

Name: _____
SID: _____

CSCI2720 Building Web Applications 2020–21 Term 2

Midterm Exam — 22 March 2021 13:00–14:00

- Full marks is 100 marks, and the passing score is 40 marks
- This is a closed-book examination, with one double-sided A4 written cheat sheet allowed
- Write your answers clearly in the space provided in this exam script and cross out all rough work
- Assume that the web browser in use is the almost-latest version of *Google Chrome*, and all libraries and frameworks are of the version used in the course
- **Important:** Please keep your answers **legible**, **precise** and **concise**
- No questions asked during exam — Put down your assumptions in the answer if necessary

1. Look at this HTML code:

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-
  beta1/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-
  BmbxuPwQa2lc/FVzBcNJ7UAyJxM6WuqIj61tLrc4wSX0szH/Ev+nYRRuWloflfl" crossorigin="anonymous">
5 </head>
6 <body>
7
8 <nav class="navbar navbar-expand-lg bg-light justify-content-center my-lg-5 my-sm-3">
9   <ul class="navbar-nav">
10    <li class="nav-item"><a href="#q1" class="nav-link disabled">Question 1</a></li>
11    <li class="nav-item"><a href="#q2" class="nav-link">Question 2</a></li>
12    <li class="nav-item"><a href="#q3" class="nav-link">Question 3</a></li>
13    <li class="nav-item"><a href="#q4" class="nav-link">Question 4</a></li>
14  </ul>
15 </nav>
16
17 </body>
18 </html>
```

a. What is the `<nav>` element for?

Why are there `` and `` inside?

If line 4 is removed, and without any stylesheet and inline styles, how would the `<nav>` in the code be rendered as? Sketch it below. (8 marks)

b. We did not define any classes with an internal stylesheet. What are the classes “nav-link”, “bg-light”, etc. for? (6 marks)

c. There are some classes in the code with infix -lg- or -sm-. How are they useful? How will my-lg-5 and my-sm-3 in this `<nav>` affect the display results? (6 marks)

Name: _____
SID: _____

2. Look at these two files.

	index.html
1	<!DOCTYPE html>
2	<html>
3	<body>
4	<table id="loading" border="1"></table>
5	<script>
6	fetch('http://www.cse.cuhk.edu.hk/~chuckjee/data.json')
7	.then(res => res.json())
8	.then(data => {
9	let text = '';
10	for (line of data.comments) {
11	text += "<tr>";
12	for (item in line) {
13	text += "<td>";
14	text += _____ (this line is blocked)
15	text += "</td>";
16	}
17	text += "</tr>";
18	}
19	document.getElementById("loading").innerHTML += text;
20	});
21	</script>
22	</body>
23	</html>

	data.json
1	{ "comments": [
2	{ "name": "Alice", "email": "a@email.com", "comment": "Hello!", "ID": 21 },
3	{ "name": "Bob", "email": "b@fmail.com", "comment": "Nice work", "ID": 31 }
4]}]

- a. The file **data.json** is on a remote server. When visiting **index.html** on Google Chrome using Web Server for Chrome, an error message is shown at the JavaScript console. What does that mean? What is CORS? (6 marks)

⊗ Access to fetch at 'http://www.cse.cuhk.edu.hk/ (index):1 ~chuckjee/data.json' from origin 'http://localhost:8887' has been blocked by CORS policy: No 'Access-Control-Allow-Origin' header is present on the requested resource. If an opaque response serves your needs, set the request's mode to 'no-cors' to fetch the resource with CORS disabled.

- b. Now **data.json** is placed into the same directory as **index.html**, and line 6 of **index.html** is replaced as:

fetch('data.json')

The code works without error. Briefly describe what line 7 does. What is then()? (8 marks)

- c. This is the desired screen output:

Alice	a@email.com	Hello!	21
Bob	b@fmail.com	Nice work	31

What should the blank on line 14 of **index.html** be? (6 marks)

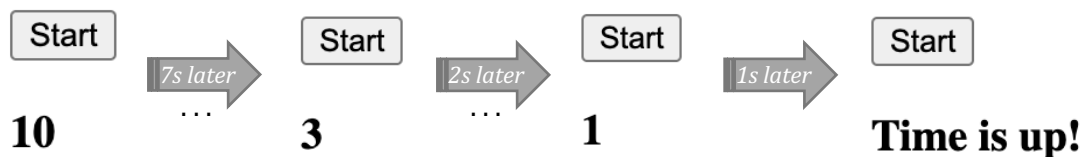
text += _____

Name: _____
SID: _____

3. Look at these two files.

1	<!DOCTYPE html>	index.html
2	<html>	
3	<head>	
4	<title>Countdown Clock</title>	
5	<script src="https://unpkg.com/react/umd/react.development.js" crossorigin></script>	
6	<script src="https://unpkg.com/react-dom/umd/react-dom.development.js"	
7	crossorigin></script>	
8	<script src="https://unpkg.com/@babel/standalone/babel.min.js"></script>	
9	<script type="text/babel" src="/app.jsx"></script>	
10	</head>	
11	<body>	
12	<div id="app">Rendering...</div>	
13	</body>	
14	</html>	
1	class App extends React.Component {	app.jsx
2	constructor(props) {	
3	super(props);	
4	this.state = { second: 10 };	
5	}	
6	handleClick = () => {	
7	let countdown = setInterval(() => {	
8	_____ (this line is blocked)	
9	}, 1000);	
10	}	
11	render() {	
12	return (
13	<>	
14	<h1>{this.props.name}</h1>	
15	<button type="button" onClick={this.handleClick}>Start</button>	
16	<h3>{ _____ ? _____ : 'Time is up!'}</h3>	
17	</>	
18);	
19	}	
20	}	
21		
22	ReactDOM.render(<App/>, document.querySelector("#app"));	

- a. The page should show a countdown of seconds, which decreases by one every second after starting. Yet, line 8 in **app.jsx** is missing. What should it be for it to work properly? (6 marks)
- b. When the state **second** reaches 0, "**Time is up!**" should be shown on the screen instead of the countdown value, like this:



What should the blanks in line 16 be? (8 marks)

<h3>{ _____ ? _____ : 'Time is up!'</h3>

- c. Line 22 of **app.jsx** is incorrect and making the <h1> empty. The <button> and <h3> are rendered fine. How should it be rewritten? (6 marks)

Name: _____
SID: _____

4. Look at this Node JS file.

```
1 const express = require('express');
2 const app = express();
3
4 app.get('/loc', function(req,res) {
5     res.send('Location?');
6 });
7 app.all('/*', function(req,res) {
8     res.send('Welcome!');
9 });
10 app.all('/loc/:lid-:eid', function(req,res) {
11     res.cookie('eid', req.params['eid']);
12     let str = "Location ID: " + req.params['lid'];
13     str += "<br>";
14     str += "Event ID: " + req.params['eid'];
15     res.send(str);
16 });
17
18 const server = app.listen(2000);
```

- a. What will be shown on the browser screen, when visiting this Express site at this URL?
`http:// (server address) /loc/csci-2720`
Assume that the *server address* points correctly to the Node server running this file. Sketch it here. (6 marks)
- b. Other than using `req.params[]` from the URL parameters, what other methods are there to get these information from the user? Discuss TWO methods briefly. (8 marks)
- c. What does it mean for line 11? Where will the piece of data “eid” be stored? Will it expire some time? (6 marks)

5. Please put down **True/False** in the blank for each question. (4 marks each)

- a. One advantage of using CSS preprocessors is making it possible to generate CSS code from HTML _____
- b. A sibling in the DOM tree refers to the next child element of the current element _____
- c. The single-page web apps are good for efficient use of bandwidth _____
- d. The left margin specified by the CSS statement **margin:2px 6px;** is 2px _____
- e. Service Workers are useful because they can preload page contents in the background _____

END OF PAPER