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**Division** : A

**Semester**: 7<sup>rd</sup>

**Subject** : 705 Full Stack Development

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**GitHub Link** : [https://github.com/DhruviRana4/705\\_Assignment1\\_068](https://github.com/DhruviRana4/705_Assignment1_068)

## **PRACTICAL ASSIGNMENT: 1**

## Question: 1

Develop a web server with following functionalities:

- Serve static resources.
- Handle GET request.
- Handle POST request.

## Answer: 1

```
const http=require("http");
const static=require("node-static");
var url=require("url");

var fileServer=new static.Server("testFolder");

const server=http.createServer((req,res)=>{
  console.log("Hello node...!!");
  fileServer.serve(req,res);
  var url2=url.parse(req.url,true);
  console.log(url2.pathname)
  if(url2.pathname==="/"){
    fileServer.serve(req,res)

  }else if(url2.pathname==="/process" && req.method==="GET"){
    res.end("Email : " + url2.query.user_email + " Password : " +
url2.query.pwd);
  }else if(url2.pathname==="/process_post" && req.method==="POST"){
    // console.log("first")
    let body="";
    req.on("data",chunk=>{
      body+=chunk;
    });

    req.on("end",()=>{
      res.write(body);
      res.end();
    })
  }else{
    res.end("page not found...!!")
  }
});
```

```

    }
  })

  server.listen(8080,()=>{
    console.log("Server started...!!")
  })

```

```

<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
  <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/css/bootstrap.min.css"
  integrity="sha384-
Gn5384xqQ1aoWXA+058RXPxPg6fy4IWvTNh0E263XmFcJlSAwiGgFAW/dAi
S6JXm" crossorigin="anonymous">
</head>

<body>
  <div class="container w-50 mt-5">
    
    <h1>Form with Post method</h1>
    <form method="GET" action="/process">
      <div class="form-group">
        <label for="exampleInputEmail1">Email address</label>
        <input type="email" name="user_email" class="form-control"
id="exampleInputEmail1" aria-describedby="emailHelp"
        placeholder="Enter email">
        <small id="emailHelp" class="form-text text-muted">We'll never share your
email with anyone else.</small>
      </div>
      <div class="form-group">

```

```
<label for="exampleInputPassword1">Password</label>
<input type="password" name="pwd" class="form-control"
id="exampleInputPassword1" placeholder="Password">
</div>
<button type="submit" class="btn btn-primary">Submit</button>
</form>

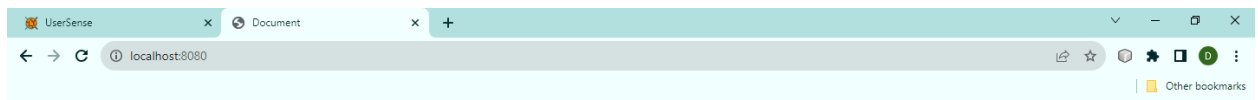
<hr>
<hr>

<h1>Form with Post method</h1>
<form method="POST" action="/process_post">
<div class="form-group">
<label for="exampleInputEmail1">Email address</label>
<input type="email" name="user_email" class="form-control"
id="exampleInputEmail1" aria-describedby="emailHelp"
placeholder="Enter email">
<small id="emailHelp" class="form-text text-muted">We'll never share your
email with anyone else.</small>
</div>
<div class="form-group">
<label for="exampleInputPassword1">Password</label>
<input type="password" name="pwd" class="form-control"
id="exampleInputPassword1" placeholder="Password">
</div>
<button type="submit" class="btn btn-primary">Submit</button>
</form>

</div>

</body>

</html>
```



## Form with Post method

Email address

We'll never share your email with anyone else.

Password

Submit

## Form with Post method

Email address

We'll never share your email with anyone else.

Password

Submit



## Question: 2

Develop nodejs application with following requirements:

- Develop a route "/gethello" with GET method. It displays "Hello NodeJS!!" as response.
- Make an HTML page and display.
- Call "/gethello" route from HTML page using AJAX call. (Any frontend AJAX call API can be used.)

## Answer: 2

```
const http = require("http");
const static = require("node-static");
const url = require("url");

var fileserver = new static.Server("./staticFiles");

const server = http.createServer((req, res) => {
  console.log("Hello NodeJS...!!");

  var url1 = url.parse(req.url, true);

  if (url1.pathname == "/getHello" && req.method == "GET") {
    res.end("Hello NodeJs...!!");
  }
  else if (url1.pathname === '/') {
    fileserver.serve(req, res);
  }
  else {
    res.writeHead(404, { 'Content-Type': 'text/plain' });
    res.end('Page not found');
  }
})

server.listen(8080, () => {
  console.log("Server listening on port 8000..!!");
})
```

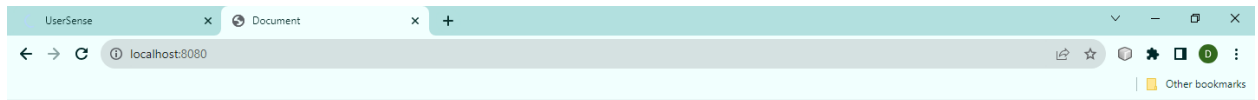
```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
  <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/css/bootstrap.min.css"
  integrity="sha384-
Gn5384xqQ1aoWXA+058RXPxPg6fy4IWvTNh0E263XmFcJlSAwiGgFAW/dAi
S6JXm" crossorigin="anonymous">
</head>

<body>
  <div class="container d-flex justify-content-center " style="height: 100vh;">
    <div class="align-self-center">
      <button class="btn btn-secondary" id="clickBtn" name="Submit">Click
Here</button><br>
      <label for="" class="mt-2" id="result"></label>
    </div>
  </div>
</body>

<script>
  document.getElementById("clickBtn").addEventListener("click",async()=>{
    var response =await fetch("http://localhost:8080/getHello");
    var text=await response.text();
    document.getElementById("result").textContent=text;
  })
</script>

</html>
```



[Click Here](#)  
Hello NodeJs....!!





### Question: 3

Develop a module for domain specific chatbot and use it in a command line application.

### Answer: 3

```
var Chatbot = require('./chatBoat');
var readline = require('readline');

var rl = readline.createInterface(process.stdin, process.stdout);
rl.setPrompt("You==>");
rl.prompt();
rl.on('line', function(message) {
    console.log('Bot ==> ' + Chatbot.reply(message));
    rl.prompt();
}).on('close',function(){ //chaining events.
    process.exit(0);
});
```

```
module.exports.reply = function (msg) {
    this.Boat_age = 19;
    this.Boat_Name = "Dhruvi";
    this.Bot_Country = "India";

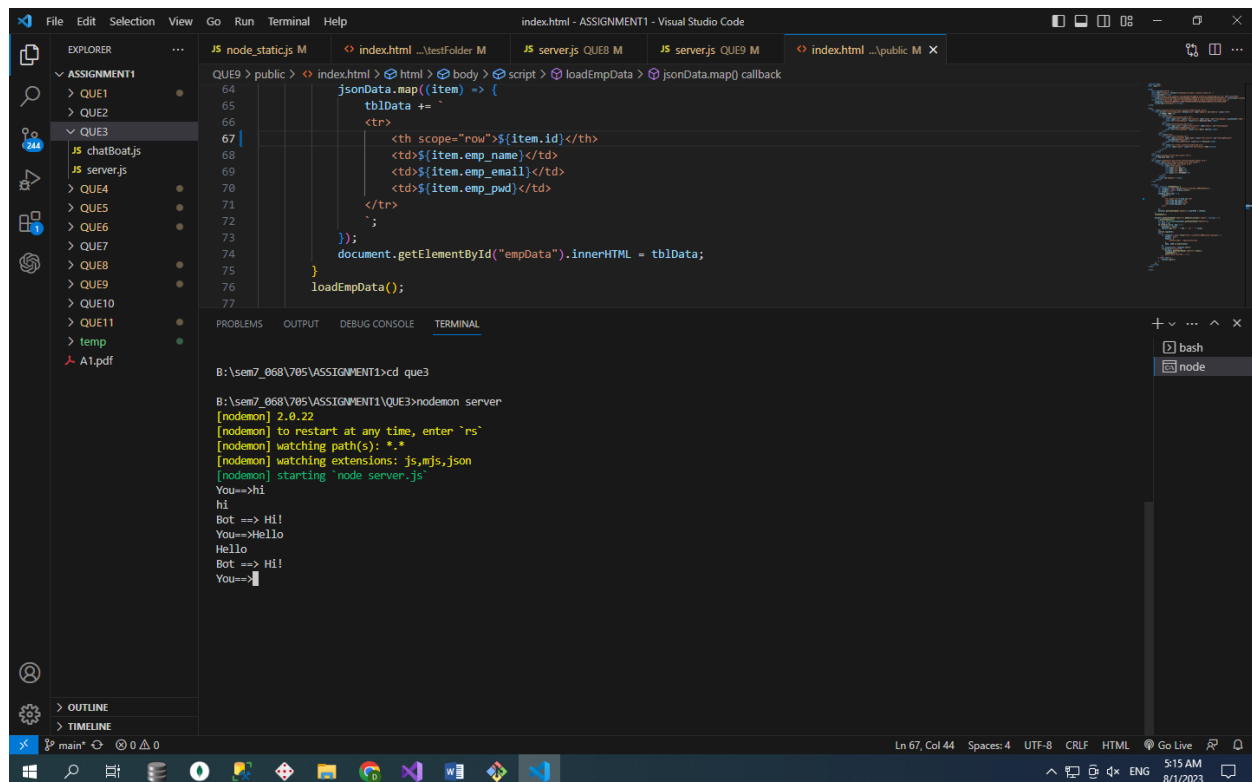
    msg = msg.toLowerCase();

    if(msg.indexOf("hi") > -1 ||
        msg.indexOf("hello") > -1 ||
        msg.indexOf("welcome") > -1 )
    {
        return "Hi!";
    }
    else if(msg.indexOf("age") > -1 &&
        msg.indexOf("your"))
    {
        return "I'm " + this.Bot_Age;
    }
}
```

```

else if (msg.indexOf("how") > -1 &&
    msg.indexOf("are") &&
    msg.indexOf("you"))
{
    return "I'm fine ^_^"
}
else if(msg.indexOf("where") > -1
    && msg.indexOf("live") &&
    msg.indexOf("you"))
{
    return "I live in " + this.Bot_Country;
}
return "Sorry, I didn't get it :( ";
}

```



#### Question: 4

Use above chatbot module in web based chatting of websocket.

#### Answer: 4

```
const http=require("http");
const static=require("node-static");
const url=require("url");
const websocket=require("ws");

var fileServer=new static.Server("./public");
var server=http.createServer((req,res)=>{
  var url2=url.parse(req.url,true);
  // console.log("Hello NodeJs...!!");
  if(url2.pathname==""){
    console.log(url2)
  }
  fileServer.serve(req,res);
})

server.listen(8000,()=>{
  console.log("server listening on port 8000");
})

var wss=new websocket.Server({ server:server});
wss.on("connection",(ws)=>{
  ws.send("hello client..!!");
  ws.on("message",(msg)=>{
    ws.send("I recieved ==> " + msg);
  })
})

<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
```

```

<title>Document</title>
<link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet"
integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOM
LASjC" crossorigin="anonymous" />
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"
integrity="sha384-
MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtI
axVXM"
crossorigin="anonymous"></script>
</head>

<body>
<div></div>
<div class="container-fluid border w-100 d-flex p-5">

  <div class="col">
    <h3>Client</h3>
    <form class="form d-flex w-50" id="clientForm">
      <input type="text" class="form-control pe-3" id="clientMsg" />
      <input type="submit" class="btn btn-success ms-3" value="Send"
id="sendMsg" name="sendMsg" />
    </form>
  </div>
  <div class="col">
    <h3>Server</h3>
    <div class="container-fluid" id="chat_data"></div>
  </div>
</div>
<script>
var wss = new WebSocket("ws://localhost:8000");
wss.addEventListener("message", (e) => {
  var msg = e.data;
  document.getElementById("chat_data").innerHTML +=
    "<b>Server</b> : " + msg + "<br>";
});

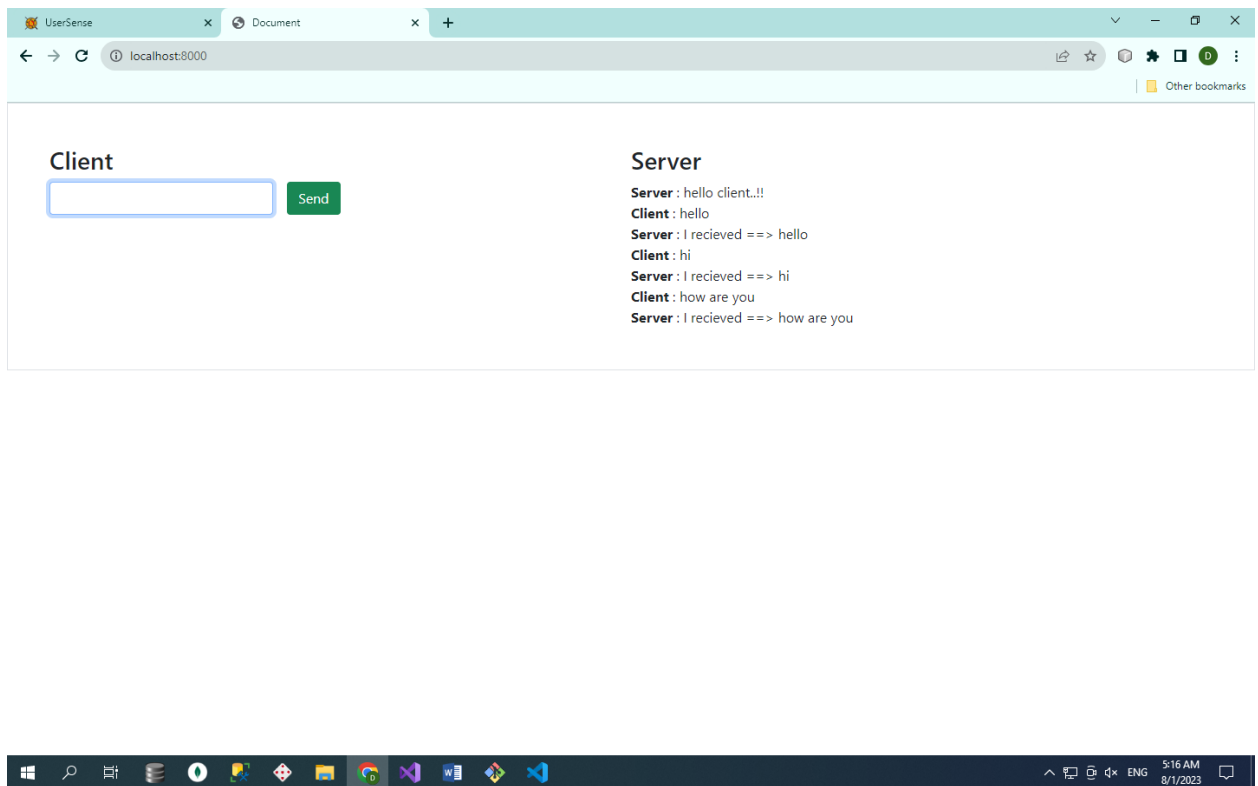
```

```
function sendDataToServer(){
    var clientMsg = document.getElementById("clientMsg").value;
    wss.send(clientMsg);
    document.getElementById("chat_data").innerHTML +=
        "<b>Client</b> : " + clientMsg + "</br>";
    document.getElementById("clientMsg").value = "";
}

document.getElementById("sendMsg").addEventListener("click", (e) => {
    e.preventDefault();
    sendDataToServer();
});

document.getElementById("clientForm").addEventListener("submit", (e) => {
    e.preventDefault();
    sendDataToServer();
})
</script>
</body>

</html>
```



### Question: 5

Write a program to create a compressed zip file for a folder.

### Answer: 5

```
const fs = require('fs');
const archiver = require('archiver');

function createZipFolder(folderPath, zipFilePath) {
  const output = fs.createWriteStream(zipFilePath);
  const archive = archiver('zip', {
    zlib: { level: 9 }
  });

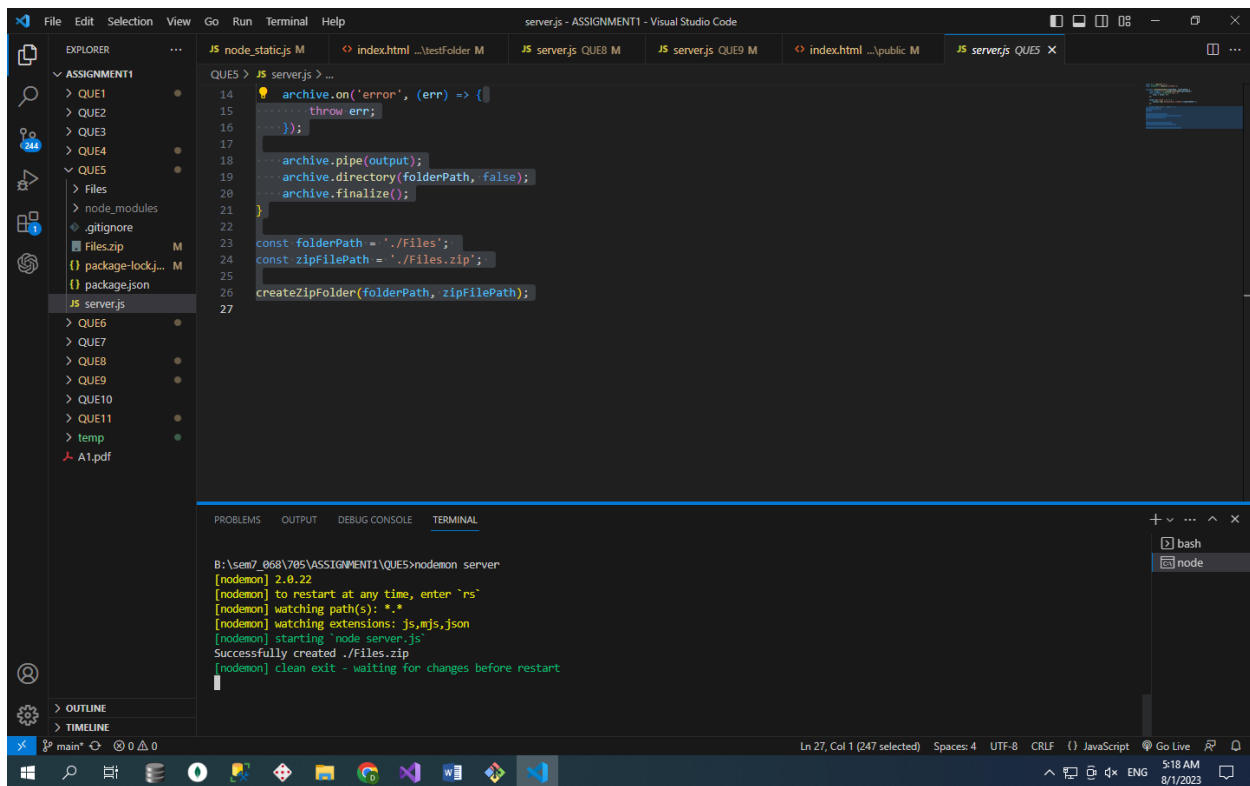
  output.on('close', () => {
    console.log(`Successfully created ${zipFilePath}`);
  });

  archive.on('error', (err) => {
    throw err;
  });

  archive.pipe(output);
  archive.directory(folderPath, false);
  archive.finalize();
}

const folderPath = './Files';
const zipFilePath = './Files.zip';

createZipFolder(folderPath, zipFilePath);
```





### Question: 6

Write a program to extract a zip file.

### Answer: 6

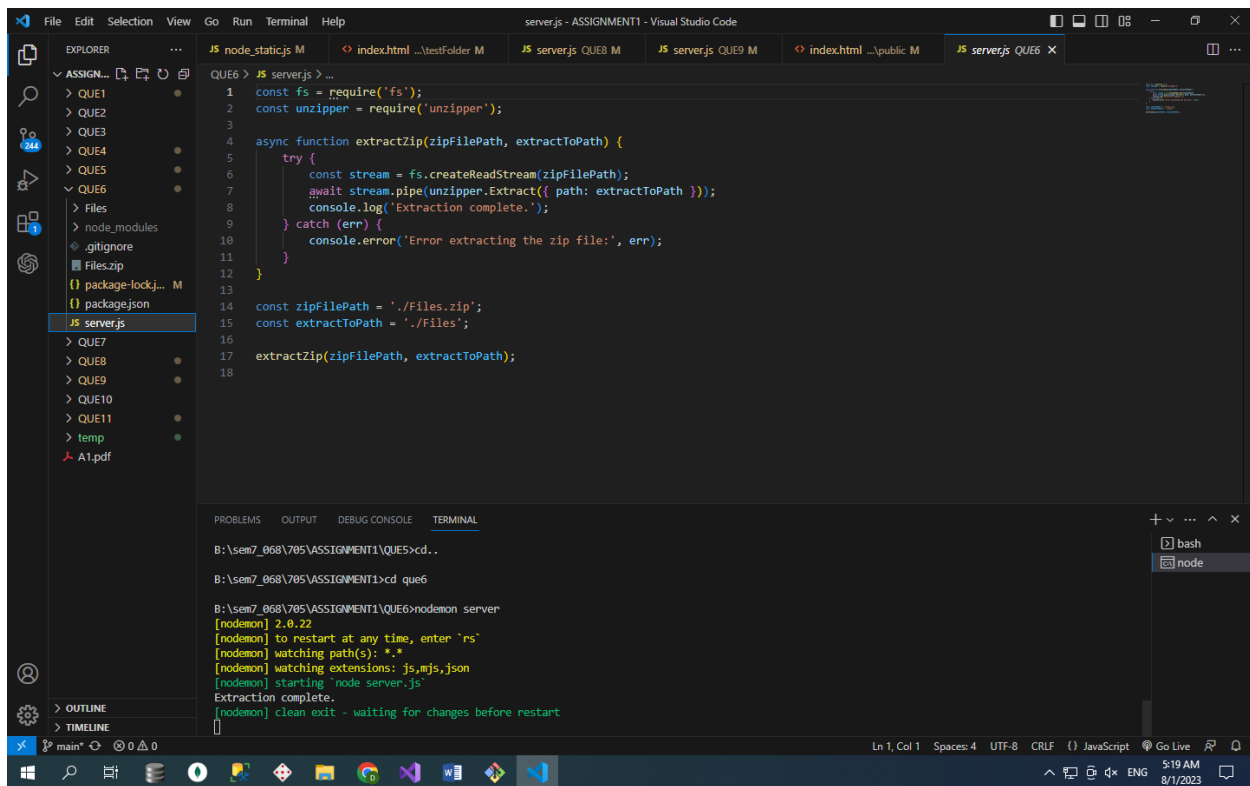
```
const fs = require('fs');
const unzipper = require('unzipper');

async function extractZip(zipFilePath, extractToPath) {
  try {
    const stream = fs.createReadStream(zipFilePath);
    await stream.pipe(unzipper.Extract({ path: extractToPath }));
    console.log('Extraction complete.');
```

```
  } catch (err) {
    console.error('Error extracting the zip file:', err);
  }
}

const zipFilePath = './Files.zip';
const extractToPath = './Files';

extractZip(zipFilePath, extractToPath);
```



### Question: 7

Write a program to promisify fs.unlink function and call it.

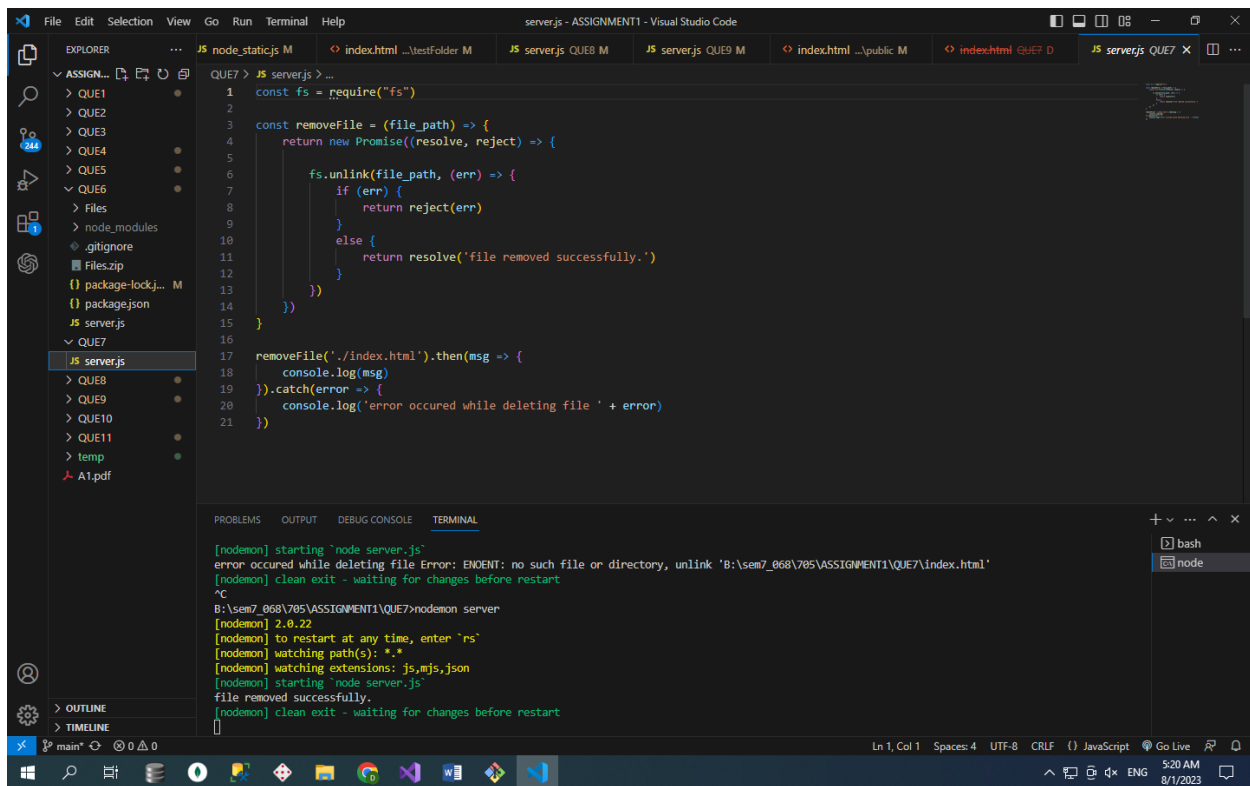
### Answer: 7

```
const fs = require("fs")

const removeFile = (file_path) => {
  return new Promise((resolve, reject) => {

    fs.unlink(file_path, (err) => {
      if (err) {
        return reject(err)
      }
      else {
        return resolve('file removed successfully.')
      }
    })
  })
}

removeFile('./index.html').then(msg => {
  console.log(msg)
}).catch(error => {
  console.log('error occured while deleting file ' + error)
})
```

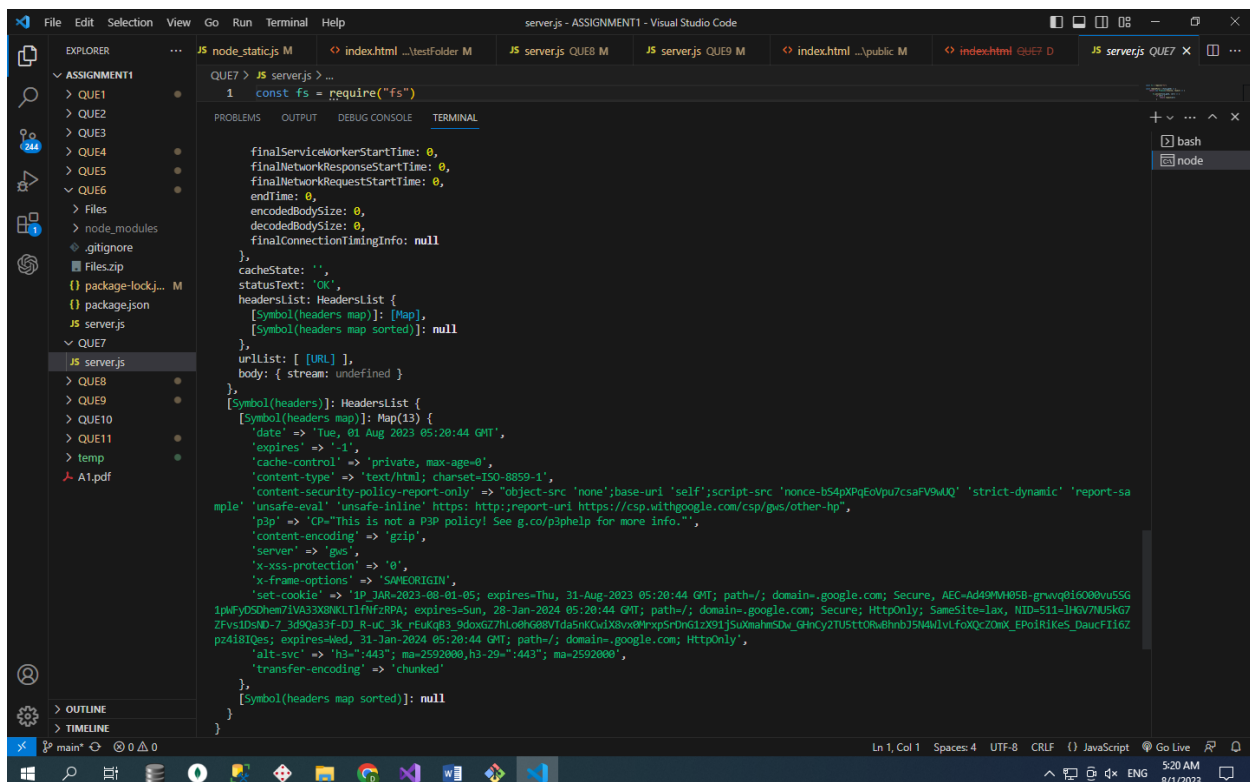


## Question: 8

Fetch data of google page using node-fetch using async-await model.

## Answer: 8

```
(async () => {  
  try {  
    const response = await fetch("https://www.google.com/");  
    const text = await response.text();  
    console.log(text);  
  } catch (error) {  
    console.log(error.response.body);  
  }  
})();
```



### Question: 9

Write a program that connect Mysql database, Insert a record in employee table and display all records in employee table using promise based approach.

### Answer: 9

```
const http=require("http");
const mysql=require("mysql");
const static=require("node-static");

var filesaver=new static.Server("./public");

var conn=mysql.createConnection({
  host:"localhost",
  user:"root",
  password:"",
  database:"employeedb"
});
conn.connect((err)=>{
  if(err){
    console.log(err);
  }else{
    console.log("connected")
  }
})

async function getData(){
}

var server=http.createServer((req,res)=>{
  console.log(req.url);
  if(req.url=="/"){
    filesaver.serve(req,res);
  }
  if(req.url=="/getData"){
    conn.query("SELECT * FROM `emptb`",(err,data)=>{
      if(err){
        return "err";
      }
      res.end(JSON.stringify(data));
    });
  }
});
```

```

    })
  }
  if(req.url=="/insert_emp_data" && req.method==="POST"){
    let data = "";
    req.on('data', (chunk) => {
      data += chunk;
    });
    req.on("end",()=>{
      var fd=JSON.parse(data);
      // console.log(fd.name)
      var sql=`INSERT INTO emptb(emp_name, emp_email, emp_pwd)
VALUES (${fd.ename},'${fd.eEmail}','${fd.epwd}')`;
      conn.query(sql,(err,data)=>{
        if(err){
          console.log(err);
        }else{
          res.end("success");
        }
      })
    })
    // res.end();
  }
})

server.listen(8000,()=>{
  console.log("server listening on port 8000");
})

```

```

<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Document</title>
  <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet"
  integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOM
LASjC" crossorigin="anonymous" />
  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"
  integrity="sha384-
MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtI
axVXM"
  crossorigin="anonymous"></script>
</head>

<body>
  <div class="container-fluid d-flex justify-content-center mt-5">
    <form action="/insert_emp_data" method="post" name="empForm"
id="empForm" class="w-50">
      <h4>INSERT FORM</h4>
      <div class="row">
        <div class="form-floating mb-3 col">
          <input type="text" class="form-control" name="ename"
id="floatingInput" placeholder="name" />
          <label for="floatingInput" class="ms-2">Employee Name</label>
        </div>
        <div class="form-floating mb-3 col">
          <input type="email" class="form-control" name="eEmail"
id="floatingInput"
placeholder="name@example.com" />
          <label for="floatingInput" class="ms-2">Email address</label>
        </div>
      </div>
    </form>
  </div>

```



```

    <div class="form-floating col">
      <input type="password" name="epwd" class="form-control"
id="floatingPassword"
        placeholder="Password" />
      <label for="floatingPassword" class="ms-2">Password</label>
    </div>
    <div class="col d-flex justify-content-end p-2">
      <button type="submit" class="btn btn-success">SAVE</button>
    </div>
  </div>
</form>
</div>
<div class="container-fluid text-center mt-3">
  <h3>Employee Data</h3>
</div>
<div class="container-fluid d-flex justify-content-center mt-4">
  <table class="table table-striped w-75 text-center">
    <thead class="bg-dark text-white fs-5">
      <tr class="text-center">
        <th scope="col">ID</th>
        <th scope="col">NAME</th>
        <th scope="col">EMAIL</th>
        <th scope="col">PASSWORD</th>
      </tr>
    </thead>
    <tbody id="empData"></tbody>
  </table>
</div>

<script>
  async function loadEmpData() {
    var response = await fetch("http://localhost:8000/getData");
    var jsonData = await response.json();
    var tblData = "";
    jsonData.map((item) => {
      tblData += `
        <tr>
          <th scope="row">${item.emp_id}</th>
          <td>${item.emp_name}</td>
          <td>${item.emp_email}</td>

```

```

        <td>${item.emp_pwd}</td>
    </tr>
    `;
    });
    document.getElementById("empData").innerHTML = tblData;
}
loadEmpData();

document.getElementById("empForm").addEventListener("submit", async(e)
=> {
    e.preventDefault();
    var fd = new FormData(document.getElementById("empForm"));
    var data = {};
    fd.forEach((value, key) => {
        data[key] = value;
        console.log("key : " + key + " val : " + value)
    });
    console.log(data);
    try {
        var response = await fetch("http://localhost:8000/insert_emp_data", {
            method: 'post',
            headers: {
                'Content-Type': 'application/json'
            },
            body: JSON.stringify(data)
        })
        var success=await response.text();
        if(success=="success"){
            document.getElementById('empForm').reset();
            loadEmpData();
            alert("Data inserted...!!");
        }
    } catch (err) {
        console.log(err)
    }
    });
</script>
</body>

</html>

```

INSERT FORM

Employee Name

Email address

Password

SAVE

Employee Data

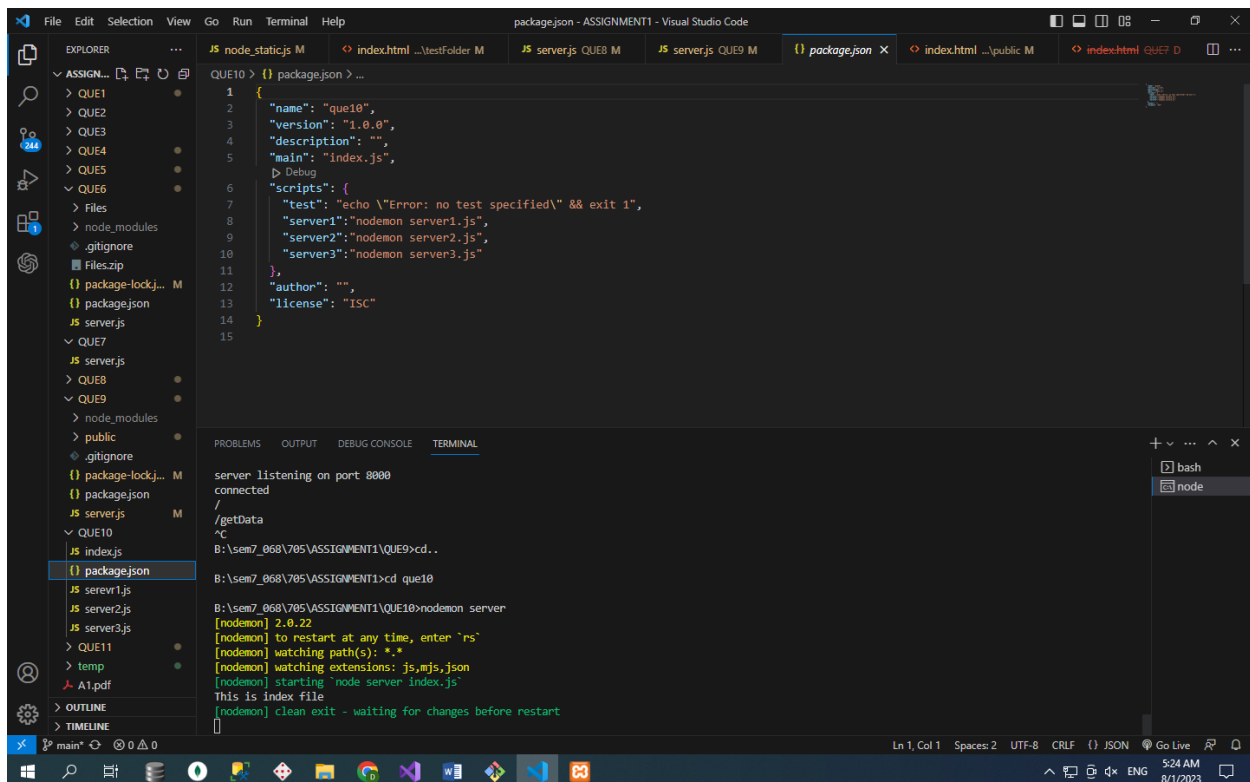
ID	NAME	EMAIL	PASSWORD
2	ABC	abc@gmail.com	abc@123

## Question: 10

Set a server script, a test script and 3 user defined scripts in package.json file in your nodejs application.

## Answer: 10

```
{
  "name": "que10",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1",
    "server1": "nodemon server1.js",
    "server2": "nodemon server2.js",
    "server3": "nodemon server3.js"
  },
  "author": "",
  "license": "ISC"
}
```



The screenshot shows the Visual Studio Code interface. The Explorer panel on the left displays a file tree with folders like 'ASSIGNMENT1', 'node\_modules', and 'public'. The file 'package.json' is selected. The main editor area shows the content of 'package.json', which matches the code provided in the answer. The terminal at the bottom shows the following output:

```
server listening on port 8080
connected
/
/getData
^C
B:\sem7_068\705\ASSIGNMENT1\QUE9>cd..
B:\sem7_068\705\ASSIGNMENT1>cd que10
B:\sem7_068\705\ASSIGNMENT1\QUE10>nodemon server
[nodemon] 2.0.22
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,json
[nodemon] starting `node server index.js`
This is index file
[nodemon] clean exit - waiting for changes before restart
```

## Question: 11

Develop an application to show live cricket score.

## Answer: 11

```
const axios = require("axios");
const http = require("http");
const static = require("node-static");
const url = require("url");
const websocket = require("ws");

var fileServer = new static.Server("./public");
var server = http.createServer((req, res) => {
  fileServer.serve(req, res);
})

var latestData = null;

server.listen(8000, () => {
  console.log("server listening on port 8000");
})

async function fetchMatchScore() {
  try {
    var response = await
    axios.get("https://api.cricapi.com/v1/currentMatches?apikey=0bf9e0f5-5333-4925-912f-5a5511d62c19&offset=0");
    return response.data;
  } catch (err) {
    console.log(err)
  }
}

var wss = new websocket.Server({ server: server });
wss.on("connection", async (ws) => {
  var data = await fetchMatchScore();
  ws.send(JSON.stringify(data));
})

async function updateDataAndBroadcast() {
```

```

latestData = await fetchMatchScore();
if (latestData !== null) {
  wss.clients.forEach((client) => {
    if (client.readyState === websocket.OPEN) {
      client.send(JSON.stringify(latestData));
    }
  });
}
}

```

```

setInterval(updateDataAndBroadcast, 5000);

```

```

<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Document</title>
  <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet"
  integrity="sha384-
EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOM
LASjC" crossorigin="anonymous" />
  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"
  integrity="sha384-
MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtI
axVXM"
  crossorigin="anonymous"></script>
</head>

<body>
  <div></div>
  <div class="container-fluid border w-100 d-flex p-5">
    <div class="col">
      <h3>Live Cricket Score</h3>

```

```

    <div class="container-fluid" id="chat_data"></div>
  </div>
</div>
<script>
var wss = new WebSocket("ws://localhost:8000");
wss.addEventListener("message", (e) => {
  var msg = JSON.parse(e.data);
  console.log(msg);
  var scoreData = "<div class='row'>";
  msg.data.map((item) => {
    scoreData += `
      <div class="col-sm-6 mb-4">
        <div class="card">
          <div class="card-body">
            <h5 class="card-title">${item.name}</h5>
            <p class="card-text">${item.date}</p>
            <div class='row'>
              `;
            item.score.map((val) => {
              console.log(val)
              scoreData += `<div class='col-6'>
                <a class="fw-bold text-decoration-none text-dark mb-2 fs-
6">Inning : ${val.inning}</a></div>
                <a class="btn btn-outline-primary mb-1">Over :
${val.o}</a></div>
                <a class="btn btn-outline-success mb-1">Run :
${val.r}</a></div>
                <a class="btn btn-outline-danger mb-1">Wicket :
${val.w}</a></div>
              </div>`;
            });
            scoreData += `
            </div></div>
          </div>
        </div>`;
            // console.log(item.name);
          });
          scoreData += `</div>`;
          document.getElementById("chat_data").innerHTML = scoreData + "</br>";

```

```
});  
</script>  
</body>  
  
</html>
```

