

# Midterm

- All concepts from Quizzes 1 – 3
- Planning, including cleaning and parsing
- UML Diagrams

12:00 section	1:00 section
Last Name: <b>A – G</b> <b>SL 104</b>	Last Name: <b>A – E</b> <b>OH 107</b>
Last Name: <b>H – Z</b> <b>AK 116</b>	Last Name: <b>F – Z</b> <b>AK 116</b>

# Study Session

- 5:00 pm – 6:00 pm, Lower Perreault
  - Come with questions
  - Audio recording will be posted

# Quizzes

If you would like any of quizzes 1 – 3 back before the midterm, they will all be outside my office from 3 – 5 today. Otherwise, you will be able to get them back in lab this week.

0	1.2	3.1	0.2
---	-----	-----	-----

-999
------

2.0	0.0	-999
-----	-----	------

3.0	0.0	-999	3.1	1.2
-----	-----	------	-----	-----

-4.6	1.2	-3.0	4.1	-999
------	-----	------	-----	------


-1.0	-999
------	------

# Cleaning

0      1.2      3.1      0.2       0      1.2      3.1      0.2

-999       empty list

2.0      0.0      -999       2.0      0.0

3.0      0.0      -999      3.1      1.2       3.0      0.0

-4.6      1.2      -3.0      4.1      -999       1.2      4.1

-1.0      -999       empty list

maxTripleLengths

"sun"

"two"

"good"

"bad"

"ugly"

"red"

10

10

11

10



11

Initialize; happens  
once before body of  
loop

Termination; tested  
after every execution of  
loop body; terminate  
when false

Update; happens  
after every execution  
of loop body

```
for(int i = 0; i < nums.size(); i = i + 1)
```

Index →

0

1

2

3

4

5

Value →

"sun"

"two"

"good"

"bad"

"ugly"

"red"

1. Come up with a sample input, and compute the results for your input
2. List subtasks
3. Outline your solution

An online clothing store applies discounts during checkout. A shopping cart is a list of the items being purchased. Each item has a name (a string like "shoes") and a price (a double like 12.50). Design a program called checkout that consumes a shopping cart and produces the total cost of the cart after applying the following two discounts:

- if the cart contains at least \$100 worth of shoes, take 20% off the cost of all shoes (match only items whose exact name is "shoes")
- if the cart contains at least two hats, take \$10 off the total of the cart (match only items whose exact name is "hat")

Use the following classes for items and carts:

```
class CartItem {  
    String name;  
    double price;  
  
    CartItem (String name, double price) {  
        this.name = name;  
        this.price = price;  
    }  
}  
  
// A sample cart in your Examples class  
LinkedList<CartItem> cart;
```



Shoes 30	Shoes 45	Socks 12	Hat 10	Jacket 150	Hat 15	Shoes 60
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Shoes =  $30 + 45 + 60 = \$135$   
discount = \$27  
total cost for shoes = \$108

Hats = discount \$10

Total other =  $12 + 10 + 150 + 15 = \$187$   
 $187 + 108 - 10 = \$285$

# Parsing

- process each item in a loop
  - if shoes, put cost in shoe list
  - if hat, put cost in hat list
  - otherwise, put cost in other list
- create a double var totalCost
- create a helper that produces the sum of a list of doubles (total())

```
if shoeList.total() >= 100
    totalCost = shoeList.total * .8
else
    totalCost = shoeList.total()
if hatList.size() >= 2
    totalCost = totalCost - 10
totalCost = totalCost + otherList.total()
```