Miscellaneous Programs

- **Defining an array of object with properties name and age. Write this object in a file named student.txt then read the file and display the object on console.**

```
const student =
   [
      {
         name: "ABC",
         age: 30
      },
      {
         name: "XYZ",
         age: 32
      }
   ]
var ps=require("fs");

ps.writeFileSync("student.txt",JSON.stringify(student));
data=ps.readFileSync("student.txt","utf-8");

b=JSON.parse(data);
console.log(b);
```

Output:

```
[ { name: 'ABC', age: 30 }, { name: 'XYZ', age: 32 } ]
```

- **Create JSON object in file which contains array of objects. Calculate perimeter of square and perimeter of circle by using side value and diameter value respectively. And append final answers in file.**

```
const shape =
   [
      {
         name: "circle",
         diameter: 8
      },
      {
         name: "square",
         side: 10
      }
   ]
var ps=require("fs");

ps.writeFileSync("shape.txt",JSON.stringify(shape));
data=ps.readFileSync("shape.txt","utf-8");

b=JSON.parse(data);

if( b[0].name == 'circle'){
   var perimeter = (b[0].diameter/2) * 3.14 * 2 ;
   console.log(perimeter);
}
if ( b[1].name == 'square'){
   var peri = (b[1].side) *4  ;
   console.log(peri);
}
ps.appendFileSync("shape.txt","\nPerimeter of circle = "+ JSON.stringify(perimeter)+
"\nPerimeter of square = "+JSON.stringify(peri));
```

Output:

```
[{"name":"circle","diameter":8},{"name":"square","side":10}]
Perimeter of circle = 25.12
Perimeter of square = 40
```

- **Write node js script to perform tasks as asked.**
  1) **Create one page with two links (Home(/) and about(/about)).**
  2) **Both pages must contain HTML type content and add required content on both the pages.**
  3) **If user add any other URL path, then he/she will be redirected to page and plain message will be displayed of "Page not found".**

```
var h=require("http");
var server=h.createServer(
   function(req,res)
   {
      if(req.url=="/")
      {
         res.writeHead(200,{"content-type":"text/html"});
         res.write("<h1> Home page </h1><div><ul><li><a href='/'>Home</a></li><li><a
href='/about'>About</a></li></ul>");
         res.end();
      }
      else if(req.url=="/about")
      {
         res.writeHead(200,{"content-type":"text/html"});
         res.write("<h1> Home page </h1><div><ul><li><a href='/'>Home</a></li><li><a
href='/about'>About</a></li></ul>");
         res.write("<h1> About Page </h1>");
         res.end();
      }
      else
      {
         res.writeHead(404,{"content-type":"text/plain"});
         res.write("Page not found");
         res.end("\nPlease check the url");
      }
   });
server.listen(5051);
console.log("Thanks!");
```

- **Write node.js script to create a class named person by assigning name and age in form of members. Create two objects and a method named elder which returns elder person object. Details of elder person should be printed in console as well as in file.**

```
class person
{
   constructor(name,age)
   {
      this.age=age;
      this.name=name;
   }
   elder(P)
   {
      if(this.age>P.age)
      {
         return this;
      }
      else{
         return P;
      }
   }
}
var p1= new person("xyz",23);
var p2= new person("abc",34);
var p3=p1.elder(p2);
const jsonstr=JSON.stringify(p3);
var ps=require("fs");
ps.writeFileSync("d2.txt",jsonstr);
```

- **Write node.js script to create a class named time and assign members hour, minute and second. Create two objects of time class and add both the time objects so that it should return the value in third time object. The third time object should have hour , minute and second such that if seconds exceed 60 then minute value should be incremented and if minute exceed 60 then hour value should be incremented. The value should be printed in console as well as in file.**

```
class time
{
   constructor(hour,min,sec)
   {
      this.hour=hour;
      this.min=min;
      this.sec=sec;
   }
   timer(p)
   {
      var t=new time();
      t.hour=this.hour+p.hour;
      t.min=this.min+p.min;
      t.sec=this.sec+p.sec;
      if(t.sec>60)
      {
         t.sec%=60;
         t.min++;

      }
      if(t.min>60)
      {
         t.min%=60;
         t.hour++;
      }
      return t;
   }
}
var t1= new time(1,50,50);
var t2= new time(2,30,50);
var t3=t1.timer(t2);
console.log(t3);

const jsonstr=JSON.stringify(t3);
var ps=require("fs");
ps.writeFileSync("time.txt",jsonstr);
```

Output:

time { hour: 4, min: 21, sec: 40 }

- **Task write a node js Asynchronous program to perform CRUD operation of file management which should perform below task in sequence.**
  1. Create folder named "hello"
  2. create a file in it named a.txt and add some data in it.
  3.add more data at last in file
  4. read data without getting buffer at first
  5. rename the file
  6. delete both the file and folder.

```
const fs = require('fs');
const additionalData = '\nMore data added at last.';

fs.mkdir("hello", (err) => {
  if (err) {
    console.error('Error creating folder:', err);
    return;
  }
  console.log('Folder created successfully.');

            fs.writeFile("hello/a.txt", 'Some initial data.', (err) => {
              if (err) {
                console.error('Error creating file:', err);
                return;
              }
              console.log('File created successfully.');

                        fs.appendFile("hello/a.txt", additionalData, (err) => {
                          if (err) {
                            console.error('Error appending data:', err);
                            return;
                          }
                          console.log('Data appended successfully.');

                                    fs.readFile("hello/a.txt", 'utf8', (err, data) => {
                                      if (err) {
                                        console.error('Error reading file:', err);
                                        return;
                                      }
                                      console.log('File content:', data);

                                                fs.rename("hello/a.txt", "hello/a1.txt", (err) => {
                                                  if (err) {
                                                    console.error('Error renaming file:', err);
                                                    return;
                                                  }
                                                  console.log('File renamed successfully.');

                                                            fs.unlink("hello/a1.txt", (err) => {
                                                              if (err) {
                                                                console.error('Error deleting file:', err);
                                                                return;
```

```
                                                    }
                                                    console.log('File deleted successfully.');

                                                    fs.rmdir("hello", (err) => {
                                                      if (err) {
                                                        console.error('Error deleting folder:', err);
                                                        return;
                                                      }
                                                      console.log('Folder deleted successfully.');
          });
        });
      });
    });
  });
});
```

- **Create HTTP webpage on which home page will display image. (Image is in same folder)**

```
const http=require("http")
const fs=require("fs")
http.createServer((req,res)=>{
var img= fs.readFileSync("a.png")
res.writeHead(200,{"content-Type":"image/png"})
res.write(img)
res.end()
}).listen(3000)
console.log("server running")
```

- **Create HTTP webpage on which home page will fetch json data, about page shows centrally aligned message “Hello from class” in red colour and cyan background using internal css styling. And any other page shows “404 error”.**
  (Render Response & Routing)

```
const http=require("http")
http.createServer((req,res)=>
{
if(req.url=="/")
{
const data={
"name":"ABC",
"age":30
}
res.writeHead(200,{"content-Type":"application/json"})
res.write(JSON.stringify(data))
res.end()
```

```
}
else if(req.url=="/about")
{
res.writeHead(200,{"content-Type":"text/html"})
res.write(`<!DOCTYPE html>
<html lang="en">
<head>
<style>
body {
background-color: cyan;
text-align: center;
}
h1 {
color: red;
}
</style> </head>
<body>
<h1>Hello from class</h1>
</body>
</html>`)
res.end()
}
else{
res.writeHead(404,{"content-Type":"text/html"});
res.end("<h1>404 error</h1>")
}
}).listen(3000)
console.log("server running")
```

- **Write example as asked below**

  1. Create one CSV(.csv) file with minimum two lines of data and copy the file content in JSON (.json) file. Read the json file data and print the data in console. (For Reference)

  2. Write simple html code and create one file named "h1" with .html extension.

  3. Write simple JSON string with two properties name and branch to .json file. Read the file data and print the value of name in console.

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

// 1. CSV to JSON conversion
// Sample CSV data
const csvData = `Name,Age,Location
John,30,New York
Jane,25,Los Angeles`;

// Write sample CSV data to a file
fs.writeFileSync("test.csv", csvData);
console.log('CSV file "test.csv" created.');
```

```
// CSV to JSON conversion
const csv = fs.readFileSync("test.csv", "utf-8");
const csvLines = csv.trim().split("\n");
const headers = csvLines[0].split(",");
const jsonArray = [];

for (let i = 1; i < csvLines.length; i++) {
  const values = csvLines[i].split(",");
  const jsonObject = {};
  for (let j = 0; j < headers.length; j++) {
    jsonObject[headers[j]] = values[j];
  }
  jsonArray.push(jsonObject);
}
fs.writeFileSync('test.json', JSON.stringify(jsonArray, null, 2));
console.log('CSV file successfully converted to JSON.');

// 2. Create HTML file
const htmlContent = "<html><body><h1 style='color:red'>Hello</h1></body></html>";
fs.writeFileSync("h1.html", htmlContent);
console.log('HTML file "h1.html" created.');

// 3. Write JSON file
const jsonData = { "name": "LJU", "branch": "CSE" };
fs.writeFileSync("xyz.json", JSON.stringify(jsonData, null, 2));
console.log('JSON file "xyz.json" created.');

// Read and print JSON file data
const jsonDataFromFile = fs.readFileSync("xyz.json", "utf-8");
const parsedData = JSON.parse(jsonDataFromFile);
console.log('Value of "name" in JSON file:', parsedData.name);
```