CECS 424

Assignment 3

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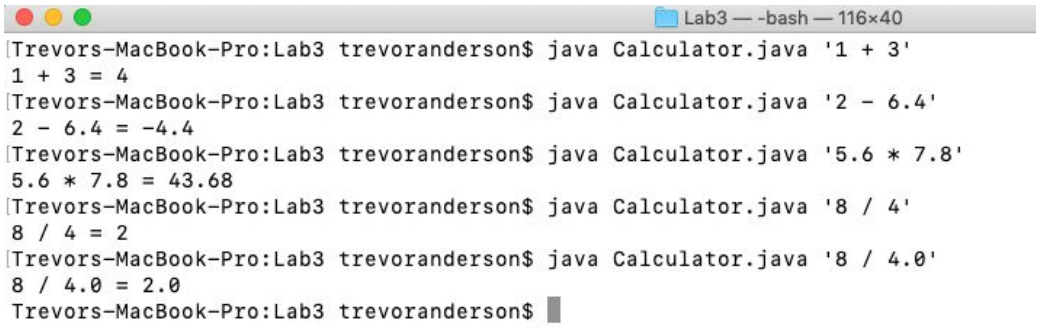
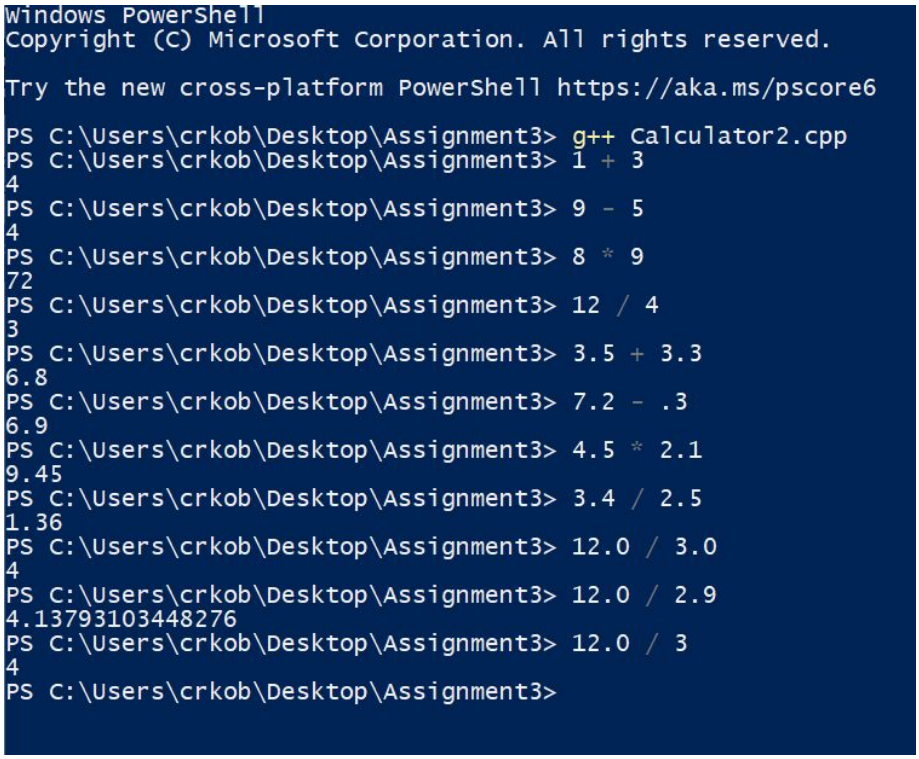
I. Terminal Screen shots

1. Java



2. C++



3. Python 3

```
Lab3 — -bash — 116×40
Trevors-MacBook-Pro:Lab3 trevoranderson$ python Calculator.py "1 + 3"
1 + 3 = 4
Trevors-MacBook-Pro:Lab3 trevoranderson$ python Calculator.py "2 - 6.4"
2.0 - 6.4 = -4.4
Trevors-MacBook-Pro:Lab3 trevoranderson$ python Calculator.py "5.6 * 7.8"
5.6 * 7.8 = 43.68
Trevors-MacBook-Pro:Lab3 trevoranderson$ python Calculator.py "8 / 4"
8 / 4 = 2
Trevors-MacBook-Pro:Lab3 trevoranderson$ python Calculator.py "8 / 4.0"
8.0 / 4.0 = 2.0
Trevors-MacBook-Pro:Lab3 trevoranderson$
```

4. Go

```
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2> go run Calculator.go '2.5 + 3'
5.5
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2> go run Calculator.go '2.5 * 3'
7.5
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2> go run Calculator.go '4.0 / 2'
2
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2> go run Calculator.go '4.5 - 2'
2.5
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2>
```

5. JavaScript (Node.js)

```
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2> node Calculator.js '2.5 + 3'
5.5
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2> node Calculator.js '2.5 * 3'
7.5
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2> node Calculator.js '4.0 / 3'
1.3333333333333333
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2> node Calculator.js '4.0 - 2.5'
1.5
PS C:¥Users¥adria¥Documents¥CECS 424 Assignment 2>
```

II. Source Code

1. Java

```
//Basic user input calculator for Java
public class Calculator {
	public static void main(String[] args) {
		String[] input = args[0].split(" ");
		String decimal = "\\d*(\\.\\d|\\d\\.)\\d*";

		if (input[0].matches(decimal) || input[2].matches(decimal)){
			double in1 = Double.parseDouble(input[0]);
			double in2 = Double.parseDouble(input[2]);
			double out;
			if (input[1].equals("+")) out = in1 + in2;
			else if(input[1].equals("-")) out = in1 - in2;
			else if(input[1].equals("*")) out = in1 * in2;
			else if(input[1].equals("/")) out = in1 / in2;
			else out = in1 / in2;
			System.out.println(args[0] + " = " + out);
		}
		else {
			int in1 = Integer.parseInt(input[0]);
			int in2 = Integer.parseInt(input[2]);
			int out;
			if (input[1].equals("+")) out = in1 + in2;
			else if(input[1].equals("-")) out = in1 - in2;
			else if(input[1].equals("*")) out = in1 * in2;
			else if(input[1].equals("/")) out = in1 / in2;
			else out = in1 / in2;
			System.out.println(args[0] + " = " + out);
	}
}

	}
```

2. C++

```
#include <vector>
#include <iostream>
#include <string>
#include <sstream>
using namespace std;

const vector<string> explode(const string& s, const char& c)
{
	string buff{ "" };
	vector<string> v;

	for (auto n : s)
	{
		if (n != c) buff += n; else
			if (n == c && buff != "") { v.push_back(buff); buff = ""; }
	}
	if (buff != "") v.push_back(buff);

	return v;
}

int main() {
	string input;
	getline(cin, input);

	vector<string> v{ explode(input, ' ') };

	double in1 = stod(v[0].c_str());
	double in2 = stod(v[2].c_str());
	double out;

	if (v[1] == "+") out = in1 + in2;
	else if (v[1] == "-") out = in1 - in2;
	else if (v[1] == "*") out = in1 * in2;
	else out = in1 / in2;

	cout << input << " = " << out;

	getchar();
	getchar();
	return 0;
}
```

3. Python 3

```
import sys
```

```
import re
#takes the equation from the command line argument and splits it up by space
arg = sys.argv[1]
string = arg.split(' ')
decimal1 = re.findall(r"\d*\.\d*|\d*\.\d*", string[0])
decimal2 = re.findall(r"\d*\.\d*|\d*\.\d*", string[2])

# If arg has no floats then use integer math
if (len(decimal1) == 0) and (len(decimal2) == 0):
	in1 = int(string[0])
	in2 = int(string[2])
	if string[1] == '+':
		print in1 , '+' , in2, '=', in1 + in2
	elif string[1] == '-':
		print in1 , '-' , in2, '=', in1 - in2
	elif string[1] == '*':
		print in1 , '*' , in2, '=', in1 * in2
	elif string[1] == '/':
		print in1 , '/' , in2, '=', in1 / in2
# If arg has floats then use decimal math
else:
	in1 = float(string[0])
	in2 = float(string[2])
	if string[1] == '+':
		print in1 , '+' , in2, '=', in1 + in2
	elif string[1] == '-':
		print in1 , '-' , in2, '=', in1 - in2
	elif string[1] == '*':
		print in1 , '*' , in2, '=', in1 * in2
	elif string[1] == '/':
		print in1 , '/' , in2, '=', in1 / in2
```

4. Go

```
package main
import (
    "fmt"
    "os"
    "strings"
    "strconv"
    "regexp"
)

func main() {
    input := strings.Split(os.Args[1], " ")
    match, _ := regexp.MatchString(`(?m)\d*(\d\.|\.\d)\d*`, input[0])
```

```
    match2, _ := regexp.MatchString(`(?m)\d*(\d\.|\.\d)\d*`, input[2])
    if match == true || match2 == true{
    in1, err1 := strconv.ParseFloat(input[0], 64)
    in2, err2 := strconv.ParseFloat(input[2], 64)
    if err1 == nil && err2 == nil{
        var out float64
        if input[1]== "+" {
            out = in1 + in2
        } else if input[1] == "-" {
            out = in1 - in2
        } else if input[1] == "*" {
            out = in1 * in2
        } else {
            out = in1 / in2
        }

        fmt.Println(out)
    }
    } else{
    in1, err1 := strconv.ParseInt(input[0], 10, 64)
    in2, err2 := strconv.ParseInt(input[2], 10, 64)
    if err1 == nil && err2 == nil{
        var out int64
        if input[1]== "+" {
            out = in1 + in2
        } else if input[1] == "-" {
            out = in1 - in2
        } else if input[1] == "*" {
            out = in1 * in2
        } else {
            out = in1 / in2
        }

        fmt.Println(out)
    }
    }
}
```

5. JavaScript (Node.js)

```
var myargs = process.argv[2].split(" ");
const regex = "\\d*(\\.\\d|\\d\\.)\\d*";
if(myargs[0].match(regex) || myargs[2].match(regex)){
       var in1 = parseFloat(myargs[0]);
       var in2 = parseFloat(myargs[2]);
       var out1;
       switch(myargs[1]){
              case "+":
                     out1 = in1 + in2;
```

```
                        console.log(out1);
                        break;
                case "-":
                        out1 = in1 - in2;
                        console.log(out1);
                        break;
                case "*":
                        out1 = in1 * in2;
                        console.log(out1);
                        break;
                case "/":
                        out1 = in1 / in2;
                        console.log(out1);
                        break;
        }

}
else{
        var in1 = parseInt(myargs[0]);
        var in2 = parseInt(myargs[2]);
        var out;
        switch(myargs[1]){
                case "+":
                        out1 = in1 + in2;
                        console.log(out1);
                        break;
                case "-":
                        out1 = in1 - in2;
                        console.log(out1);
                        break;
                case "*":
                        out1 = in1 * in2;
                        console.log(out1);
                        break;
                case "/":
                        out1 = in1 / in2;
                        console.log(out1);
                        break;
        }


}
```