

## Project Structure:

AI-212-Lab-5

```
|- backend
  |- node_modules
  |- package.json
  |- server.js
  |- predict.py
  |- model.pkl

|- frontend
  |- src
    |- App.js
    |- package.json

  Conceptual_Answers.pdf
  Screenshots (Postman, Terminal, React)
```

Terminal commands of creating the backend folder, running [predict.py](#), [server.js](#), and installing dependencies

```

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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment> mkdir backend

    Directory: C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment

Mode                LastWriteTime         Length Name
d----        08-02-2026      21:58          backend

PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment> cd backend
PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment\backend> ls
PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment\backend> npm init -y
Wrote to C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment\backend\package.json:

{
  "name": "backend",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC",
  "type": "commonjs"
}

PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment\backend> npm install express cors
added 67 packages, and audited 68 packages in 4s

23 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment\backend> pip install numpy scikit-learn joblib
Defaulting to user installation because normal site-packages is not writable
Requirement already satisfied: numpy in C:\Users\Arjun Aggarwal\AppData\Roaming\Python\Python311\site-packages (2.4.2)
Requirement already satisfied: scikit-learn in C:\Users\Arjun Aggarwal\AppData\Roaming\Python\Python311\site-packages (1.8.0)
Requirement already satisfied: joblib in C:\Users\Arjun Aggarwal\AppData\Roaming\Python\Python311\site-packages (1.5.3)
Requirement already satisfied: scipy<=1.10.0 in C:\Users\Arjun Aggarwal\AppData\Roaming\Python\Python311\site-packages (from scikit-learn) (1.17.0)
Requirement already satisfied: threadpoolctl>=3.2.0 in C:\Users\Arjun Aggarwal\AppData\Roaming\Python\Python311\site-packages (from scikit-learn) (3.6.0)
PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment\backend> python predict.py 5
{"study_hours": 5.0, "predicted_score": 79.18}
PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIIB1289_Lab5\Assignment\backend> node server.js
Backend running on port 5000

```

Postman shows predicted value as the backend is running on <http://localhost:5000/predict>,

The screenshot shows the Postman interface with a successful API call. The collection is "My Collection" and the endpoint is "Get data". The request method is POST, and the URL is <http://localhost:5000/predict>. The body is set to raw JSON with the following payload:

```
1 {  
2   "study_hours": 6  
3 }
```

The response status is 200, and the response body is:

```
1 {  
2   "study_hours": 6,  
3   "predicted_score": 79.64  
4 }
```

When given no input in postman

The screenshot shows the Postman interface with an error response. The collection is "My Collection" and the endpoint is "Get data". The request method is POST, and the URL is <http://localhost:5000/predict>. The body is set to raw JSON with an empty object. The response status is 400, and the response body is:

```
1 {  
2   "error": "study_hours is required"  
3 }
```

## Frontend Terminal Screenshots (Creating React app)

```
Windows PowerShell
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PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIB1289_Lab5\Assignment> npx create-react-app frontend

Creating a new React app in C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIB1289_Lab5\Assignment\frontend.

Installing packages. This might take a couple of minutes.
Installing react, react-dom, and react-scripts with cra-template...

added 1295 packages in 1m

267 packages are looking for funding
  run 'npm fund' for details

Initialized a git repository.

Installing template dependencies using npm...

added 17 packages, removed 1 package, and changed 1 package in 6s

266 packages are looking for funding
  run 'npm fund' for details
Removing template package using npm...

removed 1 package, and audited 1311 packages in 4s

266 packages are looking for funding
  run 'npm fund' for details

9 vulnerabilities (3 moderate, 6 high)

To address all issues (including breaking changes), run:
  npm audit fix --force

Run 'npm audit' for details.

Created git commit.

Success! Created frontend at C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIB1289_Lab5\Assignment\frontend
Inside that directory, you can run several commands:
```

```
Windows PowerShell
npm start
  Starts the development server.

npm run build
  Bundles the app into static files for production.

npm test
  Starts the test runner.

npm run eject
  Removes this tool and copies build dependencies, configuration files
  and scripts into the app directory. If you do this, you can't go back!

We suggest that you begin by typing:

  cd frontend
  npm start

Happy hacking!
PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIB1289_Lab5\Assignment> ls

  Directory: C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIB1289_Lab5\Assignment

Mode                LastWriteTime       Length Name
----                -----          1----- 
d----        08-02-2026     22:01            backend
d----        08-02-2026     22:15            frontend

PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIB1289_Lab5\Assignment> cd frontend
PS C:\Users\Arjun Aggarwal\Desktop\courses\AI212\2024AIB1289_Lab5\Assignment\frontend> npm start

> frontend@0.1.0 start
> react-scripts start

(node:18912) [DEP00176] DeprecationWarning: fs.F_OK is deprecated, use fs.constants.F_OK instead
(Use `node --trace-deprecation ...` to show where the warning was created)
(node:18912) [DEP_WEBPACK_DEV_SERVER_ON_AFTER_SETUP_MIDDLEWARE] DeprecationWarning: 'onAfterSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
(node:18912) [DEP_WEBPACK_DEV_SERVER_ON_BEFORE_SETUP_MIDDLEWARE] DeprecationWarning: 'onBeforeSetupMiddleware' option is deprecated. Please use the 'setupMiddlewares' option.
Starting the development server...
Compiled successfully!
```

```
Windows PowerShell

You can now view frontend in the browser.

Local: http://localhost:3000
On Your Network: http://172.23.5.122:3000

Note that the development build is not optimized.
To create a production build, use npm run build.

webpack compiled successfully
Compiling...
Compiled successfully!

You can now view frontend in the browser.

Local: http://localhost:3000
On Your Network: http://172.23.5.122:3000

Note that the development build is not optimized.
To create a production build, use npm run build.

webpack compiled successfully
```

## Frontend and Backend Integration:

Output : React App

