AWT Lab Projects

1. Create a Node Js server that listens to port 6001.

```
const http = require('http');

const server = http.createServer((req, res) => {
    res.writeHead(200, { 'Content-Type': 'text/plain' });
    res.end('Hello World!');
  });

  server.listen(6001, () => {
    console.log('Server running on port 6001');
  });
```

2.Implement URL parameter routing to display specific content based on the URL.(Eg: ‘/’, ‘/home’, ‘/profile’, etc.,)

```
// 2. Implement URL parameter routing to display specific content based on the URL.(Eg: ‘/’, ‘/home’, ‘/profile’, etc.,)
const express = require('express');
const app = express();

// Create a route for the root path
app.get('/', (req, res) => {
  res.send('Hello World!');
});

// Create a route for the /home path
app.get('/home', (req, res) => {
  res.send('Welcome to the home page!');
});

// Create a route for the /profile path
app.get('/profile', (req, res) => {
  res.send('This is your profile page!');
});

// Start the server on port 6001
app.listen(6001, () => {
  console.log('Server listening on port 6001');
});
```

3. Create a route that returns a JSON response containing your name and email.

```
var express = require('express');
```

```
var bodyParser = require('body-parser');
var app = express();

//Note that in version 4 of express, express.bodyParser() was
//deprecated in favor of a separate 'body-parser' module.
app.use(bodyParser.urlencoded({ extended: true }));

//app.use(express.bodyParser());

app.post('/myaction', function(req, res) {
  res.json({'Name':req.body.name,'Email':req.body.email});
});

app.listen(6001, function() {
  console.log('Server running at http://127.0.0.1:6001/');
});
```

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

<head>
    <meta charset="utf-8">
    <title>Calculator</title>
</head>

<body>
    <!-- <div id="contact">
        <h1>Send an email</h1>
        <form action="http://127.0.0.1:6001/myaction" method="post">
            <fieldset>
                <label for="name">Name:</label>
                <input type="text" id="name" name="name" placeholder="Enter
your full name" />

                <label for="email">Email:</label>
                <input type="email" id="email"  name= "email"
placeholder="Enter your email address" />

                <label for="message">Message:</label>
                <textarea id="message" placeholder="What's on your
mind?"></textarea>

                <input type="submit" value="Send message" />

            </fieldset>
        </form>
    </div> -->
```

```
</body>

</html>
```

4. Implement a route that accepts POST requests and logs the request data to the console.

```
// 4. Implement a route that accepts POST requests and logs the request data
to the console.
const express = require('express');
const bodyParser = require('body-parser');

const app = express();

app.use(bodyParser.urlencoded({ extended: true }));
app.get('/', (req, res) => {
    res.sendFile(__dirname + '/index.html');
  });

app.post('/submit', (req, res) => {

 console.log('Name:', req.body.name);
 console.log('Email:', req.body.email);
 res.send('Form submitted successfully!');
});

app.listen(3000, () => {
 console.log('Server is running on port 3000');
});
```

Index.html

```
<form action="/submit" method="post">
            <label for="name">Name:</label>
            <input type="text" id="name" name="name" required><br><br>
            <label for="email">Email:</label>
            <input type="email" id="email" name="email" required><br><br>
            <input type="submit" value="Submit">
        </form>
```

5. Set up a static file server to serve HTML, CSS, and JavaScript files

```
var express = require('express');
var app = express();
var path = require('path');
```

```
app.use(express.static(path.join(__dirname, 'public')));

app.get('/', function(req, res) {
    res.sendFile(path.join(__dirname, 'public', 'index.html'));
});

app.listen(3000, function() {
    console.log('App listening on port 3000!');
});
```

6. Use the Express.js framework to create a basic web application with routing.

```
// 6.   Use the Express.js framework to create a basic web application with
routing.
const express = require('express');
const app = express();
const port = 3000;

app.get('/', (req, res) => {
 res.send('Hello World!');
});

app.listen(port, () => {
 console.log(`Example app listening at http://localhost:${port}`);
});
```

7. Create a custom 404 error page for handling undefined routes.

```
// 7.   Create a custom 404 error page for handling undefined routes.
const express = require('express');
const path = require('path');

const app = express();

app.use(express.static(path.join(__dirname, 'public')));

// Define all your other routes here...
app.get('/user',(req,res)=>{
    res.send('Hello world');
})
// Custom 404 error page middleware
app.use(function(req, res, next) {
 res.status(404).sendFile(path.join(__dirname, 'public', 'index.html'))
});

app.listen(3000, function() {
 console.log('Server is running on port 3000');
});
```

```html
<!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="style.css">
</head>
<body>
    <h1>Hello World</h1>
</body>
</html>
```

Index.html should be placed inside the public folder

8. Secure your routes with basic authentication using middleware.

```javascript
const express = require('express');
const auth = require('express-basic-auth');
const authenticate = auth({
    users: { 'user': 'password' },
    challenge: true,
    realm: 'Private Area'
   });
   const app = express();

app.get('/secure', authenticate, (req, res) => {
 res.send('Access granted to the secure route');
});

app.listen(3000, () => {
 console.log('Server is running on port 3000');
});
```

9. Create a RESTful API that returns data in JSON format.

```javascript
// 9. Create a RESTful API that returns data in JSON format.
const express = require('express');
const mysql = require('mysql');

const app = express();

// Set up MySQL connection
const db = mysql.createConnection({
 host: 'localhost',
 user: 'root',
 password: '',
 database: 'student'
});
```

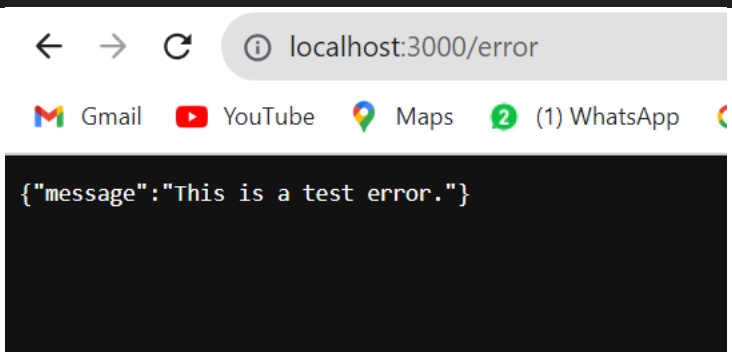
```
db.connect((err) => {
 if (err) throw err;
 console.log('Connected to the database');
});

// Define the GET /api/users route
app.get('/api/users', (req, res) => {
 db.query('SELECT * FROM users', (err, rows) => {
    if (err) throw err;
    console.log('Data received from the database:');
    console.log(rows);
    res.json(rows);
 });
});

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

```
vasanthi reddy@LAPTOP-FEDH82KQ MINGW64 /e/NodeJsIVyear/Experiments
$ node Exp9.js
Server is running on port 3000
Connected to the database
Data received from the database:
[]
Data received from the database:
[
  RowDataPacket {
    name: 'Vasanthi',
    roll: 501,
    branch: 'cse',
    marks: 15
  },
  RowDataPacket { name: 'Likki', roll: 531, branch: 'cse', marks: 15 }
]
```

10.Create a custom error handler to format and send error responses.

```
const createError = require('http-errors');
const express = require('express');
const app = express();
app.get('/error', (req, res, next) => {
    // Create an error and pass it to the next middleware
    next(createError(500, 'This is a test error.'));
   });

const errorHandler = (err, req, res, next) => {
    if (typeof err === 'string') {
       // If the error is a string, convert it to an Error object
```

```
        err = createError(err);
    }

    if (err.status >= 500) {
        // If the error status code is greater than or equal to 500,
        // log the error stack to the console
        console.error(err.stack);
        console.log("Error Generated");
    }

    // Set the response status code to the error status code
    res.status(err.status || 500);

    // Set the response Content-Type to 'application/json'
    res.setHeader('Content-Type', 'application/json');

    // Send the error message in the response body
    res.json({
        message: err.message || 'An error occurred during the request.',
    });
   };


// Use the error handler middleware for all routes
app.use(errorHandler);

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



```
vasanthi reddy@LAPTOP-FEDH82KQ MINGW64 /e/NodeJsIVyear/Experiments
$ node Exp10.js
Server is running on port 3000.
InternalServerError: This is a test error.
    at E:\NodeJsIVyear\Experiments\Exp10.js:6:10
    at Layer.handle [as handle_request] (E:\NodeJsIVyear\node_modules\express\lib\router\layer.js:95:5)
    at next (E:\NodeJsIVyear\node_modules\express\lib\router\route.js:144:13)
    at Route.dispatch (E:\NodeJsIVyear\node_modules\express\lib\router\route.js:114:3)
    at Layer.handle [as handle_request] (E:\NodeJsIVyear\node_modules\express\lib\router\layer.js:95:5)
    at E:\NodeJsIVyear\node_modules\express\lib\router\index.js:284:15
    at Function.process_params (E:\NodeJsIVyear\node_modules\express\lib\router\index.js:346:12)
    at next (E:\NodeJsIVyear\node_modules\express\lib\router\index.js:280:10)
    at expressInit (E:\NodeJsIVyear\node_modules\express\lib\middleware\init.js:40:5)
    at Layer.handle [as handle_request] (E:\NodeJsIVyear\node_modules\express\lib\router\layer.js:95:5)
Error Generated
```