### **CECS 424**

## Assignment 3

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## I. Terminal Screen shots

### 1. Java

```
Trevors-MacBook-Pro:Lab3 trevoranderson$ java Calculator.java '1 + 3'

1 + 3 = 4

[Trevors-MacBook-Pro:Lab3 trevoranderson$ java Calculator.java '2 - 6.4'

2 - 6.4 = -4.4

[Trevors-MacBook-Pro:Lab3 trevoranderson$ java Calculator.java '5.6 * 7.8'

5.6 * 7.8 = 43.68

[Trevors-MacBook-Pro:Lab3 trevoranderson$ java Calculator.java '8 / 4'

8 / 4 = 2

[Trevors-MacBook-Pro:Lab3 trevoranderson$ java Calculator.java '8 / 4.0'

8 / 4.0 = 2.0

Trevors-MacBook-Pro:Lab3 trevoranderson$
```

### 2. C++

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\crkob\Desktop\Assignment3> g++ Calculator2.cpp
PS C:\Users\crkob\Desktop\Assignment3> 1 + 3

4

PS C:\Users\crkob\Desktop\Assignment3> 9 - 5

4

PS C:\Users\crkob\Desktop\Assignment3> 8 * 9

72

PS C:\Users\crkob\Desktop\Assignment3> 12 / 4

3

PS C:\Users\crkob\Desktop\Assignment3> 3.5 + 3.3
6.8

PS C:\Users\crkob\Desktop\Assignment3> 7.2 - .3
6.9

PS C:\Users\crkob\Desktop\Assignment3> 4.5 * 2.1
9.45

PS C:\Users\crkob\Desktop\Assignment3> 3.4 / 2.5
1.36

PS C:\Users\crkob\Desktop\Assignment3> 12.0 / 3.0

4

PS C:\Users\crkob\Desktop\Assignment3> 12.0 / 2.9
4.13793103448276
PS C:\Users\crkob\Desktop\Assignment3> 12.0 / 3

4

PS C:\Users\crkob\Desktop\Assignment3> 12.0 / 3
```

### 3. Python 3

```
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

```
Trevors-MacBook-Pro:Lab3 trevoranderson$ go run Calculator.go "1 + 3.2"
4.2

Trevors-MacBook-Pro:Lab3 trevoranderson$ go run Calculator.go "1 + 2"
3

Trevors-MacBook-Pro:Lab3 trevoranderson$ go run Calculator.go "7 - 2.5"
4.5

Trevors-MacBook-Pro:Lab3 trevoranderson$ go run Calculator.go "5.6 * 7.8"
43.68

Trevors-MacBook-Pro:Lab3 trevoranderson$ go run Calculator.go "3 / 1.2"
2.5

Trevors-MacBook-Pro:Lab3 trevoranderson$ go run Calculator.go "8 / 4"
2
Trevors-MacBook-Pro:Lab3 trevoranderson$
```

# 5. JavaScript (Node.js)

```
| Lab3 — -bash — 102×40 |
| Trevors-MacBook-Pro:Lab3 trevoranderson$ node calculator.js "1 + 3" |
| Trevors-MacBook-Pro:Lab3 trevoranderson$ node calculator.js "1 + 2.3" |
| 3.3 |
| Trevors-MacBook-Pro:Lab3 trevoranderson$ node calculator.js "2 - 6.3" |
| -4.3 |
| Trevors-MacBook-Pro:Lab3 trevoranderson$ node calculator.js "6.3 * 7" |
| 44.1 |
| Trevors-MacBook-Pro:Lab3 trevoranderson$ node calculator.js "9 / 2" |
| 4.5 |
| Trevors-MacBook-Pro:Lab3 trevoranderson$ node calculator.js "9 / 3.2" |
| 2.8125 |
| Trevors-MacBook-Pro:Lab3 trevoranderson$ node calculator.js "9 / 3" |
| 3 |
| Trevors-MacBook-Pro:Lab3 trevoranderson$ |
| Trevors-MacBook
```

## 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 = \frac{d^{(\cdot,\cdot)d}}{d^{\cdot}};
               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 <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;</pre>
       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(' ')
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)

```
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;
       }
```

}