

Assignment

Learner Details

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 - **Assignment:** Nodejs
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Problem Solving Activity 1.1

1. Program Statement

Create a Node.js module using CommonJS and ES6 that performs basic math operations: addition, subtraction, multiplication, division, and modulus division..

2. Algorithm

Step 1: Define functions ,implement add(a,b), sub(a,b), mul(a,b), div(a,b), and moddiv(a,b).

Step 2: Validate inputs ,ensure both arguments are numbers and handle invalid input.

Step 3: Handle division-by-zero, make div return an error value/message or throw when $b \neq 0$.

Step 4: Prepare exports , expose the functions using module.exports (CommonJS) or export (ES6).

Step 5: Import in caller, bring functions in with require('./Math') (CommonJS) or import ... from './Math.js' (ESM).

Step 6: Call functions — invoke each operation with sample values and collect results.

Step 7: Output results, console.log () or return the results to the caller for verification.

Step 8: Configure runtime ,ensure package.json "type" and file extensions (.js/.cjs/.mjs) match your chosen module system.

Step 9: Test edge cases, run the script, and verify behavior for normal and edge inputs (e.g., zero,

negative, non-number).

3. Pseudocode

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START

DEFINE FUNCTION add(a, b):

RETURN a + b

DEFINE FUNCTION sub(a, b):

RETURN a - b

DEFINE FUNCTION mul(a, b):

RETURN a * b

DEFINE FUNCTION div(a, b):

IF b IS 0:

PRINT "Error: Division by zero"

RETURN null

ELSE:

RETURN a / b

DEFINE FUNCTION moddiv(a, b):

RETURN a % b

EXPORT all functions as module.exports

END

4. Program Code

```
const add = (a,b) => {  
  return (  
    a+b  
  )  
}
```

```
const sub = (a,b) => {  
  return (  
    a-b  
  )  
}
```

```
const div = (a,b) => {  
  return (  
    a/b  
  )  
}
```

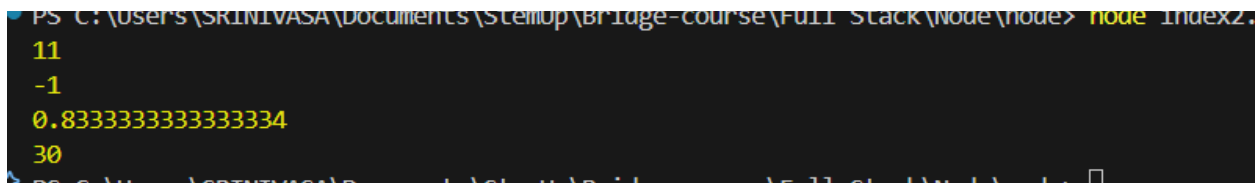
```
const mul = (a,b) => {  
  return (  
    a*b  
  )  
}
```



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```
// module.exports = {add,sub};  
export default {add,sub,div,mul};
```

6. Screenshots of Output



```
PS C:\Users\SRINIVASA\Documents\Stemup\Bridge-course\Full Stack\Node\Node> node Index2.js  
11  
-1  
0.8333333333333334  
30
```

7. Observation / Reflection

The require() error occurred due to ES module mode in package.json, highlighting the need to understand CommonJS vs ES Modules for smooth Node.js development.