Assessment: Assignments 02

Student Name: Lin Chen (student num:041053912)
Lab Professor Name: Gustavo Adami

Lab Section Number: *314*

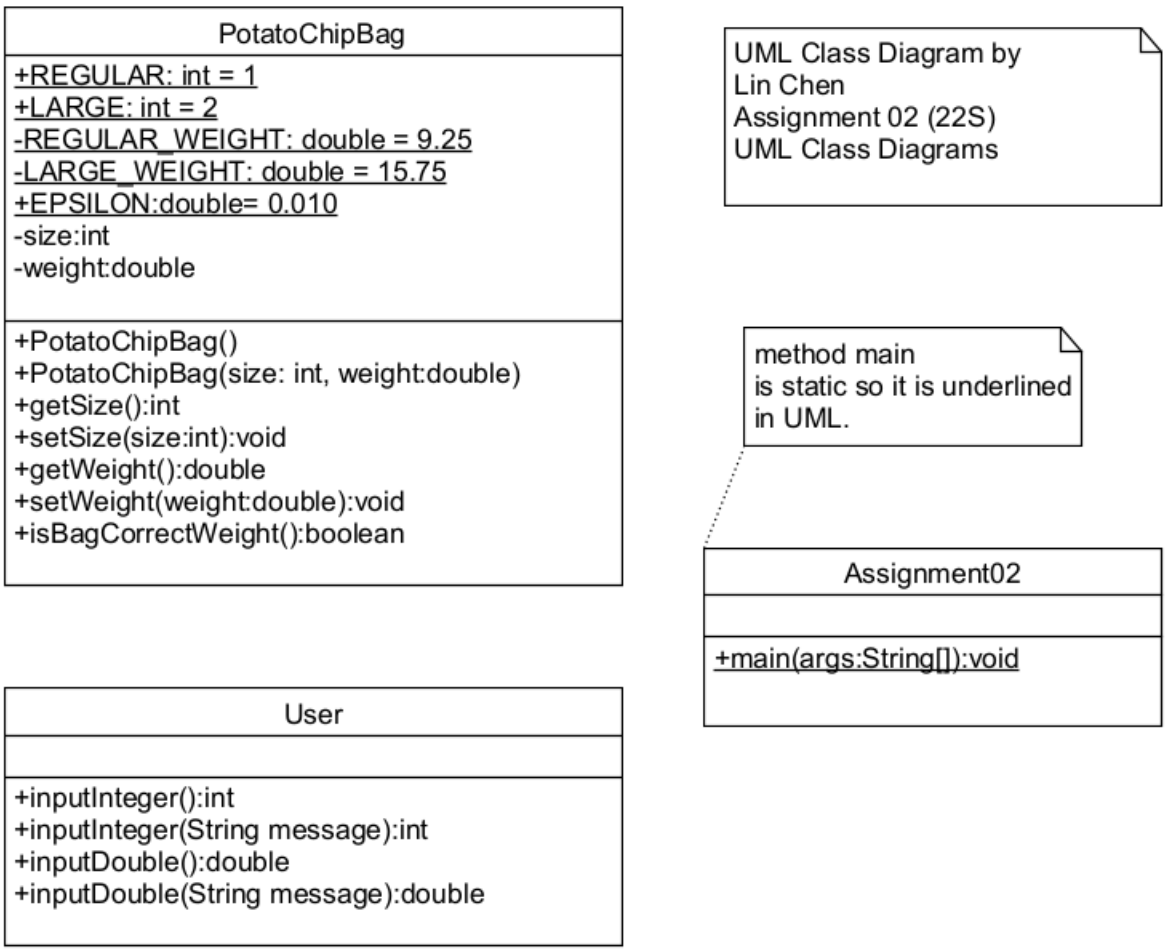
Due Date: Friday, July 29

Part 1 Understand the Problem

The program needs to input the size and weight of the potato chip bags and code a method by using Boolean to compare if within 0.01 oz or not to get the good bag or bad bag, using math method to calculate the difference(absolute value). Use loop(do,while) methods to verify the quality of the bags and calculate the total count of the bags.

Part 2 UML, Pseudocode and flow-charts

1) UML



2) Pseudocode for the method of Boolean isBagCorrectWeight()

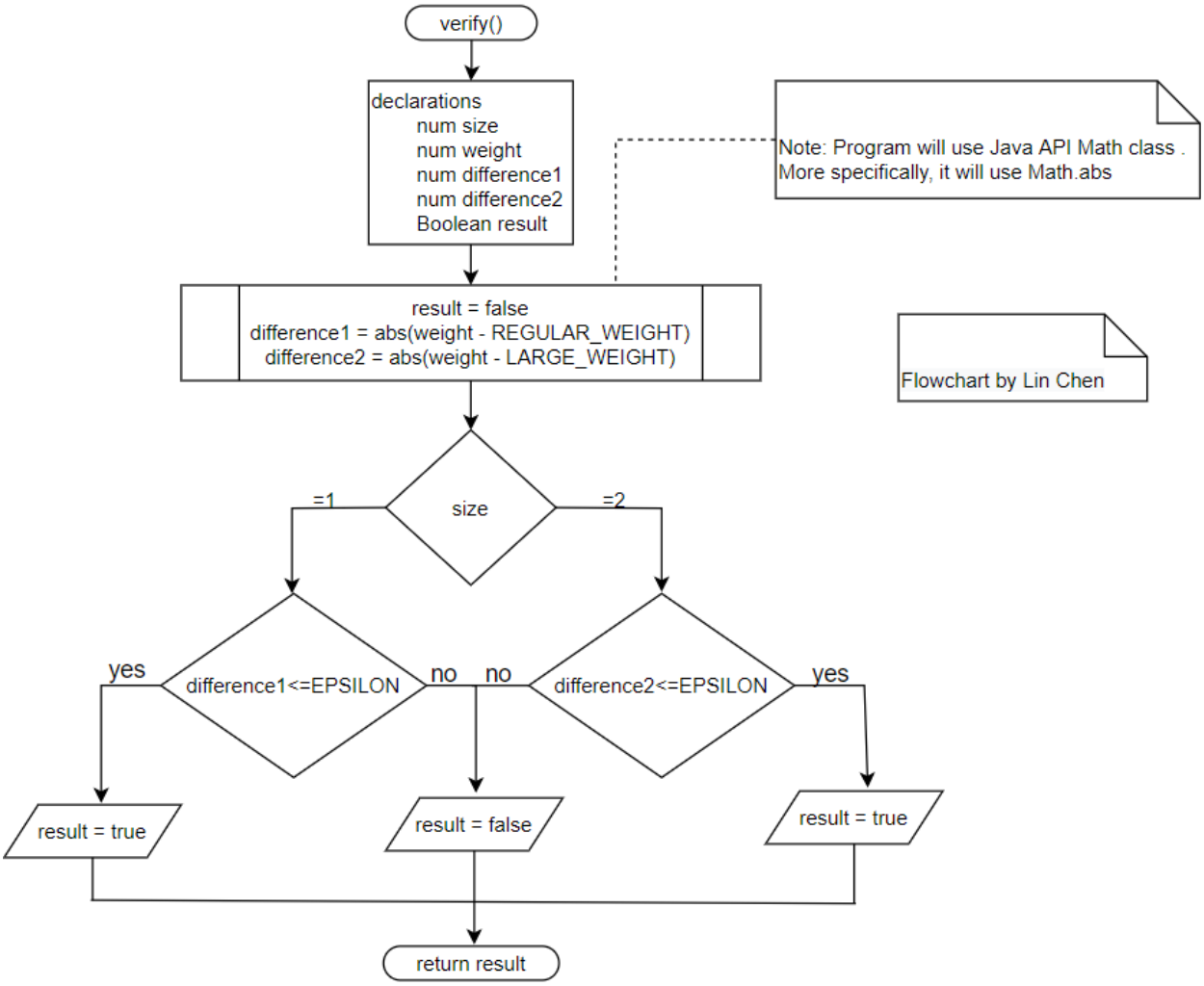
```
//verify()
Declarations
     num size
     num weight
     num difference1
     num difference2
     Boolean result

     result = false
     difference1 = absolute value of (weight-REGULAR_WEIGHT)
     difference2 = absolute value of (weight-LARGE_WEIGHT)
          if size = 1
               if difference1 <= EPSILON
                    result = true;
          else if size = 2
               if difference2 <= EPSILON
                    result = true;

          endif
          return result
```

3) Pseucode for the mian method

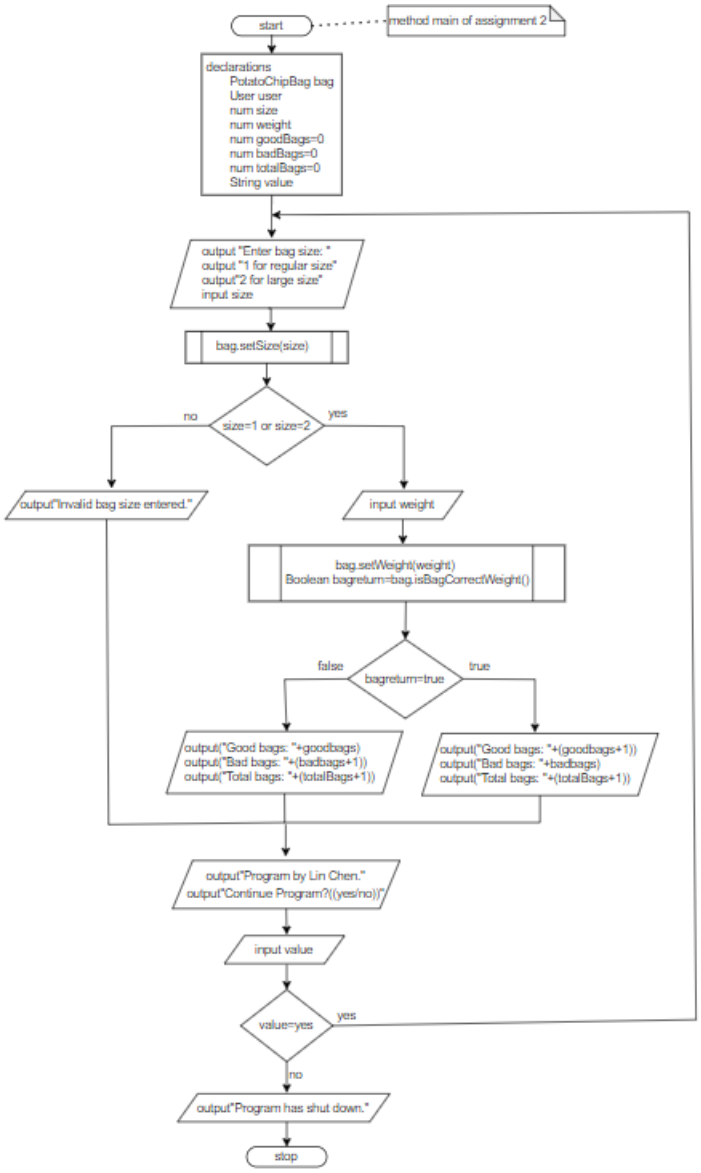
```
//main(String[] args)
Start
       Declarations
              PotatoChipBag bag
              User user
              num size
              num weight
              num goodBags=0
              num badBags=0
              num totalBags=0
              String value

  do
         output”Enter bag size: ”
         output”1 for regular size”
         output”2 for large size”
         keyboard input size
         bag.setSize(size)

        if size = 1 or size = 2
              keyboard input weight
```

```
            bag.setWeight(weight)

            Boolean bagreturn = bag.isBagCorrectWeight()
                 If bagreturn = true
                       output”Good bags: ” + (goodBags + 1)
                       output”Bad bags: ” + badBags
                       output”Total bags: ” + (totalBags + 1)
                 else  output”Good bags: ” + goodBags
                       output”Bad bags: ” + (badBags + 1)
                       output”Total bags: ” + (totalBags + 1)
                 endif
           else output”Invalid bag size entered”
           endif

         output”Program by Lin Chen”
         output”Continue Program?(yes/no)”
         keyboard input value

    while value = “yes”

        output”Program has shut down”

Stop
```

4) Flowchart for the method of Boolean isBagCorrectWeight()



5) Flowchart for the mian method



Part 3 Test Algorithm with Simple Inputs

Table 1: Test Plan for method main for the repetition structure logic (looping tests)

Input	Expected Output	Actual Output	Description
1 9.25 yes	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Continue? (yes/no) Enter Bag Size: 1 for regular size 2 for large size	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Continue? (yes/no) Enter Bag Size: 1 for regular size 2 for large size	test passes, and the program continues.

2 10.00 YES	Good Bag: 1 Bad Bag: 1 Total Bags: 2 Continue? (yes/no) Enter Bag Size: 1 for regular size 2 for large size	Good Bag: 1 Bad Bag: 1 Total Bags: 2 Continue? (yes/no) Enter Bag Size: 1 for regular size 2 for large size	test passes, and the program continues.
1 9.24 no	Good Bag: 2 Bad Bag: 1 Total Bags: 3 Continue? (yes/no) Program has shut down	Good Bag: 2 Bad Bag: 1 Total Bags: 3 Continue? (yes/no) Program has shut down	test passes, and the program shuts down.
1 9.25 carrot	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Continue? (yes/no) Program has shut down	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Continue? (yes/no) Program has shut down	The program shuts down.

Table 2: Test Plan for method main for good chip bag, bad chip bag, total bags

Input	Expected output	Actual output	Description
1 9.25 No	Good Bag: 1 Bad Bag: 0 Total Bags: 1	Good Bag: 1 Bad Bag: 0 Total Bags: 1	Matches, one good bag, correct report, program exits.
1 9.25 yes 2 16.75 NO	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Good Bag: 1 Bad Bag: 1 Total Bags: 2	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Good Bag: 1 Bad Bag: 1 Total Bags: 2	Matches, one good bag, one bad bag, correct report, program exits
3 yes 1 10.00	Invalid bag size entered Good Bag: 0 Bad Bag: 1 Total Bags: 1	Invalid bag size entered Good Bag: 0 Bad Bag: 1 Total Bags: 1	Matches, invalid bag size entered, one bad bag input, program exits

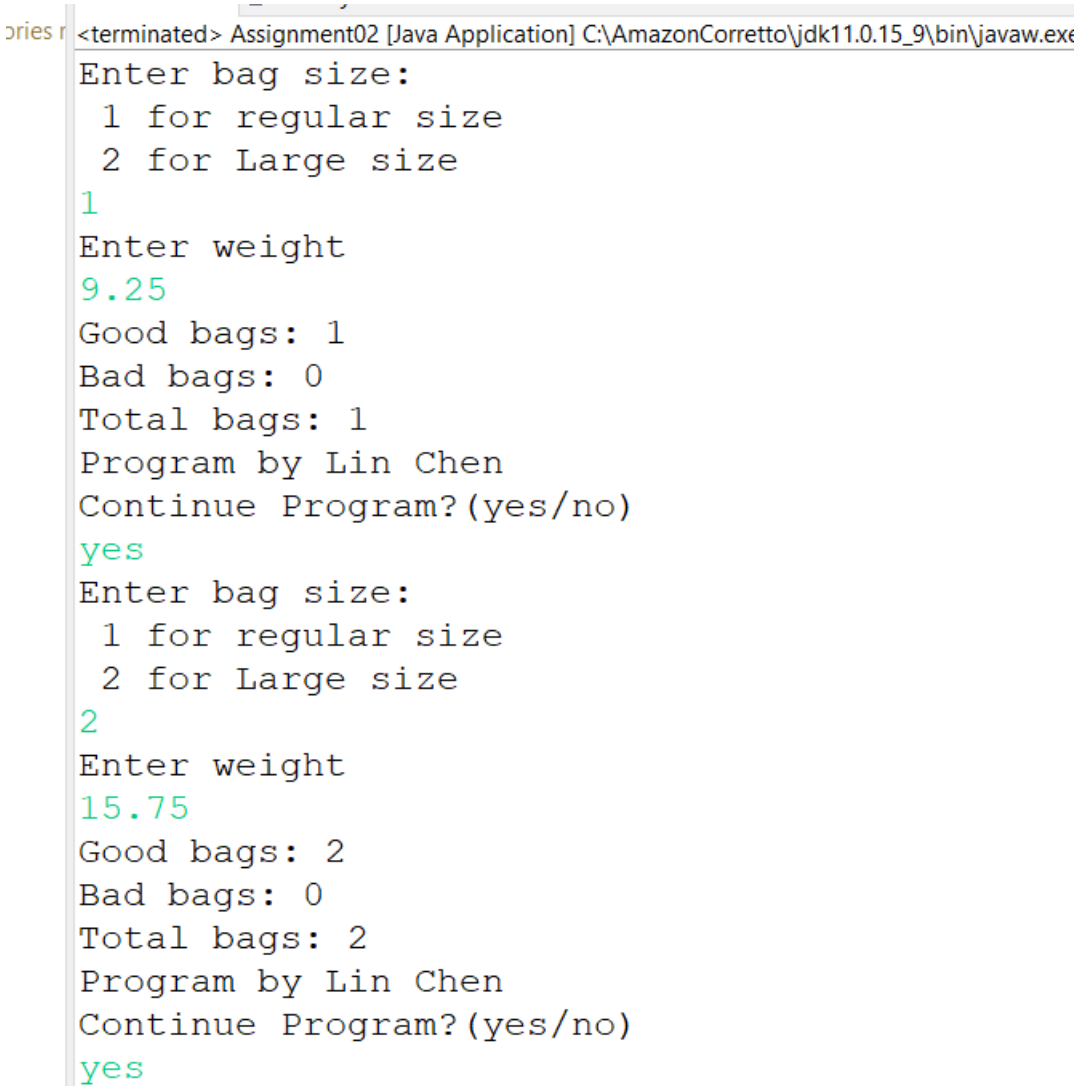
Table 3: Test Plan for method isBagCorrectWeight()

Field values	Expected return value	Actual return value	Description
Size=1 Weight=9.24	true	true	Matches
Size=1 Weight=9.25	true	true	Matches
Size=1 Weight=9.26	true	true	Matches
Size=2 Weight=15.74	true	true	Matches
Size=2 Weight=15.75	true	true	Matches
Size=2 Weight=15.76	true	true	Matches
Size=1 Weight=9.2399	false	false	Not matches
Size=1 Weight=9.2601	false	false	Not matches
Size=2 Weight=15.7399	false	false	Not matches
Size=2 Weight=15.7601	false	false	Not matches

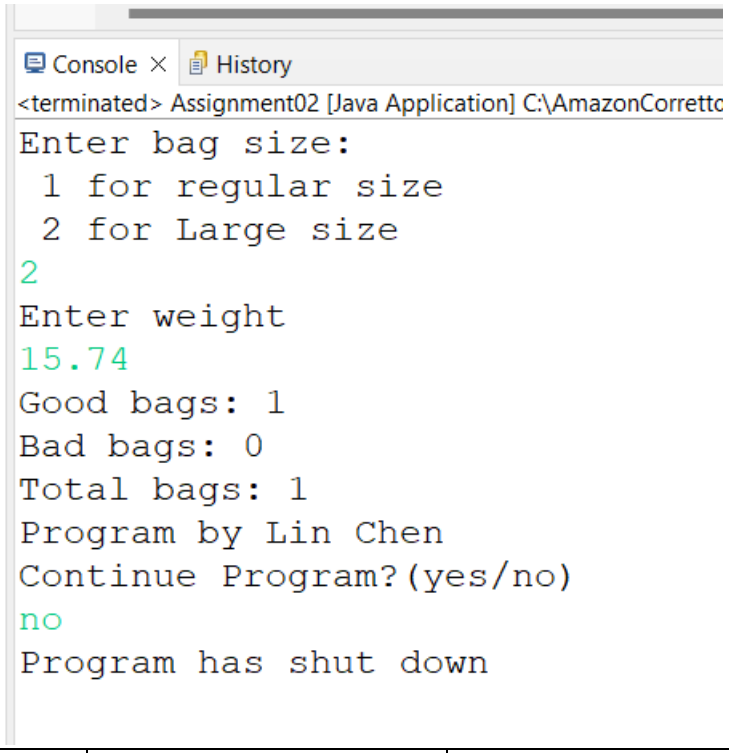
Part 4 Translate the Algorithm into Java

DONE.

Part 5 Compile and Test Your Program



```
Continue Program?(yes/no)
yes
Enter bag size:
 1 for regular size
 2 for Large size
42
Invalid bag size entered
Program by Lin Chen
Continue Program?(yes/no)
yes
Enter bag size:
 1 for regular size
 2 for Large size
1
Enter weight
15.74
Good bags: 2
Bad bags: 1
Total bags: 3
Program by Lin Chen
Continue Program?(yes/no)
no
Program has shut down
```



Input	Expected Output	Actual Output	Description
1 9.25 yes	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Continue? (yes/no) Enter Bag Size: 1 for regular size 2 for large size	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Continue? (yes/no) Enter Bag Size: 1 for regular size 2 for large size	Java program output matches the expected output.
2 10.00 YES	Good Bag: 1 Bad Bag: 1 Total Bags: 2 Continue? (yes/no) Enter Bag Size: 1 for regular size 2 for large size	Good Bag: 1 Bad Bag: 1 Total Bags: 2 Continue? (yes/no) Enter Bag Size: 1 for regular size 2 for large size	Java program output matches the expected output.
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1 9.25 carrot	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Continue? (yes/no) Program has shut down	Good Bag: 1 Bad Bag: 0 Total Bags: 1 Continue? (yes/no) Program has shut down	The program shuts down.

References

1. [1] Cay Horstmann. (2019). Big Java Early Objects. 7th Ed. Wiley.
3. Slides from week 10 and 11.