Assignment 8 Node JS (REPL)

Aim:- Assignment on REPL (Commandline)

Lo Mapped :- LO-6

Theory:-

REPL, or Read-Eval-Print Loop, is a crucial tool in the world of programming and development. It offers a dynamic and interactive environment where developers can enter code, receive immediate feedback, and experiment with various programming languages. REPL is instrumental in rapid development, debugging, learning, and data exploration. It fosters a creative and iterative approach to coding, making it an invaluable resource for both beginners and experienced developers. Its ability to provide instant results and encourage experimentation contributes significantly to the efficiency and effectiveness of software development and problem-solving processes.

Components of REPL:-

- Read: In the read phase, the REPL reads user input or code and converts it into a data structure that the programming language can understand.

- Eval: The eval phase processes and evaluates the code or input provided by the user. This involves executing the code and generating results.

- Print: After evaluating the code, the print phase displays the results or output to the user.

- Loop: The loop phase repeats the process, allowing users to enter new code or input continuously.

2. Advantages of REPL:

- Rapid Development: REPL enables developers to experiment with code snippets in real-time, making it easier to iterate and refine their code.

- Debugging: Developers can use REPL to test and debug small code segments, identifying and fixing issues quickly.

- Learning Tool: REPL is an excellent tool for learning programming languages as it provides immediate feedback.

- Prototyping: It is useful for quickly prototyping ideas and algorithms.

- Data Exploration: In data analysis and scientific computing, REPL can be used for exploring datasets and running data manipulation operations step by step.

Use Cases:

- Code Testing: Developers can quickly test functions and code snippets.

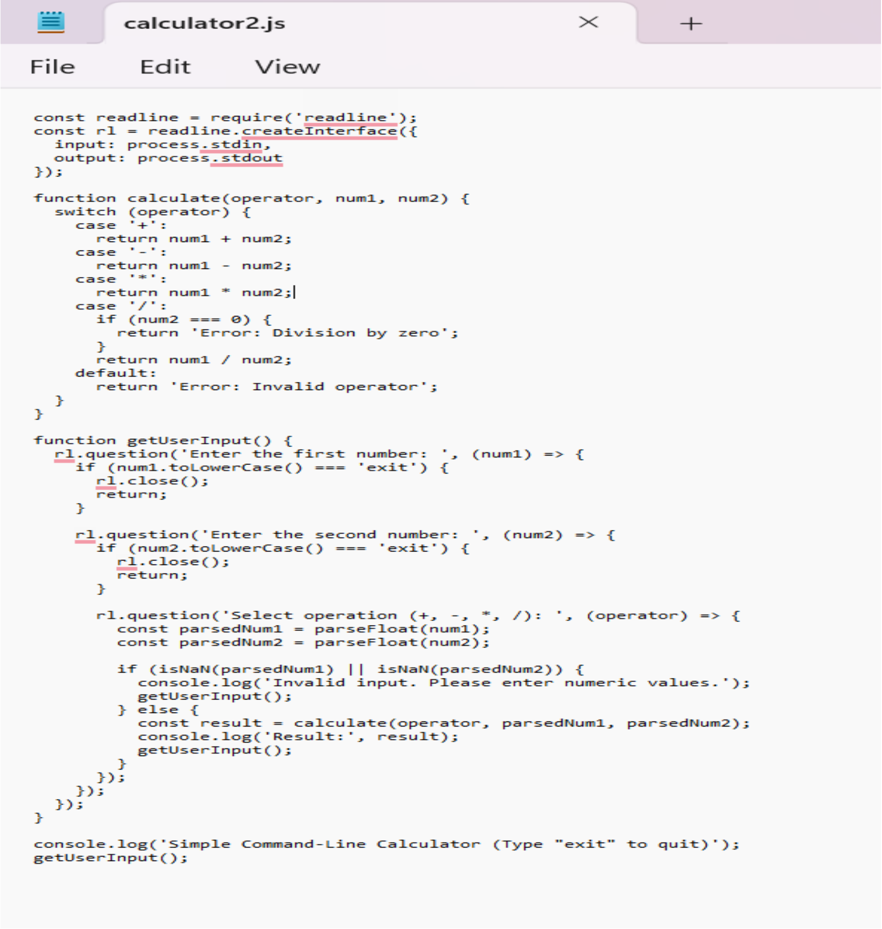
- Math and Calculations: REPL can be used for performing mathematical calculations and equations.

- Prototyping and Experimentation: It is valuable for experimenting with new ideas and algorithms.

- Data Analysis: Data scientists use REPL to explore datasets and test data manipulation commands.

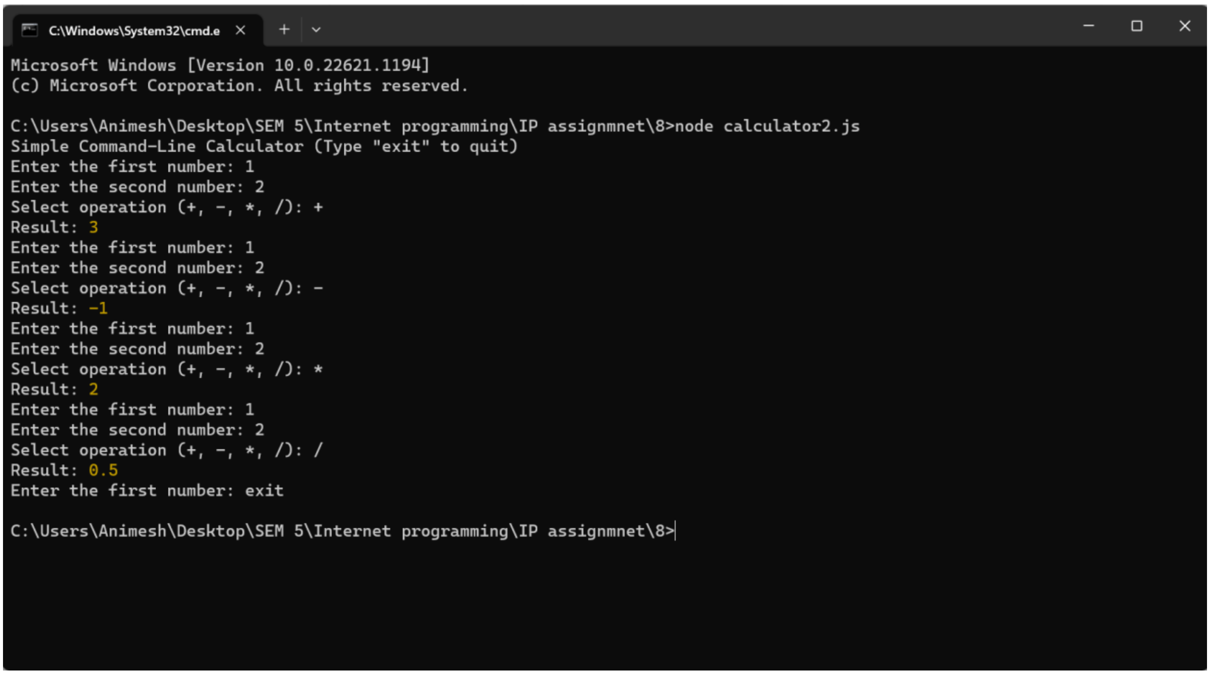
- Debugging: Debugging small portions of code to identify and fix errors.

Code :-



```
const readline = require('readline');
const rl = readline.createInterface({
  input: process.stdin,
  output: process.stdout
});

function calculate(operator, num1, num2) {
  switch (operator) {
    case '+':
      return num1 + num2;
    case '-':
      return num1 - num2;
    case '*':
      return num1 * num2;
    case '/':
      if (num2 === 0) {
        return 'Error: Division by zero';
      }
      return num1 / num2;
    default:
      return 'Error: Invalid operator';
  }
}

function getUserInput() {
  rl.question('Enter the first number: ', (num1) => {
    if (num1.toLowerCase() === 'exit') {
      rl.close();
      return;
    }

    rl.question('Enter the second number: ', (num2) => {
      if (num2.toLowerCase() === 'exit') {
        rl.close();
        return;
      }

      rl.question('Select operation (+, -, *, /): ', (operator) => {
        const parsedNum1 = parseFloat(num1);
        const parsedNum2 = parseFloat(num2);

        if (isNaN(parsedNum1) || isNaN(parsedNum2)) {
          console.log('Invalid input. Please enter numeric values.');
          getUserInput();
        } else {
          const result = calculate(operator, parsedNum1, parsedNum2);
          console.log('Result:', result);
          getUserInput();
        }
      });
    });
  });
}

console.log('Simple Command-Line Calculator (Type "exit" to quit)');
getUserInput();
```

Output :-



```
Microsoft Windows [Version 10.0.22621.1194]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Animesh\Desktop\SEM 5\Internet programming\IP assignmnet\8>node calculator2.js
Simple Command-Line Calculator (Type "exit" to quit)
Enter the first number: 1
Enter the second number: 2
Select operation (+, -, *, /): +
Result: 3
Enter the first number: 1
Enter the second number: 2
Select operation (+, -, *, /): -
Result: -1
Enter the first number: 1
Enter the second number: 2
Select operation (+, -, *, /): *
Result: 2
Enter the first number: 1
Enter the second number: 2
Select operation (+, -, *, /): /
Result: 0.5
Enter the first number: exit

C:\Users\Animesh\Desktop\SEM 5\Internet programming\IP assignmnet\8>
```

Conclusion:- In this assignment, we have learned REPL ON command line and created program for simple arithmetic operation and output has achieved.