

Q1:For the given students array below, compute the average grade of all students who took cs303 course which returns an object which key is students' names, values is the average.

Example of result:

```
{  
  Quincy: 93.5,  
  Sam: 86.5,  
  Katie: 71.5  
}
```

**You're not allowed to use for, while, do...while, for..of, forEach loop**

```
const students = [  
  { name: 'Quincy', grades: [99, 88], courses:['cs301', 'cs303']},  
  { name: 'Jason', grades: [29, 38], courses:['cs201', 'cs203']},  
  { name: 'Alexis', grades: [79, 78], courses:['cs105', 'cs211'] },  
  { name: 'Sam', grades: [91, 82], courses:['cs445', 'cs303'] },  
  { name: 'Katie', grades: [66, 77], courses:['cs303', 'cs477'] }  
];
```

### **Model Short Answer:**

```
const students =
```

```
[{ name: 'Quincy', grades: [99, 88], courses: ['cs301', 'cs303'] },  
 { name: 'Jason', grades: [29, 38], courses: ['cs201', 'cs203'] },  
 { name: 'Alexis', grades: [79, 78], courses: ['cs105', 'cs211'] },  
 { name: 'Sam', grades: [91, 82], courses: ['cs445', 'cs303'] },  
 { name: 'Katie', grades: [66, 77], courses: ['cs303', 'cs477'] }  
];
```

```
const result = students.filter(stu => stu.courses.includes('cs303'))
```

```
.reduce((prev, current, index, array) => {  
  let average = current.grades.reduce((avg, grade, i, arr) => avg + grade / arr.length, 0)  
  prev[current.name] = average;  
}
```

```
    return prev;
  }, {});
```

```
console.log(result);
```

Q2:

```
function b() {
  const x = 10;
  a(50);
  function a(x) {
    console.log(x);
  }
}
var x = 20;
b();
```

**Based on the code above,**

1. What's the LE of global EC after creation phase finished before execution phase starts?
2. What's the LE of global EC after execution phase finished? (Here and in the exam, I forgot to add 'before pop up from stack')
3. What's the LE of function b EC after creation phase finished before execution phase starts?
4. What's the LE of function b EC after execution phase finished? (Here and in the exam, I forgot to add 'before pop up from stack')
5. What's the LE of function a EC after creation phase finished before execution phase starts?
6. What's the LE of function a EC after execution phase finished? (Here and in the exam, I forgot to add 'before pop up from stack')

**Model Short Answer:**

1. What's the LE of global EC after creation phase finished before execution phase starts?  
{x:undefined, b: fn, outer: null}
2. What's the LE of global EC after execution phase finished?  
{x:20, b:fn, outer:null}

3. What's the LE of function b EC after creation phase finished before execution phase starts?  
{a:fn, arguments: {length:0}, outer:global}, tdz{x}

4. What's the LE of function b EC after execution phase finished?  
{a:fn, x: 10, arguments: {length:0}, outer:global}

5. What's the LE of function a EC after creation phase finished before execution phase starts?  
{x:50, arguments: {0: 50, length:1}, outer:b}

6. What's the LE of function a EC after execution phase finished?  
{x:50, arguments: {0: 50, length:1}, outer:b}

Q3: Specify what colors will actually show on the screen for the:

- Foreground of First
- Background of First
- Foreground of Second
- Background of Second
- Foreground of Third
- Background of Third

When the HTML is

```
<body>
  <p>First piece of text; what color am I?</p>
  <div class="central">
    <p>Second piece of text; what color am I?</p>
    <ul>
      <li id="item">Third piece of text; what color am I?</li>
    </ul>
  </div>
</body>
```

And the CSS is:

```
body {
  background-color: yellow;
  color: magenta;
```

```

}
p { color: orange; }
.central, .item {
  color: green;
}
#item {
  background-color: cyan;
}

```

Q4: Write regular expression for the IPV4 address below:

an IPV4 is consist of 4 parts divided by '.', each part is from 0-255 like 123.34.99.255

**Model Short Answer:**

```



```

Q5: Draw the page layout if the screen has width 1024px, height 768px, and the HTML & CSS:

<pre> &lt;body&gt; &lt;div id="a"&gt;Text for a   &lt;div id="b"&gt;Text for b     &lt;div id="c"&gt;Text for c&lt;/div&gt;   &lt;/div&gt; &lt;/div&gt; &lt;/body&gt; </pre>	<pre> div {   border: 1px solid black; }  #b {   position: relative;   height: 200px; }  #c {   position: absolute;   top: 0px;   bottom: 0px;   right: 0px;   width: 50px; } </pre>
--	--

Q6: Write a single CSS rule to make both h1 and h2 tags use the background image found at: <https://manalabs.org/images/background.jpg> (note: this is not actually a valid url at this point in time)

**Model Short Answer:**

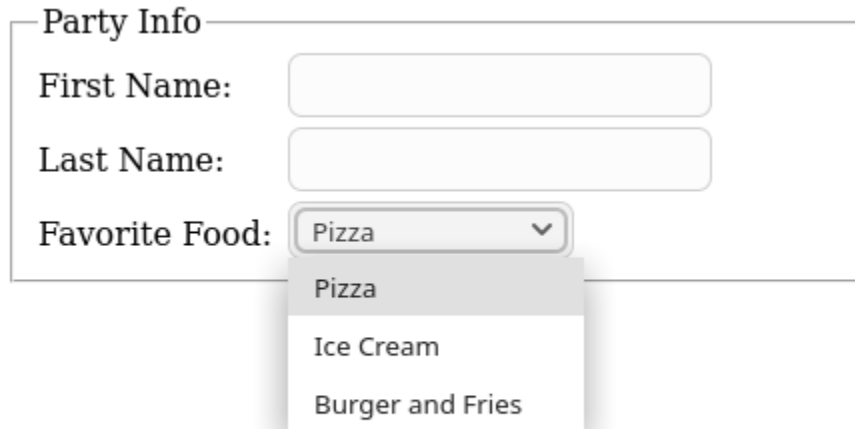
```
h1, h2 {  
    background-image: url("http://manalabs.org/images/background.jpg");  
}
```

Q7: Write some CSS to give all input type=text boxes on your HTML page the font: arial.

**Model Short Answer:**

```
input[type=text] {  
    font-family: arial;  
}
```

Q8: Write the HTML and CSS needed to create a two column web page that looks like the following screenshot (first column is labels, second column is fields). <br>Be sure to use modern CSS techniques (Grid, Flexbox, or Bootstrap -- no HTML tables allowed!).



The screenshot shows a form titled "Party Info" with a light gray border. Inside the form, there are three labels on the left and their corresponding input fields on the right. The labels are "First Name:", "Last Name:", and "Favorite Food:". The input fields are white with rounded corners and a thin gray border. The "Favorite Food:" field is a dropdown menu with "Pizza" selected and a downward arrow. A dropdown menu is open below the "Favorite Food:" field, showing three options: "Pizza", "Ice Cream", and "Burger and Fries".

**Model Short Answer:**

```
<!DOCTYPE html>  
<html lang="en">  
  
<head>  
<meta charset="utf-8">  
<title>W1D5 Q1</title>
```

```
<style>
#container {
display: grid;
grid-template-columns: 120px 200px;
grid-gap: 5px;
max-width: 400px;;
}
.label {
padding-top: 7px;
}
</style>
</head>

<body>
<form>
<fieldset id="container">
<legend>Party Info</legend>
<div class="label">First Name:</div>
<div><input type="text" name="first" /></div>
<div class="label">Last Name:</div>
<div><input type="text" name="last" /></div>
<div class="label">Favorite Food:</div>
<div>
<select name="food">
<option>Pizza</option>
<option>Ice Cream</option>
<option>Burger and Fries</option>
</select>
</div>
</fieldset>
</form>
</body>

</html>
```

Q9: Write CSS to center entire paragraph below:

<p> Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

</p>

**Model Short Answer:**

```
p {  
margin-left: auto;  
margin-right: auto;  
width: 33%;  
}
```

Q10: Which of the following is not part of the box model?

- ☒ A. border-radius
- ☐ B. padding
- ☐ C. margin
- ☐ D. content