

# Answer Key for the Exam of: Advanced Programming for the Web

## Questions (2 pts)

- 1- JSON (JavaScript Object Notation) (0.5)
- 2- Application Programming Interface (0.5)
- 3- N-layer (multi-layers). (0.5)

Justification: (0.5)

- Small team (3 devs)
- Multiple components (needs different packages)
- Ease of maintenance

## Exercise 01 (4 pts)

```
<html>
<body>
  <p id="person-info"></p>

  <script>
    const persons = [
      { id: 1 name: 'Ali', age: 30 },
      { id: 2, name: 'Asma', age: 33 },
      { id: 3, name: 'Ahmed', age: 20 }
    ];

    function loadAndDisplay() {
      const personInfo = persons.map(person => person.name + ' (' + person.age + ')').join(' | ');
      document.getElementById('person-info').textContent = personInfo;
    }

    loadAndDisplay();
  </script>
</body>
</html>
```

## Exercise 02 (5 pts)

- 1- (2)

```

<div>
  <button id="fruit-btn">Fruits</button>
  <button id="veg-btn">Vegetables</button>
</div>
<ul id="itemList">
  <li class="fruit">Apple</li>
  <li class="veg">Carrot</li>
  <li class="fruit">Banana</li>
  <li class="veg">Potato</li>
</ul>

```

2- (3)

```

<script>
  $(document).ready(function() {
    $('#fruit-btn').on('click', function() {
      $('.fruit').show();
      $('.veg').hide();
    });

    $('#veg-btn').on('click', function() {
      $('.veg').show();
      $('.fruit').hide();
    });
  });
</script>

```

### Exercise 03 (5 pts)

1- Errors and correction

- Line 1: useEffect -> useState (0.5)
- Lines 3 and 4: useEffect -> useState (0.5)
- Line 11: setList -> setItem (0.5)
- Line 17: </ul> -> </ol> (0.5)

2- (1)

- 3- *setList* adds *item* to the list *list* (0.5)  
*setItem("")* clears the input field (0.5)
- 4- This component adds each input text as an item in the ordered list. (1)

Corrected version:

```
1 import React, { useState } from 'react';
2
3 const TodoList = () => {
4   const [item, setItem] = useState("");
5   const [list, setList] = useState([]);
6
7   const handleAddItem = () => {
8     setList([...list, item]);
9     setItem("");
10  };
11  return (
12    <div>
13      <input type="text" value={item} onChange={(e) => setItem(e.target.value)} />
14      <button onClick={handleAddItem}>Add</button>
15      <ol>
16        {list.map((i, index) => (
17          <li key={index}>{i}</li>
18        ))}
19      </ol>
20    </div>
21  );
22 }
23 export default TodoList;
```

#### Exercise 04 (4 pts)

```
const express = require('express');
const app = express();
app.get('/square/:x', (req, res) => {
  const x = req.params.x
  const result = 2 * x + 5;
  res.send({ result });
});

// Start the server
app.listen(port, () => {
  console.log('Server running at port 3000');
});
```