



NETAJI SUBHAS UNIVERSITY OF TECHNOLOGY

Practical Report

Web Technology

Computer Science Engineering (Internet of Things)

Semester 3

Name: Kushagra Lakhwani

Roll Number: *2021UCI8036*

Submitted to:

Ms. Barkha Nandwana

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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1 Using HTML

1.1 Project

Project Description

This is a simple webpage that showcases the usage of the *HTML* language.

Project Showcase

Welcome

This is just an example with some web content. This is the Hero Unit.

Featured Content 1

lorem dolor ametlorem ipsum dolor ametlorem ipsum dolor ametlorem ipsum.

Featured Content 2

lorem ipsum dolor amet lorem ipsum dolor amet.

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Figure 1: Simple Webpage

1.2 Source Code

File: page.html

```
1  <!DOCTYPE html>
2  <html lang="en-US">
3    <head>
4      <meta charset="UTF-8" />
5      <title>My Pimpin Website</title>
6      <meta name="description" content="A sample website, nothin fancy"
7        ↪ />
8      <meta http-equiv="author" content="Simplistic webpage" />
9      <meta name="keywords" content="html, css, web, design, sample,
10        ↪ practice" />
11    </head>
12    <body>
13      <div class="container">
14        <header>
15          <div class="header">
16            <h1>Welcome</h1>
```

```

16     </div>
17 </header>
18 <div class="main">
19     <h2>
20         This is just an example with some web content. This is the
21         ↳ Hero Unit.
22     </h2>
23 </div>
24 <div class="feature">
25     <h3>Featured Content 1</h3>
26     <p>
27         lorem dolor ametlorem ipsum dolor ametlorem ipsum dolor
28         ↳ ametlorem
29         ipsum.
30     </p>
31 </div>
32 <div class="feature">
33     <h3>Featured Content 2</h3>
34     <p>lorem ipsum dolor amet lorem ipsum dolor amet.</p>
35 </div>
36 <footer>&copy;2022 KorigamiK Campos Arias, All Rigts
37     ↳ Reserved.</footer>
38 </div>
39 </body>
40 </html>

```

2 CSS

2.1 Project

Project Description

This is a simple web-page that utilizes an external cascade stylesheet

Project Showcase

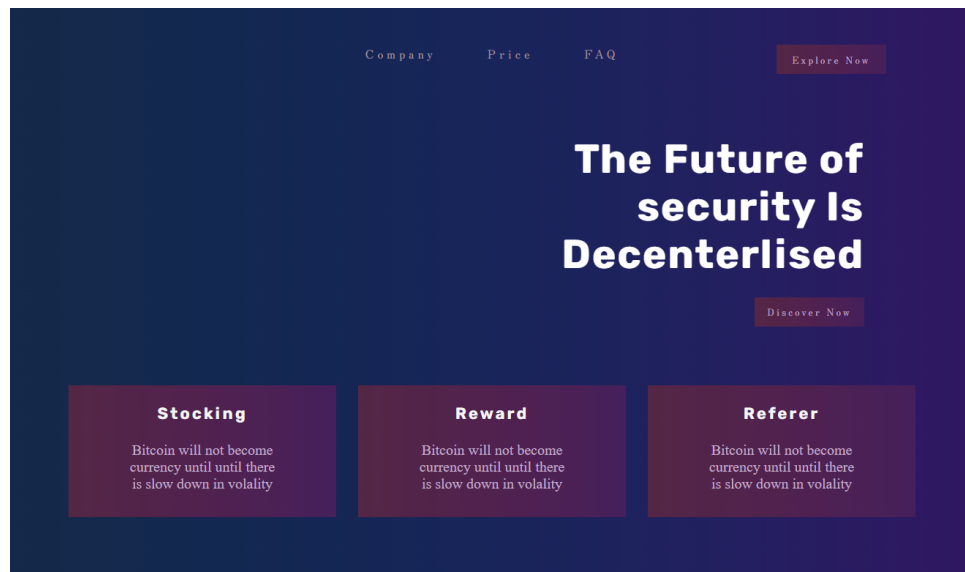


Figure 2: Styled Web page

2.2 Source Code

File: page.css

```
1 body {
2     background-image: linear-gradient(to right, #152a49, #132852,
3         #18255a, #232060, #311763);
4 }
5
6 .nav {
7     margin: 50px;
8     list-style: none;
9     display: flex;
10    justify-content: center;
11    gap: 20px;
12    color: #A8999C;
```

```

13     letter-spacing: 5px;
14 }
15
16 .cnav {
17     margin: 0px 25px;
18     font-family: 'Zen Old Mincho', serif;
19 }
20
21 .b1 {
22     background-image: linear-gradient(to right, #552746, #53244a,
23         #51224f, #4c2155, #46205b);
24     height: 40px;
25     width: 150px;
26     color: #C3AFCC;
27     border: none;
28     font-family: 'Zen Old Mincho', serif;
29     position: absolute;
30     top: 50px;
31     right: 120px;
32     letter-spacing: 3px;
33     font-weight: 100;
34 }
35
36 .content {
37     color: white;
38     font-family: 'Rubik', sans-serif;
39     font-size: 55px;
40     text-align: end;
41     letter-spacing: 2px;
42     padding-left: 800px;
43     margin-right: 150px;
44     margin-top: 100px;
45 }
46
47 .b2 {
48     background-image: linear-gradient(to right, #552746, #53244a,
49         #51224f, #4c2155, #46205b);
50     height: 40px;
51     width: 150px;
52     color: #C3AFCC;
53     border: none;
54     letter-spacing: 3px;
55     font-family: 'Zen Old Mincho', serif;
56 }
57

```

```

58 .cb {
59     display: flex;
60     gap: 30px;
61     justify-content: center;
62     margin: 80px;
63 }
64
65 .cb1 {
66     background-image: linear-gradient(to right, #552746, #53244a,
67     ↪ #51224f,
68     #4c2155, #46205b);
69     height: 180px;
70 }
71
72 .h {
73     text-align: center;
74     font-family: 'Rubik', sans-serif;
75     margin: 25px;
76     font-size: 22px;
77     color: whitesmoke;
78     letter-spacing: 3px;
79 }
80
81 .pc {
82     text-align: center;
83     padding: 0px 75px;
84     font-size: 20px;
85     color: #C3AFCC;
86     letter-spacing: 2px;
87 }

```

File: page.html

```

1  <!DOCTYPE html>
2  <html lang="en">
3
4  <head>
5      <meta charset="UTF-8" />
6      <meta http-equiv="X-UA-Compatible" content="IE=edge" />
7      <meta name="viewport" content="width=device-width,
8      ↪ initial-scale=1.0" />
9      <title>Nft Marketplace</title>

```

```

10     <head>
11         <link rel="stylesheet" href="page.css" />
12     </head>
13
14 <body>
15     <nav>
16         <ul class="nav">
17             <li class="cnav">Company</li>
18             <li class="cnav">Price</li>
19             <li class="cnav">FAQ</li> <button class="b1">Explore
                ↳ Now</button>
20         </ul>
21     </nav>
22     <div class="content">The Future of security Is Decenterlised <br>
                ↳ <button class="b2">Discover Now</button></div>
23     <div class="cb">
24         <div class="cb1">
25             <p class="h">Stocking</p>
26             <p class="pc">
27                 Bitcoin will not become currency until until there is
28                 ↳ slow
29                 down in volality
30             </p>
31         </div>
32         <div class="cb1">
33             <p class="h">Reward</p>
34             <p class="pc">
35                 Bitcoin will not become currency until until there is
36                 ↳ slow
37                 down in volality
38             </p>
39         </div>
40         <div class="cb1">
41             <p class="h">Referer</p>
42             <p class="pc">
43                 Bitcoin will not become currency until until there is
44                 ↳ slow
45                 down in volality
46             </p>
47         </div>
48     </div>
</body>
</html>

```


3 Form With Validation

3.1 Project

Project Description

This project is a *Signup form with validation*.

Project Showcase

Sign Up

Name

asd

Email

as@qw

Password

...

Submit

Password must contain the following:

- A lowercase letter
- A capital (uppercase) letter
- A number
- Minimum 8 characters

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Figure 3: Form With Validation

3.2 Source Code

File: form.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
```

```

5 <meta http-equiv="X-UA-Compatible" content="IE=edge" />
6 <meta name="viewport" content="width=device-width,
  ↳ initial-scale=1.0" />
7 <title>SignUp Form</title>
8 <style>
9   :root {
10     --message-display: none;
11   }
12   body {
13     font-family: "Courier New", Courier, monospace;
14   }
15   main {
16     width: 100%;
17     height: 100vh;
18     display: flex;
19     flex-direction: column;
20     justify-content: center;
21     align-items: center;
22   }
23   form {
24     text-align: center;
25   }
26   form .user-input {
27     display: grid;
28     grid-template-columns: 1fr 1fr;
29     align-items: center;
30     border: 1px solid black;
31     border-radius: 10px;
32     padding: 20px;
33   }
34   input {
35     height: 30px;
36     margin: 10px 0;
37     border-radius: 5px;
38     padding: 5px;
39   }
40   button {
41     margin: 10px 0;
42     border: 1px solid black;
43     border-radius: 5px;
44     padding: 5px 10px;
45     background-color: #f1f1f1;
46   }
47   button:hover {
48     background-color: #ddd;

```

```

49     }
50     input:invalid {
51         border: 2px solid red;
52     }
53     input:valid {
54         border: 2px solid green;
55     }
56     #message {
57         display: var(--message-display);
58     }
59     .valid {
60         color: green;
61     }
62     .invalid {
63         color: red;
64     }
65     footer {
66         width: 100%;
67         text-align: center;
68         text-decoration: none;
69     }
70     footer a {
71         text-decoration: none;
72     }
73 </style>
74 </head>
75 <body>
76     <main>
77         <h1>Sign Up</h1>
78         <form action="/signup" method="POST">
79             <div class="user-input">
80                 <label for="name">Name</label>
81                 <input required type="text" name="name" id="name" />
82                 <label for="email">Email</label>
83                 <input required type="email" name="email" id="email" />
84                 <label for="password">Password</label>
85                 <input
86                     required
87                     type="password"
88                     name="password"
89                     pattern="(=?.*\d)(?=.*[a-z])(?=.*[A-Z]).{8,}"
90                     id="password"
91                 />
92             </div>
93             <button type="submit">Submit</button>

```

```

94     </form>
95
96     <div id="message">
97         <h3>Password must contain the following:</h3>
98         <p id="letter" class="invalid">A <b>lowercase</b> letter</p>
99         <p id="capital" class="invalid">A <b>capital (uppercase)</b>
100           ↪ letter</p>
101         <p id="number" class="invalid">A <b>number</b></p>
102         <p id="length" class="invalid">Minimum <b>8 characters</b></p>
103     </div>
104 </main>
105 <footer>
106     &copy; 2022 - 2023
107     <a target="_blank"
108       ↪ href="https://github.com/KorigamiK">KorigamiK</a>
109 </footer>
110
111 <script type="text/JavaScript">
112     const form = document.querySelector("form");
113     form.addEventListener("submit", (e) => {
114         e.preventDefault();
115     });
116
117     const password = document.getElementById("password");
118     password.addEventListener("blur", () =>
119       ↪ document.documentElement.style.setProperty("--message-display",
120       ↪ "none"));
121     password.addEventListener("focus", () =>
122       ↪ document.documentElement.style.setProperty("--message-display",
123       ↪ "block"));
124
125     const message = document.getElementById("message");
126     const letter = document.getElementById("letter");
127     const capital = document.getElementById("capital");
128     const number = document.getElementById("number");
129     const length = document.getElementById("length");
130
131     password.onkeyup = () => {
132         const lowerCaseLetters = /[a-z]/g;
133         if (password.value.match(lowerCaseLetters)) {
134             letter.classList.toggle("invalid");
135             letter.classList.add("valid");
136         } else {
137             letter.classList.remove("valid");
138             letter.classList.add("invalid");
139         }
140     }
141 </script>

```

```
133     }
134
135     const upperCaseLetters = /[A-Z]/g;
136     if (password.value.match(upperCaseLetters)) {
137         capital.classList.remove("invalid");
138         capital.classList.add("valid");
139     } else {
140         capital.classList.remove("valid");
141         capital.classList.add("invalid");
142     }
143
144     const numbers = /[0-9]/g;
145     if (password.value.match(numbers)) {
146         number.classList.remove("invalid");
147         number.classList.add("valid");
148     } else {
149         number.classList.remove("valid");
150         number.classList.add("invalid");
151     }
152
153     if (password.value.length >= 8) {
154         length.classList.remove("invalid");
155         length.classList.add("valid");
156     } else {
157         length.classList.remove("valid");
158         length.classList.add("invalid");
159     }
160 };
161 </script>
162 </body>
163 </html>
```

4 Using HTML, CSS & JavaScript

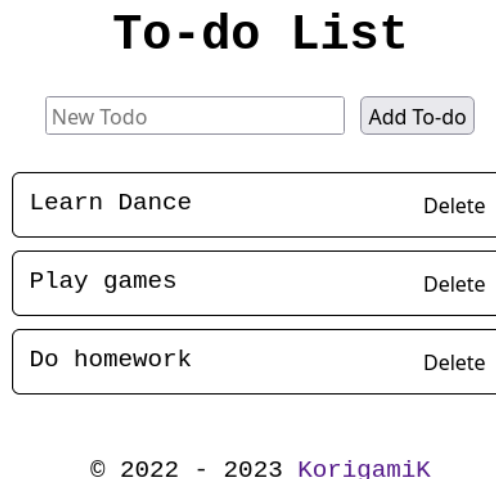
4.1 Project

Project Description

This is a minimal To-do List application written in HTML, CSS and JavaScript. It is a single page application that allows the user to add, edit and delete tasks.

The tasks are added through a form that is displayed at the top of the page. The tasks are displayed in an unordered list below the form. And a delete button is displayed next to each task. The click and submit events are handled by JavaScript functions.

Project Showcase



The screenshot shows a web application titled "To-do List". At the top, there is a text input field labeled "New Todo" and a button labeled "Add To-do". Below this, there is a list of three tasks, each in a rounded rectangular box. The first task is "Learn Dance" with a "Delete" button to its right. The second task is "Play games" with a "Delete" button to its right. The third task is "Do homework" with a "Delete" button to its right. At the bottom of the page, there is a copyright notice: "© 2022 - 2023 KorigamiK".

Figure 4: To-do List App

4.2 Source Code

File: todo-list.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
```

```

4 <meta charset="UTF-8" />
5 <meta http-equiv="X-UA-Compatible" content="IE=edge" />
6 <meta name="viewport" content="width=device-width,
  ↳ initial-scale=1.0" />
7 <style>
8   body {
9     font-family: "Courier New", Courier, monospace;
10  }
11  footer {
12    position: static;
13    width: 100%;
14    text-align: center;
15    text-decoration: none;
16    margin-top: 1rem;
17  }
18  footer a {
19    text-decoration: none;
20  }
21  .todo-list {
22    display: flex;
23    flex-direction: column;
24    align-items: center;
25    justify-content: space-between;
26    margin-top: 1rem;
27  }
28  .todo-list ul {
29    list-style: none;
30    padding: 0;
31  }
32  .todo-list li {
33    display: flex;
34    flex-direction: row;
35    justify-content: space-between;
36    max-width: 500px;
37    min-width: 300px;
38    margin: 0.5rem;
39    padding: 10px;
40    border: 1px solid black;
41    border-radius: 5px;
42  }
43  .todo-list li button {
44    border: none;
45    background-color: transparent;
46    cursor: pointer;
47    margin-left: 0.5rem;

```

```

48     }
49     .todo-list li button:hover {
50         color: red;
51     }
52 </style>
53 <title>To-do List</title>
54 </head>
55 <body>
56     <main class="todo-list">
57         <h1>To-do List</h1>
58
59         <form class="new-todo__form" action="/new-todo" method="POST">
60             <input type="text" name="todo" placeholder="New Todo" />
61             <button type="submit">Add To-do</button>
62         </form>
63
64         <ul>
65             <li>
66                 <span>Learn Node.js</span>
67                 <button>Delete</button>
68             </li>
69         </ul>
70     </main>
71
72     <footer>
73         &copy; 2022 - 2023
74         <a target="_blank"
75             ↪ href="https://github.com/KorigamiK">KorigamiK</a>
76     </footer>
77
78     <script type="text/javascript">
79         const deleteButtons = document.querySelectorAll(".todo-list li
80             ↪ button");
81
82         deleteButtons.forEach((button) => {
83             button.addEventListener("click", (event) => {
84                 event.target.parentElement.remove();
85             });
86         });
87
88         const todoList = document.querySelector(".todo-list > ul");
89
90         const addTodo = (todo) => {
91             const todoItem = document.createElement("li");
92             const todoText = document.createElement("span");

```



```

91     todoText.innerText = todo;
92
93     const deleteButton = document.createElement("button");
94     deleteButton.innerText = "Delete";
95
96     deleteButton.addEventListener("click", (e) =>
97         e.target.parentElement.remove()
98     );
99
100    todoItem.appendChild(todoText);
101    todoItem.appendChild(deleteButton);
102
103    todoList.appendChild(todoItem);
104 };
105
106 const newTodoForm = document.querySelector(".new-todo__form");
107
108 newTodoForm.addEventListener("submit", (event) => {
109     event.preventDefault();
110
111     const formData = new FormData(event.target);
112     const todo = formData.get("todo");
113     todo.length ? addTodo(todo) : alert("Please enter a todo");
114
115     event.target.reset();
116 });
117
118 addTodo("Learn React");
119 </script>
120 </body>
121 </html>

```

5 XML

5.1 Project

Project Description

This is a syndication feed for my blog written in *XML* following the Atom standard for syndication.

5.2 Source Code

File: feed.xml

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <feed xmlns="http://www.w3.org/2005/Atom">
3      <id>https://korigamik.deno.dev/blog</id>
4      <title>Blogs on paper</title>
5      <updated>2022-11-02T06:46:07.509Z</updated>
6      <link rel="alternate" href="https://korigamik.deno.dev/blog"/>
7      <link rel="self" href="https://korigamik.deno.dev/feed"/>
8      <subtitle>Articles thrown at you.</subtitle>
9      <icon>https://korigamik.deno.dev/favicon.ico</icon>
10     <rights>Copyright 2022 https://korigamik.deno.dev</rights>
11     <entry>
12         <title type="html"><![CDATA[Bags with Balls]]></title>
13         <id>https://korigamik.deno.dev/Bags with Balls</id>
14         <link href="https://korigamik.deno.dev/bags_with_balls"/>
15         <updated>2022-08-16T13:15:18.514Z</updated>
16         <summary type="html"><![CDATA[An approach to solving this
17             ↪ codeforces problem]]></summary>
18         <published>2022-08-16T13:15:18.514Z</published>
19         <rights>Copyright 2022 https://korigamik.deno.dev</rights>
20     </entry>
21     <entry>
22         <title type="html"><![CDATA[Hello world!]]></title>
23         <id>https://korigamik.deno.dev>Hello world!</id>
24         <link href="https://korigamik.deno.dev/hello_world"/>
25         <updated>2022-08-15T19:15:18.514Z</updated>
26         <summary type="html"><![CDATA[This is my first blog post!
27             ↪ ]]]></summary>
28         <published>2022-08-15T19:15:18.514Z</published>
29         <rights>Copyright 2022 https://korigamik.deno.dev</rights>
30     </entry>
31     <entry>
```

```
30     <title type="html"><![CDATA[Raycasting Adventures]]></title>
31     <id>https://korigamik.deno.dev/Raycasting Adventures</id>
32     <link
33       ↪ href="https://korigamik.deno.dev/raycasting_adventures"/>
34     <updated>2022-10-25T13:15:18.514Z</updated>
35     <summary type="html"><![CDATA[A deep dive into
36       ↪ game...]]></summary>
37     <published>2022-10-25T13:15:18.514Z</published>
38     <rights>Copyright 2022 https://korigamik.deno.dev</rights>
    </entry>
  </feed>
```

6 PHP

6.1 Project

Project Description

This is a simple *PHP* application[1] that displays a list of fruits. The fruits are stored in a SQLite database.

The user can add more fruits to the list by filling a form and submitting it and the user can also buy the fruits by clicking on the *Buy* button.

The fruit is removed from the list when none of its kind are left.

Project Showcase

Shop Fruits

Name:

Amount:

Fruits

Name	Amount	Buy
Apple	3	Buy
Banana	2	Buy

Figure 5: PHP Fruits App

6.2 Source Code

File: index.php

```
1 <!DOCTYPE html>
2
3 <?php include 'app.php'; ?>
4
5 <html>
6 <head>
7     <title>Fruit Shop</title>
8 </head>
```

```

9 <body>
10 <h1> Shop Fruits </h1>
11 <form action="/api/add.php" method="post">
12 <label for="name">Name:</label>
13 <input type="text" id="name" name="name"><br><br>
14 <label for="amount">Amount:</label>
15 <input type="text" id="amount" name="amount"><br><br>
16 <input type="submit" value="Submit">
17 </form>
18
19 <h2> Fruits </h2>
20 <table>
21 <tr>
22 <th>Name</th>
23 <th>Amount</th>
24 <th>Buy</th>
25 </tr>
26 <?php
27 $results = $db->GetFruits();
28 while ($row = $results->fetchArray()) {
29     echo "<tr>";
30     echo "<td>" . $row['name'] . "</td>";
31     echo "<td>" . $row['amount'] . "</td>";
32     echo "<td><a href='/api/buy.php?id=" . $row['id'] .
33         ↪ " ">Buy</a></td>";
34     echo "</tr>";
35 }
36 ?>
37 </table>
38 </body>
</html>

```

File: app.php

```

1 <?php
2 class MyDB extends SQLite3
3 {
4     public $rootDir;
5     function __construct()
6     {
7         $this->rootDir = realpath($_SERVER["DOCUMENT_ROOT"]);
8         $this->open($this->rootDir . '/test.db');
9     }

```

```

10
11 public function CreateTables()
12 {
13     $this->exec('CREATE TABLE IF NOT EXISTS fruits (id INTEGER
        ↳ PRIMARY KEY, name TEXT, amount INTEGER, CHECK (amount >
        ↳ 0))');
14 }
15
16 public function AddFruit($name, $amount)
17 {
18     $this->exec("INSERT INTO fruits (name, amount) VALUES
        ↳ ('$name', '$amount')");
19 }
20
21 public function GetFruits()
22 {
23     $results = $this->query('SELECT * FROM fruits');
24     return $results;
25 }
26
27 public function BuyFruit($id)
28 {
29     $this->exec("UPDATE fruits SET amount = amount - 1 WHERE id =
        ↳ $id");
30     if ($this->changes() == 0) {
31         $this->exec("DELETE FROM fruits WHERE id = $id");
32     }
33 }
34
35 function __destruct()
36 {
37     $this->close();
38 }
39 }
40
41 class Logger
42 {
43     private $logFile;
44
45     function __construct()
46     {
47         $this->logFile = fopen(realpath($_SERVER["DOCUMENT_ROOT"]) .
            ↳ "/log.txt", "a");
48         $this->Log("Logger created");
49     }

```

```

50
51     public function Log($message)
52     {
53         fwrite($this->logFile, $message . PHP_EOL);
54     }
55
56     public function __destruct()
57     {
58         $this->Log("Logger destroyed");
59         fclose($this->logFile);
60     }
61 }
62
63 $logger = new Logger();
64 $db = new MyDB();
65
66 if (!$db) {
67     echo $db->lastErrorMsg();
68 } else {
69     $logger->Log("Opened database successfully");
70     $db->CreateTables();
71 }

```

File: api/add.php

```
1  <?php include '../app.php'; ?>
2
3  <?php
4  if ($_SERVER['REQUEST_METHOD'] === 'POST') {
5      $logger->Log("Adding fruit");
6      $db->AddFruit($_POST['name'], $_POST['amount']);
7      header("Location: /");
8      exit();
9  } else {
10     return false;
11 }
12 ?>
```

File: api/buy.php

```
1  <?php include '../app.php'; ?>
2
3  <?php
4  if ($_SERVER['REQUEST_METHOD'] === 'GET') {
5      $logger->Log("Buying fruit with id: " . $_GET['id']);
6      $db->BuyFruit($_GET['id']);
7      exit(header("Location: /"));
8  } else {
9      return false;
10 }
11 ?>
```


References

[1] KorigamiK, “PHP Fruits.” <https://github.com/korigamiK/php-fruits/>, 2022.

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