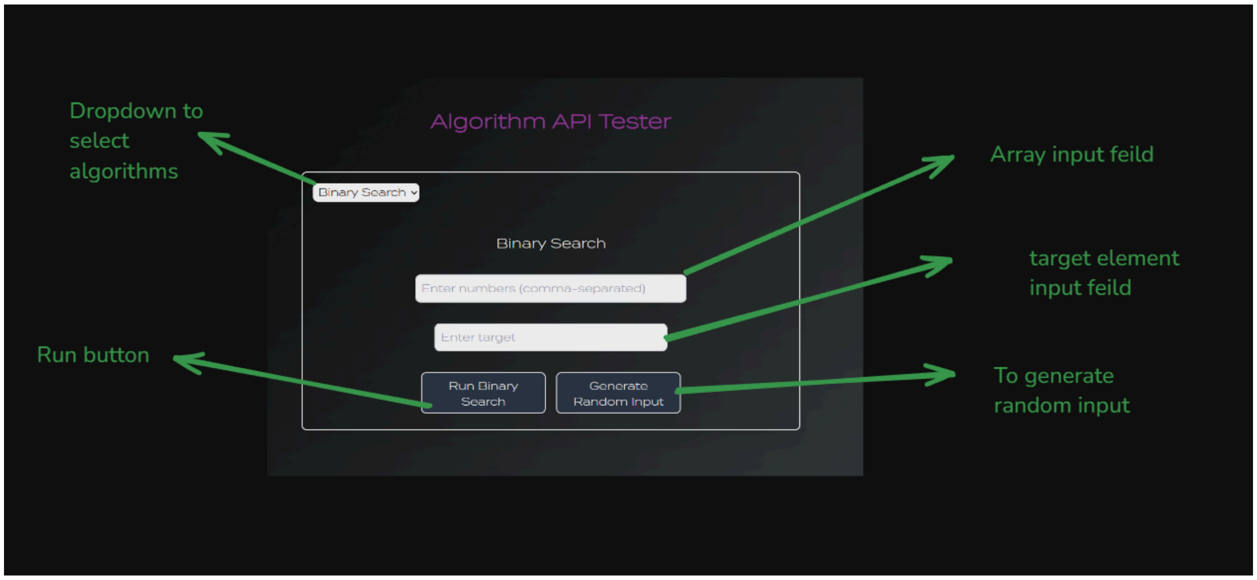
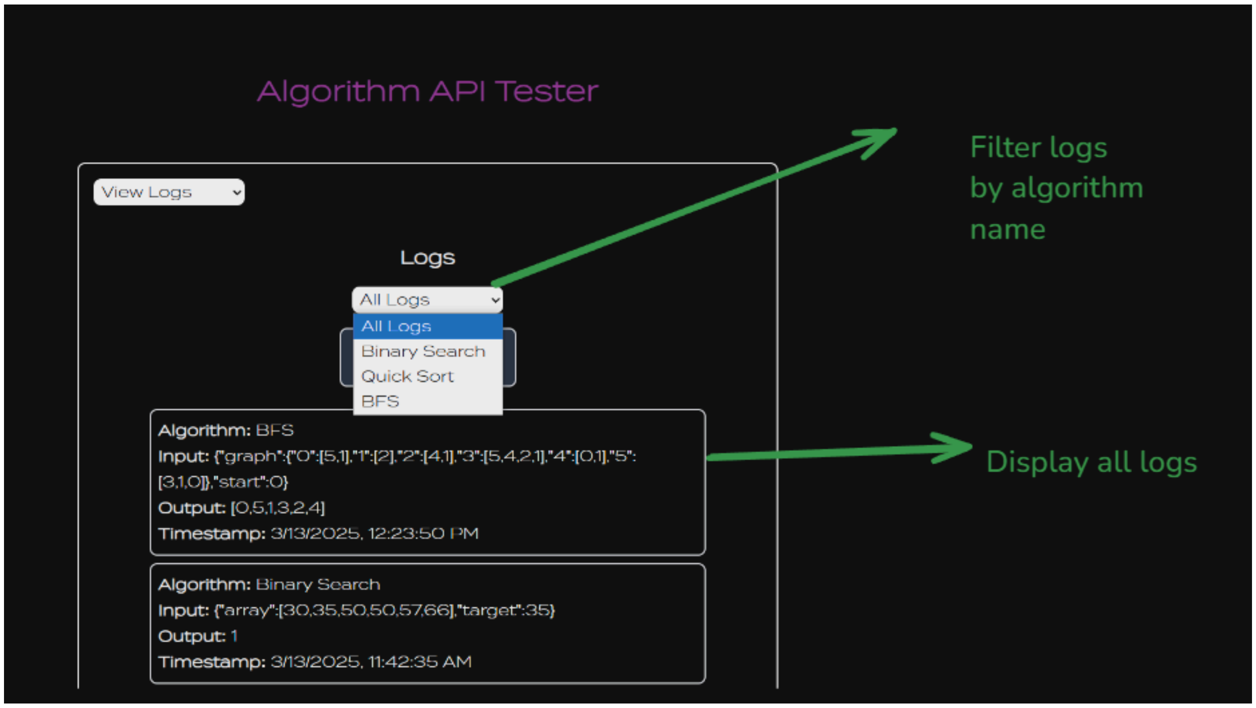
Guide to use project

Home Page



Display Logs



```
Algorithm: BFS
Input: {"graph":{"0":[5,1],"1":[2],"2":[4,1],"3":[5,4,2,1],"4":[0,1],"5":
[3,1,0]},"start":0}
Output: [0,5,1,3,2,4]
Timestamp: 3/13/2025, 12:23:50 PM

Algorithm: Binary Search
Input: {"array":[30,35,50,50,57,66],"target":35}
Output: 1
Timestamp: 3/13/2025, 11:42:35 AM
```

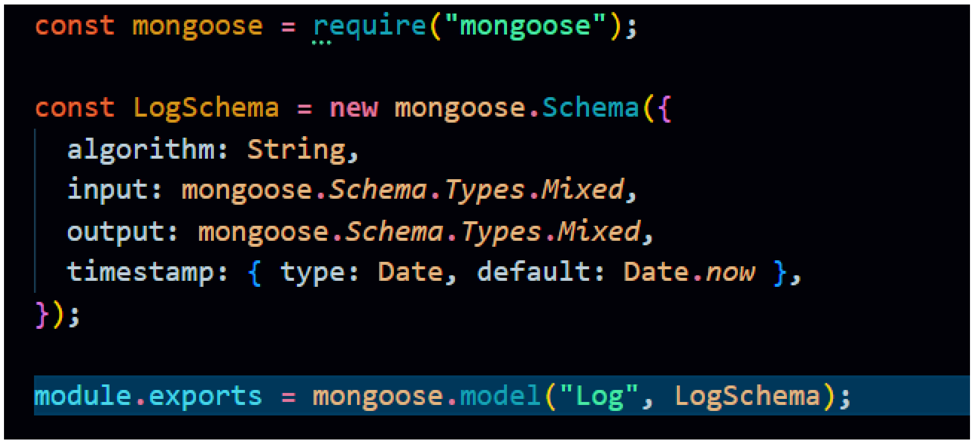
Backend:

Folder structure :

- index.js -> starter file for backend
- Api :
  - ApiError -> To send consistent error messages responses from backend to frontend.
  - ApiResponse -> To send consistent responses from backend to frontend.
  - asyncHandler -> Simplifies error handling in async Express routes.

- config :
  - dbConfig.js -> This file is responsible for connecting the database.
- controllers :
  - bfs.js -> Implementation of BFS algorithm.
  - binarySearch.js -> Implementation of BFS algorithm.
  - quickSort -> Implementation of quickSort algorithm.
  - Logs -> create, get all logs, get logs by name.
- models :

log.js -> MongoDB Schema to store logs in the database.



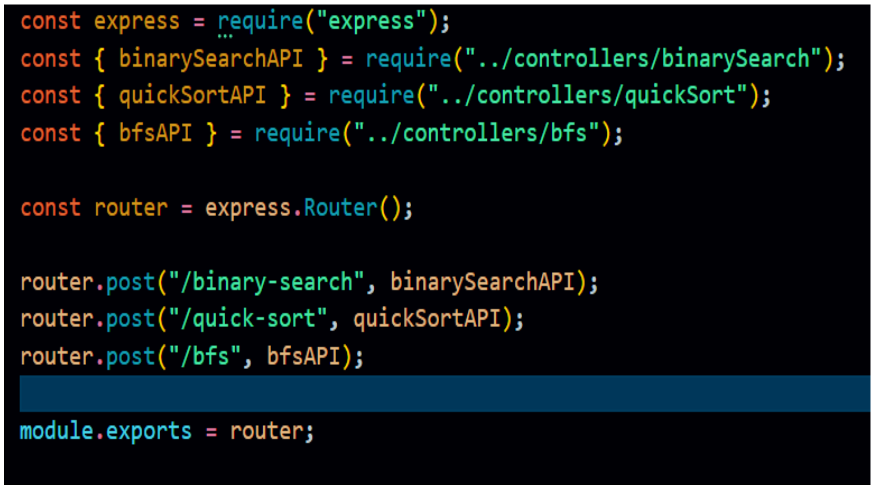
```
const mongoose = require("mongoose");

const LogSchema = new mongoose.Schema({
  algorithm: String,
  input: mongoose.Schema.Types.Mixed,
  output: mongoose.Schema.Types.Mixed,
  timestamp: { type: Date, default: Date.now },
});

module.exports = mongoose.model("Log", LogSchema);
```

routes :

algorithm.js -> Define algorithm routes,



```
const express = require("express");
const { binarySearchAPI } = require("../controllers/binarySearch");
const { quickSortAPI } = require("../controllers/quickSort");
const { bfsAPI } = require("../controllers/bfs");

const router = express.Router();

router.post("/binary-search", binarySearchAPI);
router.post("/quick-sort", quickSortAPI);
router.post("/bfs", bfsAPI);

module.exports = router;
```

logRoutes -> Define logs routes,

Dockerfile -> To run backend through Docker

Frontend:

App.jsx -> Starter file for FrontEnd,

Public :

fonts -> this folder contains all fonts I used in this project.

Components :

Bfs.jsx -> Display BFS output,
BinarySearch.jsx -> Display binary search output,

Quick sort -> Display quick sort output,
Logs -> Display Logs output,

Dockerfile -> To run Frontend through Docker

Docker-compose.yml -> This file runs both the frontend and backend in a single command.

```
docker-compose up --build
```