easier to maintain and understand.');

INSERT INTO questions (question, answer)

VALUES ('What is Inheritance? Why, as a programmer, would you choose to use Inheritance?',

'Inheritance is a concept in object-oriented programming where a class can inherit properties and methods from another class. You would use inheritance to promote code reusability and create a logical, hierarchical structure for your classes. It helps in making code easier to manage, understand, and extend.');

INSERT INTO questions (question, answer)

VALUES ('What is Polymorphism? How is Polymorphism like Inheritance? How is it different?',

'Polymorphism, a concept in object-oriented programming, allows one interface to represent different underlying forms. This could mean methods with the same name behaving differently based on their data types or number of parameters. Polymorphism is similar to Inheritance in that they both promote flexibility and extensibility in code. However, while Inheritance allows classes to inherit properties and methods from a parent class, Polymorphism allows methods to perform different actions based on the object they are acting upon.');

INSERT INTO questions (question, answer)

VALUES ('What is an Interface, and why would you use one?',

'An Interface defines a contract for classes. It outlines specific methods or properties a class must implement. You use interfaces to enforce certain behaviors across different classes. This enables loose coupling, making your code more modular, adaptable, and testable.');

INSERT INTO questions (question, answer)

VALUES ('How are Abstract classes and Interfaces alike? How are they different?',

'Abstract classes and Interfaces are alike in that they both define contracts for other classes to implement. However, they differ in several ways. An Abstract class can provide some method implementation, while Interfaces can not. A class can implement multiple Interfaces, but it can only inherit from one Abstract (or any other) class. Abstract classes can also have constructors and fields, which Interfaces cannot have.');

INSERT INTO questions (question, answer)

VALUES ('What is Unit Testing? What tools are used to do automated Unit Testing?',

'Unit Testing involves testing individual components (or "units") of software to verify that they behave as intended. For automated unit testing in a .NET environment, NUnit and MSTest are commonly used (JUnit in Java). These frameworks allow developers to write tests, automate execution, and report results. Xunit is another popular choice for .NET Core.');

INSERT INTO questions (question, answer)

VALUES ('What are the three principles of Object Oriented Programming? Give an example for each.',

'The 3 principles of Object Oriented Programming are Encapsulation, Inheritance, and Polymorphism. Encapsulation: Data and methods are wrapped together in a class. For example, a "Person" class could encapsulate properties like "Name" and "Age", and methods like Speak(). Inheritance: A class can inherit properties and methods from a parent class. For instance, a "Student" class could inherit from the "Person" class, thereby gaining its properties and methods. Polymorphism: A method can behave differently based on the object. For example, a "Shape" class might have a Draw() method. This method would behave differently if called on objects of the "Circle" or "Rectangle" class, assuming they inherit from "Shape".');

INSERT INTO questions (question, answer)

VALUES ('When catching Exceptions, should the code catch a specific exception type (like "Subscript out of bounds") or the general "Exception" type? Why?',

'It is generally best to catch specific exceptions. This allows you to handle different exception types in a tailored manner. Catching the general "Exception" type should be a last resort, as it can make debugging harder by masking other unexpected or unknown errors.');

INSERT INTO questions (question, answer)

VALUES ('When writing files, what does it mean to append? What does it mean to not append?',

'Appending to a file means adding new data at the end of the file`s existing content. Not appending, often referred to as "overwriting", means replacing the file`s existing content with the new data. If the file does not exist, it is created in both cases.');

INSERT INTO questions (question, answer)

VALUES ('For an application that has a console user interface, reads and writes information to a file, and provides the ability to do CRUD (Create, Read, Update, and Delete) functions on the data in memory while executing, how might you organize and structure the classes and methods in your code?',

'You might structure your classes as follows: 1. DataModel class: Represents the data you are working with, encapsulates properties relevant to the data. 2. FileHandler class: Handles all file operations, with methods such as ReadFromFile, WriteToFile, and AppendToFile. 3. CrudOperations class: Handles the in-memory CRUD operations. Methods could include CreateData, ReadData, UpdateData, and DeleteData. 4. UserInterface class: Manages interactions with the user via console. Has methods like DisplayMenu, GetUserInput, and DisplayData. Each class has its own responsibilities, promoting separation of concerns and making the code more maintainable. The "Program" class would coordinate these classes to perform the required tasks.');

INSERT INTO questions (question, answer)

VALUES ('What is pair programming? What are the basic rules? What are its advantages and disadvantages?',

'Pair programming involves two programmers working together at one workstation. One, the "driver", writes code while the other, the "navigator", reviews each line of code as it is typed in. Basic rules include: 1. Switch roles regularly. 2. Both partners must understand the code. 3. Constant communication is key. Advantages include: 1. Improved code quality due to instant review. 2. Knowledge sharing and improved team collaboration. 3. Faster problem solving. Disadvantages include: 1. It may be less efficient for simpler tasks. 2. Conflicts may arise from differences in coding style or approach. 3. It requires good communication skills and patience.');

INSERT INTO questions (question, answer)

VALUES (‘What is an RDBMS? Can you name some open-source RDBMSs?',

'RDBMS stands for Relational Database Management System and handles the definition, storage, retrieval, and administration of data. Open-source examples include PostgreSQL and MySQL');

INSERT INTO questions (question, answer)

VALUES (‘The major elements of a SQL SELECT are written in a certain order. What’s that order?',

'The order is SELECT, FROM, WHERE, GROUP BY, HAVING, ORDER BY, and LIMIT’);

INSERT INTO questions (question, answer)

VALUES (‘What are the special considerations for GROUP BY in SQL queries?',

'GROUP BY groups rows of data together that contain the same value so that you can aggregate them together. It takes multiple rows and collapses them down into one row and how you want them collapsed depends on what information you are trying to see.’);

INSERT INTO questions (question, answer)

VALUES (‘What are the two forms of the INSERT statement in SQL? Which is preferred and why?',

‘’);

INSERT INTO questions (question, answer)

VALUES (‘Why would a developer want to develop and maintain a SQL script for a database under development or being changed?’,

‘’);

INSERT INTO questions (question, answer)

VALUES (‘What is a DAO and what OOP principal does is most clearly express?',

‘A DAO or data access object is a class that encapsulates the logic for connecting to a data source and returning data. It is a common way for a Java application to interact with a database. It most clearly expresses the OOP principal of Encapsulation, but also other design principles like Separation of Concerns – which is keeping related code together and loosely coupled from the rest of the code base – and Do not repeat yourself – which is reducing the duplication of similar code and reusing existing code.’);

INSERT INTO questions (question, answer)

VALUES (‘Why is it important to use parameter substitution rather than string concatenation when building SQL strings inside of code?',

‘’);

INSERT INTO questions (question, answer)

VALUES (‘What software vulnerability is totally under the control of the programmer?',

‘A SQL Injection attack – which is an attack where a malicious attacker passes a special value into your application that is executed by the database, causing it to retrieve or delete information that the attacker should not have access to. You can avoid this by using prepared or parameterized statements and never concatenating strings together to from a SQL statement’);

INSERT INTO questions (question, answer)

VALUES (‘What are some examples of Integration Testing?',

‘‘);

INSERT INTO questions (question, answer)

VALUES (‘Why would you want to use SQL to select specific information you need inside your program? Why not just select all the information from a table and hold it in a collection inside your program?',

‘’);

INSERT INTO questions (question, answer)

VALUES (‘In HTTP, how are the GET and POST verbs alike? How are they different?',

‘’);

INSERT INTO questions (question, answer)

VALUES (‘Assume four blocks of code: 1. Controller and 2. Model/DAOs for a server and 3. User Interface, 4. API Service for a client. Describe the flow of a REST request and response. Describe the role/responsibility of each block of code.',

‘’);

INSERT INTO questions (question, answer)

VALUES (‘How can we test that our client-server application is following the rules and protocols of REST?',

‘’);

INSERT INTO questions (question, answer)

VALUES (‘What is a JWT? How is it generated and how is it used?',

INSERT INTO questions (question, answer)

VALUES (‘Describe MVC in the context of a Web Service running on a server.',

INSERT INTO questions (question, answer)

VALUES (‘Why do HTTP POST and PUT use a request body? Why not just put information in the path or query string of the URL?',

INSERT INTO questions (question, answer)

VALUES (‘What should HTTP status codes in the 200s indicate? The 400s? The 500s? What specific HTTP status codes do you know and what should they mean?',

INSERT INTO questions (question, answer)

VALUES (‘In JavaScript, should you use “let” or “car” to create variables? Why?',

INSERT INTO questions (question, answer)

VALUES (‘In a world of HTML, CSS, and JavaScript, what role do each provide in the browser?',

INSERT INTO questions (question, answer)

VALUES (‘What different ways do you know to define a function in JavaScript?',

INSERT INTO questions (question, answer)

VALUES (‘What are some common selectors used with HTML and CSS and how are they specified in CSS?',

INSERT INTO questions (question, answer)

VALUES (‘In CSS, what does it mean when multiple selectors are used together with spaces between them? With no spaces between them? With commas between them? With > between them?',

INSERT INTO questions (question, answer)

VALUES (‘In general, what part of a web page layout should be controlled by CSS Grid? What part should be controlled by CSS Flex?',

INSERT INTO questions (question, answer)

VALUES (‘In JavaScript, this symbol => is referred to by what name? What JavaScript keyword does it replace? Bonus: What are some other names this symbol is called?',

INSERT INTO questions (question, answer)

VALUES (‘How is the “event-driven” style of program execution different from the “sequential” style of execution we utilized in simple console programs during the first few weeks of the program?',

INSERT INTO questions (question, answer)

VALUES (‘Describe at least two ways we have used anonymous functions in Vanilla JavaScript?',

INSERT INTO questions (question, answer)

VALUES (‘Describe some advantages and disadvantages of Vue.js over Vanilla JavaScript?',

INSERT INTO questions (question, answer)

VALUES (‘What is mustache notation in Vue.js and how is it different from v-model binding? Where is v-model binding mostly seen in Vue.js?',

INSERT INTO questions (question, answer)

VALUES (‘Why do we use “.prevent” with some Vue.js events? Bonus: What event on what element should be “handled” for an input element of type submit?',

INSERT INTO questions (question, answer)

VALUES (‘How are v-if and v-show alike? How are they different?',

INSERT INTO questions (question, answer)

VALUES (‘What are two ways that Vue.js components can pass data from component to component? Which one is intended to be used between parent and child components? Which one can be used between any components in an application?',

INSERT INTO questions (question, answer)

VALUES (‘What is the role of router-view in the default Vue.js router?',

INSERT INTO questions (question, answer)

VALUES (‘What is the role of the “created” function of a Vue.js component?',

INSERT INTO questions (question, answer)

VALUES (‘In Vue.js component script sections, what elements are peers -exist at the same level- as the data section?',

INSERT INTO questions (question, answer)

VALUES (‘What information does a promise return in JavaScript? What are the three possible states for a promise?',

INSERT INTO questions (question, answer)

VALUES (‘In Vue.js, where must we use “this” with variables and methods -functions in the methods section? Where do we not need to use the “this” keyword?',

INSERT INTO questions (question, answer)

VALUES (‘In Vue.js, router-link and router.push are both used to navigate from the current view to another view using the router. When should you use each?',

INSERT INTO questions (question, answer)

VALUES (‘You are developing a Vue.js application with a web service providing the data. The web service has been tested with Postman and is working correctly. You create a Vue.js component that should display information retrieved from the webservice. Nothing is displayed on the web browser. What do you look at and what do you do to determine where the problem exists?',

INSERT INTO questions (question, answer)

VALUES (‘How are a “for” loop and a “while” loop alike? How are they different?',

INSERT INTO questions (question, answer)

VALUES (‘What is the difference between overloading and overriding? Does JavaScript support overloading?',

INSERT INTO questions (question, answer)

VALUES (‘In Java or C#, how are methods and constructors alike? How are they different?',

INSERT INTO questions (question, answer)

VALUES (‘In Java or C#, what is the difference between value/primitive types and reference types? How are they represented in memory?',

INSERT INTO questions (question, answer)

VALUES (‘You are retrieving data from a database for a server program. All other things being equal, should you retrieve all of the data from a table and filter it in the server application OR should you use the RDBMS to select just the information that you want? Why? What factors might cause you to change your decision?',

INSERT INTO questions (question, answer)

VALUES (‘What purpose does the Vuex data store serve in Vue.js? What is a circumstance when you might NOT want to use Vuex?',

INSERT INTO questions (question, answer)

VALUES (‘What elements make us the signature of a method in Java or C#?',

INSERT INTO questions (question, answer)

VALUES (‘What is a static class? How is it used differently than a non-static class?’,

INSERT INTO questions (question, answer)

VALUES (‘What is the difference between a stack and a queue?',

INSERT INTO questions (question, answer)

VALUES (‘What is the difference between a primary key and a foreign key in a relational database?',

INSERT INTO questions (question, answer)

VALUES (‘The first element of the signature of a method is the access modifier. What access modifiers do you know and what do they mean?',

INSERT INTO questions (question, answer)

VALUES (‘How is JavaScript like C# or Java? How is it different?',

INSERT INTO questions (question, answer)

VALUES (‘How would you explain APIs to a non-technical team member?',

INSERT INTO questions (question, answer)

VALUES (‘What is REST?',

INSERT INTO questions (question, answer)

VALUES (‘What is the purpose of computed properties in Vue.js? How are they different from methods?',

INSERT INTO questions (question, answer)

VALUES (‘What is the purpose of semantic HTML?',

INSERT INTO questions (question, answer)

VALUES (‘Describe the CSS box model.',