3. Design following responsive layout using html.

Use <header>, <footer>, <div> and appropriate tags

This section should change colour after

clicking on following buttons

To design the layout you provided in HTML with responsive behavior, we can use HTML structure with <header>, <footer>, <div>, and CSS for styling. The layout consists of a section with buttons below that change the section's color.

Here’s the HTML and CSS code to achieve this:

**HTML Code:**

html

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<!DOCTYPE html>  
<**html** lang="en">  
<**head**>  
 <**meta** charset="UTF-8">  
 <**meta** name="viewport" content="width=device-width, initial-scale=1.0">  
 <**title**>Responsive Layout</**title**>  
 <**link** rel="stylesheet" href="styles.css">  
</**head**>  
<**body**>  
  
 <**header**>  
 <**h1**>Responsive Color Changing Section</**h1**>  
 </**header**>  
  
 <**div** class="content">  
 <**section** id="color-section">  
 <**p**>This section should change colour after clicking on following buttons</**p**>  
 </**section**>  
  
 <**div** class="buttons">  
 <**button** class="color-button" id="blue">Blue</**button**>  
 <**button** class="color-button" id="orange">Orange</**button**>  
 <**button** class="color-button" id="green">Green</**button**>  
 </**div**>  
 </**div**>  
  
 <**footer**>  
 <**p**>&copy; 2024 Responsive Layout Example</**p**>  
 </**footer**>  
  
 <**script** src="script.js"></**script**>  
  
</**body**>  
</**html**>

**CSS Code (styles.css):**

css

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/\* General Styles \*/  
\* {  
 **margin**: 0;  
 **padding**: 0;  
 **box-sizing**: border-box;  
}  
  
**body** {  
 **font-family**: Arial, sans-serif;  
 **line-height**: 1.6;  
}  
  
**header**, **footer** {  
 **background-color**: #333;  
 **color**: white;  
 **padding**: 20px;  
 **text-align**: center;  
}  
  
**footer** {  
 **font-size**: 14px;  
}  
  
**h1** {  
 **margin-bottom**: 20px;  
}  
  
/\* Content Section \*/  
.content {  
 **display**: flex;  
 **flex-direction**: column;  
 **align-items**: center;  
 **padding**: 20px;  
}  
  
/\* Color Changing Section \*/  
#color-section {  
 **width**: 80%;  
 **height**: 200px;  
 **margin-bottom**: 20px;  
 **border**: 2px solid #333;  
 **display**: flex;  
 **justify-content**: center;  
 **align-items**: center;  
 **text-align**: center;  
 **background-color**: white;  
}  
  
/\* Button Styles \*/  
.buttons {  
 **display**: flex;  
 **gap**: 10px;  
}  
  
.color-button {  
 **width**: 60px;  
 **height**: 60px;  
 **border-radius**: 50%;  
 **border**: none;  
 **cursor**: pointer;  
 **transition**: background-color 0.3s ease;  
}  
  
.color-button:hover {  
 **opacity**: 0.8;  
}  
  
/\* Color Button Colors \*/  
#blue {  
 **background-color**: blue;  
}  
  
#orange {  
 **background-color**: orange;  
}  
  
#green {  
 **background-color**: green;  
}  
  
/\* Responsive Styles \*/  
@**media** (max-width: 768px) {  
 .content {  
 **width**: 100%;  
 }  
  
 #color-section {  
 **width**: 90%;  
 }  
  
 .buttons {  
 **flex-direction**: column;  
 **align-items**: center;  
 }  
}

**JavaScript Code (script.js):**

javascript

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// JavaScript to change the section color based on button click  
document.getElementById('blue').addEventListener('click', **function**() {  
 document.getElementById('color-section').style.backgroundColor = 'blue';  
});  
  
document.getElementById('orange').addEventListener('click', **function**() {  
 document.getElementById('color-section').style.backgroundColor = 'orange';  
});  
  
document.getElementById('green').addEventListener('click', **function**() {  
 document.getElementById('color-section').style.backgroundColor = 'green';  
});

**Explanation:**

1. **HTML Structure**: The <header> contains a title. The main content is wrapped in a <div class="content"> which contains the color-changing section and buttons.
2. **CSS Layout**:
   * The layout is designed to be responsive with a @media query for devices with a width of 768px or less.
   * Buttons are styled as circular elements, and the section changes color depending on the clicked button.
3. **JavaScript Functionality**: When a button is clicked, the background color of the section changes according to the button's color.