# Intro to UI Frameworks and Libraries

## Working with libraries

*As a developer, deploying your application to a web server, you will use a bundling tool to: (select the correct answer)*

* *Combine all your dependencies into a single file.*

## Introduction to responsive design

Responsive design means that a web page can automatically stretch or shrink depending on the screen is displayed on.

Responsive design is a set of three practices that allows a website to automatically change its visuals:

1. Flexible grids
2. Fluid images
3. Media queries

*There are media queries that are a part of the CSS version 3 specification. What do they allow developers to query in order to conditionally apply CSS rules? Choose all that apply.*

* *Aspect Ratio*
* *Display Size*
* *Orientation*

## Using Bootstrap styles

*As a web developer, you will use a modifier to indicate the breakpoint in Bootstrap CSS rules.*

* *No*

## Bootstrap grid

*Bootstrap's Grid System is structured with 3 types of elements. Select the correct types from the following options:*

* *Containers*
* *Rows*
* *Columns*

## Bootstrap components

*If I want to notify clients that Little Lemon has added a new burger to their menu. To do this I will use a Bootstrap Component. Which CSS classes can I use? Select all that apply.*

* *Alert*
* *Alert-info*

# Introduction to React

## Static and dynamic content

But hang on, If dynamic content is slower to generate, isn't that a problem for big websites? Yes, it is. Application servers typically have a limited capacity on how many requests they can process per second. But fortunately, this is where the web server can help out. Web servers use a process called caching instead of generating content dynamically for every request. Caching means the web server keeps a copy of dynamic content. If the content is requested again, the web server can immediately send this cached version instead of passing the request again to the application server.

*In website design, dynamic content is usually generated from where?*

* *The application server*

## Single page applications

A SPA allows the user to interact with the website without the application needing to download entire new web pages. Instead, it rewrites the current web page as the user interacts with it. The result is a browsing experience that feels faster and more responsive to user input.

A SPA has two approaches to serving code and resources. The first is called bundling, and the second approach is known as lazy loading or code splitting. With bundling, when the browser requests the application, the server returns and loads all necessary HTML, CSS, and JavaScript immediately. With lazy loading, the browser requests the application and the server returns only the minimum HTML, CSS, and JavaScript needed to load the application. Additional resources are downloaded as required. For example, when a user navigates a specific section of the application, both approaches are valid. The choice depends on the size, complexity, and bandwidth requirements of the application.

*Which of the following are SPA approaches to serving code? Select all that apply.*

* *Lazy loading*
* *Bundling*

## What is React?

*You are developing a SPA, or Single Page Application. Why is it beneficial to use React during your development? Choose all that apply from the list below.*

* *Write less code to implement functionality in a web browser.*
* *Maintain code in the long term.*
* *Simplify testing.*
* *Re-use components.*

## How React works

*Indicate the correct process that React uses to ensure that your application is fast and responsive to user input:*

* *React updates the virtual DOM and compares it to the previous version of the virtual DOM. If a change has occurred, only that element is updated in the browser DOM. Changes on the browser DOM cause the displayed webpage to change.*

## Component hierarchy

*React components cannot be re-used. Each component needs to be coded according to the tree of components.*

* *False*