

Background Questions T1 (Up to 10 Points)

1. Explain the purpose of hypertext markup language (HTML) in client-side web development.
2. Explain the purpose of cascading style sheets (CSS) in client-side web development.
3. Explain the difference between Viewer, Editor, and Creator user types in an ArcGIS Online organization.
4. Explain the difference between Viewer, User, and Publisher roles in an ArcGIS Online organization.
5. Use a GIS job search site or a general job search site to find a GIS job posting that requires some experience with web GIS. Describe the job and the specific web GIS skills the employer is requesting.

Background Questions T2 (Up to 10 Points)

1. What are the projection and geographic coordinate system requirements for layers that will be published to the web?
2. Explain the difference between feature layers, map image layers, and raster tile layers.
3. Explain the difference between raster tile layers and vector tile layers. What are some advantages of vector tile layers in comparison to raster tile layers? When might a vector tile layer not be appropriate?
4. Explain the difference between ranged values and coded values domains.
5. Browse the ESRI Living Atlas of the World (<https://livingatlas.arcgis.com/en/home/>). Describe a layer that is available through this service and a potential use case for it within a web mapping project.

Background Questions T3 (Up to 10 Points)

1. Explain the difference between the equal interval and quantile classification methods.
2. List the graphical parameters (color, shape, size, etc.) that are available for point features and whether or not they can be used to represent categorical data, continuous data, or both categorical and continuous data. Feel free to build a table.
3. List the graphical parameters (color, shape, size, etc.) that are available for line features and whether or not they can be used to represent categorical data, continuous data, or both categorical and continuous data. Feel free to build a table.
4. List the graphical parameters (color, shape, size, etc.) that are available for polygon features and whether or not they can be used to represent categorical data, continuous data, or both categorical and continuous data. Feel free to build a table.
5. When visualizing continuous data, explain why a choropleth symbology should only be used with unnormalized data.

Background Questions T4 (Up to 10 Points)

1. Explain the concept of volunteered geographic information (VGI). How are web maps and apps useful in this context?
2. Browse the Instant App templates available on ArcGIS Online. Pick a template and describe its uses and data requirements.
3. Browse the available ExperienceBuilder templates. Pick a template and describe its uses.
4. List and describe three features or widgets that can be added to a Dashboard App.
5. List and describe three different types of content that can be added to a Storymap.

Background Questions T5 (Up to 10 Points)

1. Explain the use of the following types of tags: `<p>`, `<h1>`, `<hr>`, `<a>`, and `<code>`.
2. Explain the use of the following tags relating to lists: ``, ``, ``.
3. Explain the use of the following tags relating to tables: `<table>`, `<tr>`, `<th>`, and `<td>`.
4. Explain the purpose of `<div>` tags.
5. What is the purpose of an `<iframe>` tag?

Background Questions T6 (Up to 10 Points)

1. Explain the difference between inline, internal, and external CSS.
2. Explain the difference between element, class, and id selectors.
3. What would be the brightness value (0 to 255) for each color channel (red, green, and blue) for a color with the following hex code: #A114BE?
4. Explain the difference between margin and padding.
5. Explain the difference between static, relative, fixed, and absolute positioning for an HTML element.
6. Explain the difference between block, inline, and inline-block display for an HTML element.

Background Questions T7 (Up to 10 Points)

1. Explain the concept of responsive web design.
2. What is the purpose of a content delivery network (CDN)?
3. How does the Bootstrap grid system define extra-small, small, medium, and large screen sizes?
4. Explain the meaning of the following Bootstrap grid system class: "col-md-4".
5. What is the difference between a tooltip and a popover?

Background Questions T8 (Up to 10 Points)

1. Explain the difference between `var`, `let`, and `const` when defining a JavaScript variable.
2. Explain the difference between a function and a method in JavaScript.
3. Explain the concepts of truthy and falsy in JavaScript. Provide two examples of values, either strings or numbers, that would be treated as truthy and two that would be treated as falsy.
4. Explain the difference between the `==` and `===` comparison operators.
5. Explain the difference between `break` and `continue` in JavaScript loops.
6. Explain the purpose of each of the three parameters that can be included when defining a for loop (`for(1, 2, 3){}`).

Background Questions T9 (Up to 10 Points)

1. Explain the document object model (DOM) and its purpose. Why is the DOM important when we want to use JavaScript to manipulate a webpage?
2. Explain the purpose or use of an event listener.
3. Explain the concept of a callback when using jQuery.
4. Explain the concept of chaining when using jQuery.
5. When using jQuery `get` and `set` methods, explain the difference between `text()` and `html()`.

Background Questions T10 (Up to 10 Points)

1. Explain two similarities between JavaScript and Arcade.
2. Explain two differences between JavaScript and Arcade.
3. Explain the concept of profiles in Arcade.
4. Explain the use of the When() function in Arcade.
5. Explain the use of the Decode() function in Arcade.

Background Questions T11 (Up to 10 Points)

1. Explain the difference between Map and MapView in the ArcGIS Maps SDK for JavaScript.
2. Explain the difference between the following types of renderers: SimpleRenderer, UniqueValuesRenderer, ClassBreaksRenderer, and visualVariable.
3. Describe two different methods for adding a feature layer to a map using the ArcGIS Maps SDK for JavaScript.
4. Explain the difference between the following symbol types for polygons: SimpleFillSymbol, PictureFillSymbol, and SimpleMarkerSymbol.
5. Explore the samples made available at the following link: <https://developers.arcgis.com/javascript/latest/sample-code/index.html>. Describe one of these samples including the modules required and use cases.

Background Questions T12 (Up to 10 Points)

1. Explain the difference between a popup and a tooltip in Leaflet.
2. Explain the difference between a Marker, Circle, and CircleMarker in Leaflet.
3. Explain the use and purpose of panes and zIndices in Leaflet.
4. Explain the difference between a TileLayer and an ImageOverlay in Leaflet.
5. Explain, generally, how a popup is associated with a specific map feature in Leaflet.