Practical-11

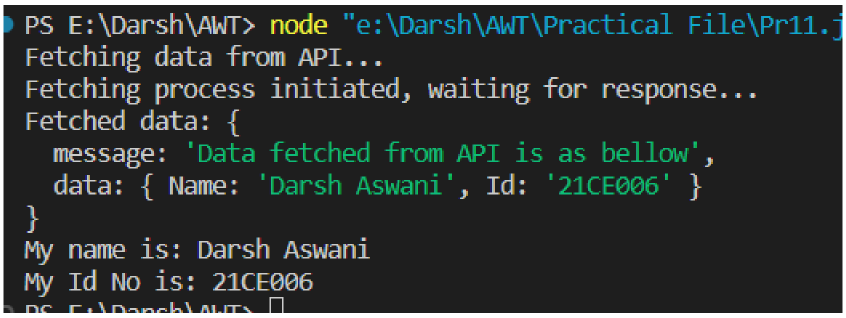
Aim:-

Write a program that demonstrates asynchronous behavior using a callback function. For example, create a function that simulates fetching data from an API and invokes a callback with the fetched data.

Code:-

```
function fetchDataFromAPI(callback) {
  setTimeout(() => {
    const data = { message: "Data fetched from API is as
bellow",data:{Name:"Darsh Aswani",Id:"21CE006"} };
    callback(null, data);
  }, 2000);
}

function handleFetchedData(error, data) {
  if (error) {
    console.error("Error fetching data:", error);
  } else {
      console.log("Fetched data:", data);
      console.log("My name is:",data.data.Name);
      console.log("My Id No is:",data.data.Id);
  }
}

console.log("Fetching data from API...");
fetchDataFromAPI(handleFetchedData);
console.log("Fetching process initiated, waiting for response...");
```

Output:-



```
PS E:\Darsh\AWT> node "e:\Darsh\AWT\Practical File\Pr11.j
Fetching data from API...
Fetching process initiated, waiting for response...
Fetched data: {
  message: 'Data fetched from API is as bellow',
  data: { Name: 'Darsh Aswani', Id: '21CE006' }
}
My name is: Darsh Aswani
My Id No is: 21CE006
PS E:\Darsh\AWT>
```

Practical-12

Aim:-

Create a program that reads a file asynchronously using callbacks and displays its contents.

Code:-

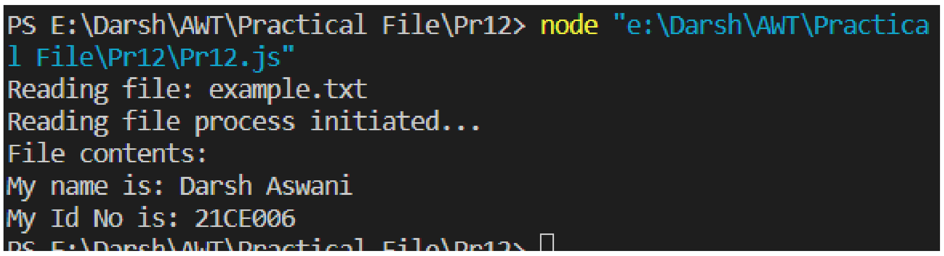
```
const fs = require("fs");

function readFileAsync(filename, callback) {
  fs.readFile(filename, "utf8", (err, data) => {
    if (err) {
      callback(err, null);
      return;
    }
    callback(null, data);
  });
}

function displayFileContents(err, data) {
  if (err) {
    console.error("Error reading the file:", err.message);
  } else {
    console.log("File contents:");
    console.log(data);
  }
}

const filename = "example.txt";

console.log(`Reading file: ${filename}`);
readFileAsync(filename, displayFileContents);
console.log("Reading file process initiated...");
```

example.txt

My name is: Darsh Aswani

My Id No is: 21CE006

Output:-



```
PS E:\Darsh\AWT\Practical File\Pr12> node "e:\Darsh\AWT\Practica
l File\Pr12\Pr12.js"
Reading file: example.txt
Reading file process initiated...
File contents:
My name is: Darsh Aswani
My Id No is: 21CE006
PS E:\Darsh\AWT\Practical File\Pr12>
```

Practical-13

Aim:-

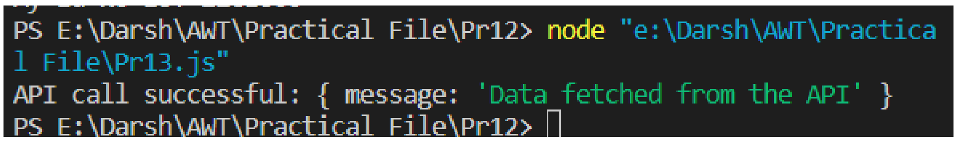
Write a program that uses Promises to handle asynchronous operations. For example, create a function that returns a Promise to fetch data from an API and resolve it with the fetched data.

Implement error handling using Promises by rejecting a Promise with an error message in case of failure.

Code:-

```javascript
const fetchFromAPI = () => {
  return new Promise((resolve, reject) => {
    const success = true;

    setTimeout(() => {
      if (success) {
        const data = { message: "Data fetched from the API" };
        resolve(data);
      } else {
        reject(new Error("Failed to fetch data from the API"));
      }
    }, 2000);
  });
};

fetchFromAPI()
  .then((data) => {
    console.log("API call successful:", data);
  })
  .catch((error) => {
    console.error("API call failed:", error.message);
  });
```

Output:-



```
PS E:\Darsh\AWT\Practical File\Pr12> node "e:\Darsh\AWT\Practica
l File\Pr13.js"
API call successful: { message: 'Data fetched from the API' }
PS E:\Darsh\AWT\Practical File\Pr12>
```

Practical-14

Aim:-

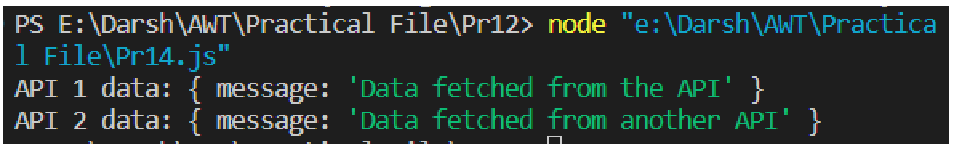
Convert a Promise-based asynchronous function into an async/await style function. For example, rewrite a function that fetches data from an API using async/await.

Write a program that utilizes multiple async/await functions to fetch data from different APIs sequentially and display the combined results.

Code:-

```
const fetchFromAPI = () => {
  return new Promise((resolve, reject) => {
    const success = true;

    setTimeout(() => {
      if (success) {
        const data = { message: "Data fetched from the API" };
        resolve(data);
      } else {
        reject(new Error("Failed to fetch data from the API"));
      }
    }, 2000);
  });
};

const fetchFromAnotherAPI = () => {
  return new Promise((resolve, reject) => {
    const success = true;

    setTimeout(() => {
      if (success) {
        const data = { message: "Data fetched from another API" };
        resolve(data);
      } else {
        reject(new Error("Failed to fetch data from another API"));
      }
    }, 1500);
  });
};

const fetchDataSequentially = async () => {
  try {
    const apiData = await fetchFromAPI();
    console.log("API 1 data:", apiData);

    const anotherApiData = await fetchFromAnotherAPI();
    console.log("API 2 data:", anotherApiData);
  } catch (error) {
    console.error("Error:", error.message);
  }
};

fetchDataSequentially();
```

Output:-



```
PS E:\Darsh\AWT\Practical File\Pr12> node "e:\Darsh\AWT\Practica
l File\Pr14.js"
API 1 data: { message: 'Data fetched from the API' }
API 2 data: { message: 'Data fetched from another API' }
```