

4. Explore the features of ES6 like arrow functions, callbacks, promises, async/await. Implement an application for reading the weather information from openweathermap.org and display the information in the form of a graph on the web page.

```
<html>
```

```
<head>
```

```
  <meta charset="UTF-8">
```

```
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
  <title>Weather App</title>
```

```
  <link href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css"
rel="stylesheet">    <style>      body {        background-color: #f8f9fa;
```

```
      .weather-card {        max-width: 400px;        margin:
50px auto;        padding: 30px;        border-radius: 10px;
box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);
      }
```

```
      #city-input {        border-radius:
5px;        border-color: #ccc;
      }
```

```
      #city-input-btn {        background-
color: #007bff;        border-color: #007bff;
color: #fff;        border-radius: 5px;
      }
```

```
      #city-input-btn:hover {
background-color: #0056b3;        border-
color: #0056b3;
      }
```

```
      #weather-info {        display:
none;        margin-top: 20px;
      }
```

```
      #weather-icon        {
width: 100px;        height:
100px;
      }
```

```
      #temperature,
      #description,      #wind-speed {
font-size: 1.2em;        margin-
bottom: 10px;
```

```
}
</style> </head>

<body>
  <div class="container">
    <div class="weather-card">
      <h1 class="text-success text-center">Weather App</h1>
      <input type="text"
id="city-input" class="form-control mb-3" placeholder="Enter city name">
      <button id="city-input-btn" class="btn btn-primary btn-block">Get
Weather</button>
      <div id="weather-info" class="text-center mt-4">
        <h3 id="city-name"></h3>
        <p id="date"></p>
        <img id="weather-icon" src="" alt="Weather Icon">
        <p id="temperature"></p>
        <p id="description"></p>
        <p id="wind-speed"></p>
      </div>
    </div>
  </div>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></s
cript>

  <script>    const url = 'https://api.openweathermap.org/data/2.5/weather';    const
apiKey = 'dd29a35967661e5b64feb8b437473ec0';

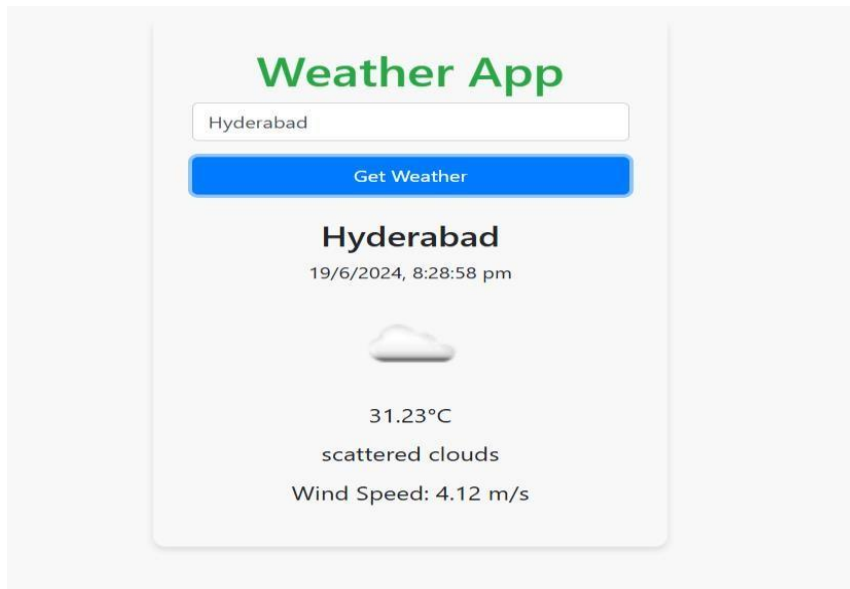
    document.addEventListener('DOMContentLoaded', function () {    const cityInputBtn
= document.getElementById('city-input-btn');    cityInputBtn.addEventListener('click',
function () {    const cityInput = document.getElementById('cityinput').value;
weatherFn(cityInput);
    });
  });

  async function weatherFn(cityName) {    const
endpoint =
`${url}?q=${cityName}&appid=${apiKey}&units=metric`;
  try {    const response = await fetch(endpoint);
const data = await response.json();    if (response.ok) {
weatherShowFn(data);
    } else {    alert('City not found. Please try again.');
```

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```
function weatherShowFn(data) {      document.getElementById('city-name').textContent =
data.name;      document.getElementById('date').textContent = new
Date().toLocaleString();      document.getElementById('temperature').innerHTML =
`${data.main.temp} °C`;      document.getElementById('description').textContent =
data.weather[0].description;      document.getElementById('wind-speed').innerHTML =
`Wind Speed:
${data.wind.speed} m/s`;      document.getElementById('weather-icon').src =
`http://openweathermap.org/img/w/${data.weather[0].icon}.png`;
document.getElementById('weather-info').style.display = 'block';      }
</script>
</body>

</html>
```



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5. Develop a java stand alone application that connects with the database (Oracle / mySql) and perform the CRUD operation on the database tables.

INSERT:

```
import java.sql.*;
```

```
import java.util.Scanner;
```

```
public class InsertData {
```

```
    public static void main(String[] args) {
```

```
        try {
```

```
            Class.forName("com.mysql.cj.jdbc.Driver");
```

```
            try (Connection con = DriverManager.getConnection("jdbc:mysql://localhost/nodejs", "root", "1234"))
```

```
                PreparedStatement pstmt = con.prepareStatement("INSERT INTO student VALUES (?, ?, ?, ?)")) {
```

```
                    Scanner sc = new Scanner(System.in);
```

```
                    System.out.println("Inserting Data into student table:");
```

```
                    System.out.println("_____");
```

```
                    System.out.print("Enter student id: ");
```

```
                    int s_id = sc.nextInt();
```

```
                    System.out.print("Enter student name: ");
```

```
                    String s_name = sc.next();
```

```
                    System.out.print("Enter student address: ");
```

```
                    String s_address = sc.next();
```

```
                    System.out.print("Enter student address: ");
```

```
                    String email = sc.next();
```

```
                    pstmt.setInt(1, s_id);
```

```
                    pstmt.setString(2, s_name);
```

```
                    pstmt.setString(3, s_address);
```

```
                    pstmt.setString(4, email);
```

```
                    pstmt.executeUpdate();
```

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```
        System.out.println("Data inserted successfully into
        student table");

    } catch (SQLException err) {

        System.out.println("ERROR: " + err);

    }

    } catch (ClassNotFoundException e) {

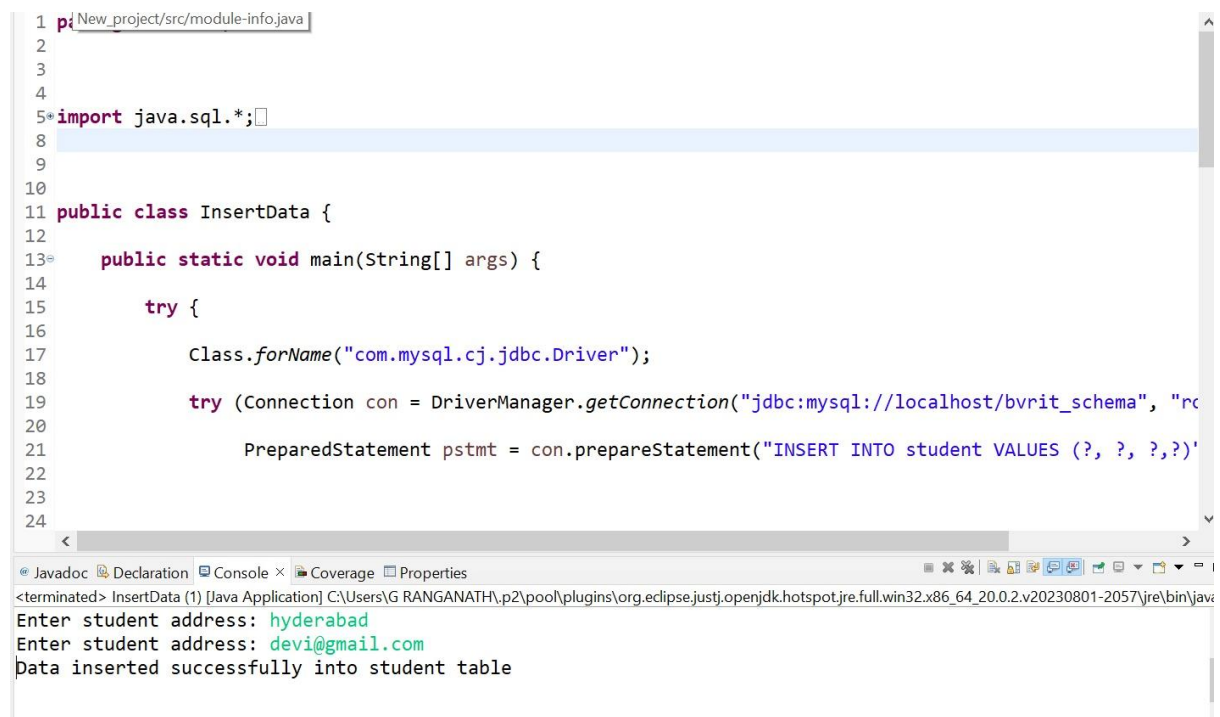
        System.out.println("MySQL JDBC driver not found");

    }

}

}
```

OUTPUT:

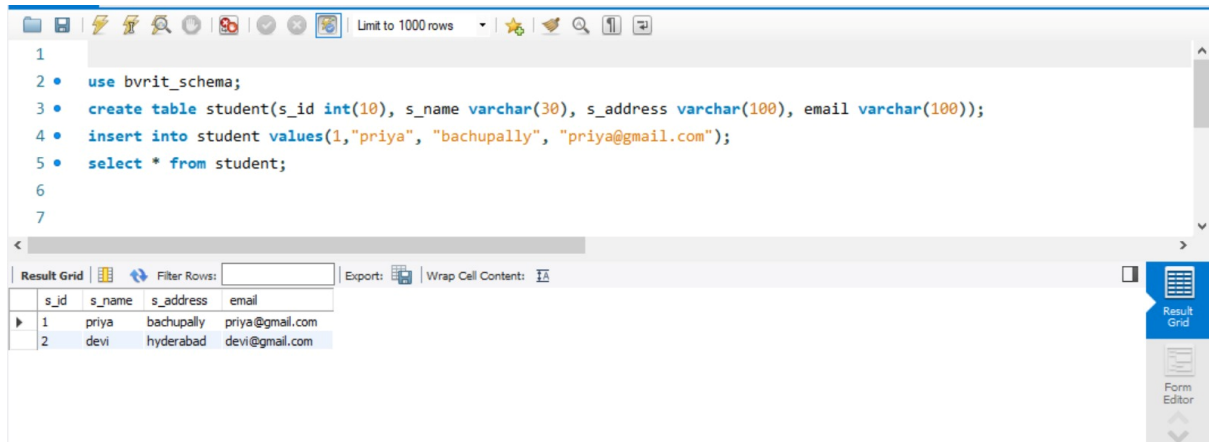


The screenshot shows the Eclipse IDE with a Java file named `New_project/src/module-info.java`. The code defines a class `InsertData` with a `main` method. The `main` method attempts to load the MySQL JDBC driver, establish a connection to a database named `bvrit_schema` on `localhost`, and execute an `INSERT` statement. The output console shows the program running successfully, with the user entering `hyderabad` and `devi@gmail.com` as input, and the program printing `Data inserted successfully into student table`.

```
1 p: New_project/src/module-info.java
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4
5 *import java.sql.*;
6
7
8
9
10
11 public class InsertData {
12
13     public static void main(String[] args) {
14
15         try {
16
17             Class.forName("com.mysql.cj.jdbc.Driver");
18
19             try (Connection con = DriverManager.getConnection("jdbc:mysql://localhost/bvrit_schema", "root", "root")) {
20
21                 PreparedStatement pstmt = con.prepareStatement("INSERT INTO student VALUES (?, ?, ?, ?)");
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```

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The screenshot displays a SQL IDE interface. The top toolbar includes icons for file operations, execution, and a 'Limit to 1000 rows' dropdown. The SQL editor contains the following code:

```
1
2 • use bvrnit_schema;
3 • create table student(s_id int(10), s_name varchar(30), s_address varchar(100), email varchar(100));
4 • insert into student values(1,"priya", "bachupally", "priya@gmail.com");
5 • select * from student;
6
7
```

Below the editor is the 'Result Grid' section, which includes a 'Filter Rows' input, an 'Export' button, and a 'Wrap Cell Content' checkbox. The result grid shows two rows of data:

s_id	s_name	s_address	email
1	priya	bachupally	priya@gmail.com
2	devi	hyderabad	devi@gmail.com

On the right side of the interface, there are buttons for 'Result Grid' and 'Form Editor'.

DELETE:

```
import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;

import java.sql.Statement;

import java.util.Scanner;

public class DeleteData {

    public static void main(String[] args) {

        try {

            Class.forName("com.mysql.cj.jdbc.Driver");

            try (Connection con = DriverManager.getConnection("jdbc:mysql://localhost/nodejs", "root",
"1234");

                Statements = con.createStatement()) {

                Scanner sc = new Scanner(System.in);

                System.out.println("Delete Data from student table:");

                System.out.println("_____");

                System.out.print("Enter student id: ");

                int sid = sc.nextInt();

                String deleteQuery = "DELETE FROM student WHERE s_id=" + sid;

                s.executeUpdate(deleteQuery);

                System.out.println("Data deleted successfully");

            } catch (SQLException err) {

                System.out.println("ERROR: " + err);

            }

        } catch (ClassNotFoundException e) {

            System.out.println("MySQL JDBC driver not found");

        }

    }

}
```

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OUTPUTS:

```
1 package NJSPACK;
2 import java.sql.Connection;
11
12
13
14 public class DeleteData {
15
16     public static void main(String[] args) {
17
18         try {
19
20             Class.forName("com.mysql.cj.jdbc.Driver");
21
22             try (Connection con = DriverManager.getConnection("jdbc:mysql://localhost/bvrit_schema", "root", "root")) {
23
24                 Statement s = con.createStatement();
25
26
27
28
29                 Scanner sc = new Scanner(System.in);
30

```

<terminated> DeleteData [Java Application] C:\Users\G RANGANATH\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_20.0.2.v20230801-2057\jre\bin\javaw.exe

Enter student id: 1
Data deleted successfully

```
1
2 use bvrit_schema;
3 create table student(s_id int(10), s_name varchar(30), s_address varchar(100), email varchar(100));
4 insert into student values(1,"priya", "bachupally", "priya@gmail.com");
5 select * from student;
6
7
```

Result Grid

s_id	s_name	s_address	email
2	devi	hyderabad	devi@gmail.com

6. Create an xml for the bookstore. Validate the same using both DTD and XSD.

bookstore.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE bookstore SYSTEM "bookstore.dtd">
<bookstore>
  <book>
    <title lang="en">Learning XML</title>
    <author>John Doe</author>
    <year>2021</year>
    <price>39.95</price>
  </book>
  <book>
    <title lang="en">Advanced XML</title>
    <author>Jane Smith</author>
    <year>2020</year>
    <price>49.95</price>
  </book>
</bookstore>
```

Create DTD Document

Bookstore.dtd

```
<!ELEMENT bookstore (book+)>
<!ELEMENT book (title, author, year, price)>
<!ELEMENT title (#PCDATA)>
<!ATTLIST title lang CDATA #REQUIRED>
<!ELEMENT author (#PCDATA)>
<!ELEMENT year (#PCDATA)>
<!ELEMENT price (#PCDATA)>
```

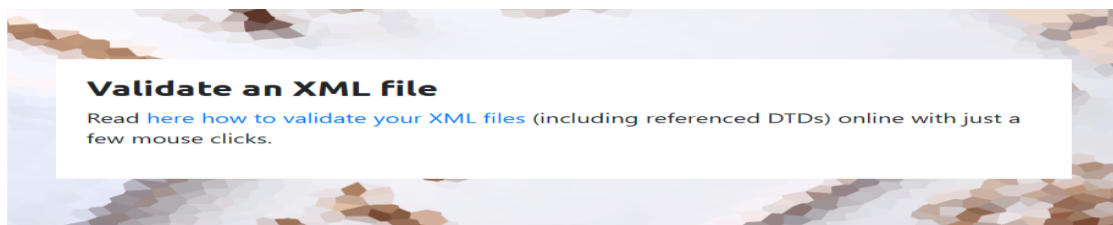
Create XSD Document bookstore.dtd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="bookstore">
```

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```
<xs:complexType>
  <xs:sequence>
    <xs:element name="book" maxOccurs="unbounded">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="title">
            <xs:complexType>
              <xs:simpleContent>
                <xs:extension base="xs:string">
                  <xs:attribute name="lang" type="xs:string" use="required"/>
                </xs:extension>
              </xs:simpleContent>
            </xs:complexType>
          </xs:element>
          <xs:element name="author" type="xs:string"/>
          <xs:element name="year" type="xs:integer"/>
          <xs:element name="price" type="xs:decimal"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:schema>
```

OUTPUT:



No errors were found

The following files have been uploaded so far:

[XML document:](#) 

[bookstore.dtd](#) 

7. Create a custom server using http module and explore the other modules of Node JS like OS, path, event.

```
// Import the http, os, path, and events modules
const http = require('http');
const os = require('os');
const path = require('path');
const EventEmitter = require('events');
// Create a custom event emitter
class MyEmitter extends EventEmitter {}
const myEmitter = new MyEmitter();
// Define a simple request handler
const requestHandler = (req, res) => {
  if (req.url === '/') {
    res.writeHead(200, { 'Content-Type': 'text/plain' });
    res.end('Hello, World!\n');
  } else if (req.url === '/info') {
    const info = {
      hostname: os.hostname(),
      platform: os.platform(),
      homedir: os.homedir(),
      file: __filename,
      dir: __dirname
    };
    res.writeHead(200, { 'Content-Type': 'application/json' });
    res.end(JSON.stringify(info, null, 2));
  } else {
    res.writeHead(404, { 'Content-Type': 'text/plain' });
    res.end('Not Found\n');
```

}

```
// Emit a custom event
myEmitter.emit('requestHandled', req.url);

// Emit the custom message event
myEmitter.emit('customEvent', { message: 'Hello from custom event!' });

};

// Create the server
const server = http.createServer(requestHandler);

// Listen on port 3000
server.listen(3000, () => {
  console.log('Server is running on http://localhost:3000');
});

// Listen for the requestHandled event
myEmitter.on('requestHandled', (url) => {
  console.log(`A request was made to: ${url}`);
});

// Listen for the customEvent event and log the message
myEmitter.on('customEvent', (data) => {
  console.log(`Custom Event Triggered: ${JSON.stringify(data)}`);
});
```

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OUTPUT:

```
Microsoft Windows [Version 10.0.22631.3737]
(c) Microsoft Corporation. All rights reserved.

C:\Users\cse>node -v
v20.15.0

C:\Users\cse>npm -v
10.7.0

C:\Users\cse>mkdir my-node-server
A subdirectory or file my-node-server already exists.

C:\Users\cse>cd my-node-server

C:\Users\cse\my-node-server>npm init -y
Wrote to C:\Users\cse\my-node-server\package.json:

{
  "name": "my-node-server",
  "version": "1.0.0",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1",
    "start": "node server.js"
  },
  "keywords": [],
  "author": "",
  "license": "ISC",
  "description": ""
}

C:\Users\cse\my-node-server>echo > server.js
C:\Users\cse\my-node-server>node server.js
C:\Users\cse\my-node-server>server.js:1
ECHO is on.
..

SyntaxError: Unexpected identifier 'is'
    at wrapSafe (node:internal/modules/cjs/loader:1281:20)
    at Module._compile (node:internal/modules/cjs/loader:1321:27)
    at Module._extensions..js (node:internal/modules/cjs/loader:1416:10)
    at Module.load (node:internal/modules/cjs/loader:1288:32)
    at Module._load (node:internal/modules/cjs/loader:1024:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:174:12)
    at node:internal/main/run_main_module:28:49

Node.js v20.15.0
```

```
at node:internal/main/run_main_module:28:49

Node.js v20.15.0

C:\Users\cse\my-node-server>node server.js
C:\Users\cse\my-node-server>server.js:1
ECHO on.
..

SyntaxError: Unexpected identifier 'on'
    at wrapSafe (node:internal/modules/cjs/loader:1281:20)
    at Module._compile (node:internal/modules/cjs/loader:1321:27)
    at Module._extensions..js (node:internal/modules/cjs/loader:1416:10)
    at Module.load (node:internal/modules/cjs/loader:1288:32)
    at Module._load (node:internal/modules/cjs/loader:1024:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:174:12)
    at node:internal/main/run_main_module:28:49

Node.js v20.15.0

C:\Users\cse\my-node-server>node server.js
C:\Users\cse\my-node-server>server.js:1
ECHO
^

ReferenceError: ECHO is not defined
    at Object.<anonymous> (C:\Users\cse\my-node-server\server.js:1:1)
    at Module._compile (node:internal/modules/cjs/loader:1358:14)
    at Module._extensions..js (node:internal/modules/cjs/loader:1416:10)
    at Module.load (node:internal/modules/cjs/loader:1288:32)
    at Module._load (node:internal/modules/cjs/loader:1024:12)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:174:12)
    at node:internal/main/run_main_module:28:49

Node.js v20.15.0

C:\Users\cse\my-node-server>node server.js
Server is running on http://localhost:3000
A request was made to: /
Custom Event Triggered: {"message":"Hello from custom event!"}
A request was made to: /favicon.ico
Custom Event Triggered: {"message":"Hello from custom event!"}
A request was made to: /info
Custom Event Triggered: {"message":"Hello from custom event!"}
|
```

