**GHC WEBOPS**

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Question 1

1. Asynchronous JavaScript refers to the execution model that allows JavaScript operations, such as I/O operations, HTTP requests, or timers, to proceed without blocking the execution thread. In synchronous JavaScript, code execution waits for an operation to complete before moving on to the next line. This can lead to blocking behavior where the browser or environment becomes unresponsive until the operation finishes. Asynchronous operations let the program continue running and execute callbacks or promises once the operation completes, improving performance and user experience by not freezing the UI during lengthy tasks. Common patterns for handling asynchronous operations in JavaScript include callbacks, promises, and async/await syntax.

2. An API, or Application Programming Interface, is a set of rules and protocols for building and interacting with software applications. It defines how different software components should interact with each other and allows for the integration of different systems. To create an API, you generally define a set of accessible endpoints that expose specific functionality or data. These endpoints are URLs with defined request methods (GET, POST, PUT, DELETE, etc.) and parameters. When creating an API, you would use a server-side language (like JavaScript with Node.js) to define the logic that handles requests and responses. You would also define routes that correspond to your API endpoints and the actions they perform. For instance, with Node.js and Express, a popular web server framework, you can define a simple API by creating a server, defining routes, and specifying the logic for handling requests and responses on those routes.

3. The difference between a library and a framework lies in the control flow. A library is a collection of functions and tools that you can choose to use as needed. It provides specific, reusable functionalities. You call a library within your code. A framework, on the other hand, defines the structure of your application. It provides a skeleton where the user adds code but doesn't control the main flow of execution. The framework calls your code. React is considered a library because it primarily deals with the view layer in applications and leaves many choices to the developer regarding how to use it. Express is a framework because it provides a structure for server-side applications, including routing, middleware, request handling, etc., where developers fill in the specifics of their application's behavior within this structure.

4. <https://github.com/GuraseesWasNotAvailable/ghc>