Group Members: Froilan Zarate & Alan Xiao

1. Semantics Question
    a. Suppose your mom tells you to buy fruit if there's milk or cream on sale, to buy vegetables if milk is on sale, to get milk if fruit is on sale, and to get soda if vegetables are on sale.

       When you get to the store, you find that vegetables and milk are on sale, what do you buy?

        i. Since vegetables are on sale we will buy soda and since milk is on sale we will buy both fruit and vegetables . QED: Soda, fruit, and vegetables will be bought.

    b. Take the image below, and describe how you would move the three rings from the starting pole to the last one. You can only move one ring at a time, and a bigger ring cannot be on top of a smaller one. You cannot move a ring if there is another ring on top if it.

       Steps:

        i. Red ring moved to the last position.
        ii. Green ring moved to the middle position.
        iii. Red ring moved to the middle position.
        iv. Blue ring moved to last position.
        v. Red ring moved to the first position.
        vi. Green ring moved to the last position.
        vii. Red ring moved to the last position.

2. Counting and Math problem
    a. Say that you need to raise 60 dollars to buy some tickets to a concert you want to see. You find that you can make 13-21 dollars by running an errand for an old

lady across town. However, it costs you 4 dollars round trip to visit that old lady. Assuming she has one errand for you each day, what is the fastest time it will take to make at least 60 dollars? What is the slowest?

i. The fastest time would mean I make 21 dollars every time I run an errand for the old lady. However, it costs 4 dollars for the round trip, so I will make 17 dollars.

$60 \geq (21-4)t$; $t \in N$; t = Days

$60 \geq 17t$

$60/17 \geq t$

$t \leq 4$

After 4 days, I have made 68 dollars, which is the fastest time.

ii. The slowest time would mean I make 13 dollars every time I run an errand for the old lady. However, it costs 4 dollars for the round trip, so I will make 9 dollars. **After 7 days**, I have made 63 dollars, which is the slowest time.

$60 \geq (13-4)t$; $t \in N$; t = Days

$60 \geq 9t$

$60/9 \geq t$

$t \leq 7$

b. In a different attempt to make money, you sold cookies and brownies in a bake sale. If you sold 7 cookies and 5 brownies and made 21 dollars at one sale, and sold 5 cookies and 5 brownies at another sale and made 17 dollars, how many more brownies would you need to sell to make at least a total of 60 dollars?

i. c = # of Cookies; b = # of Brownies

$7c+5b = \$21$

$5c+5b=\$17$

2c=$4

c=$2

7c+5b = $21

7($2) + 5b = $21

5b = $7

B = $1.40

x($1.40)=$t60-($21+$17)

$1.40x = 22

X = 15+5/7

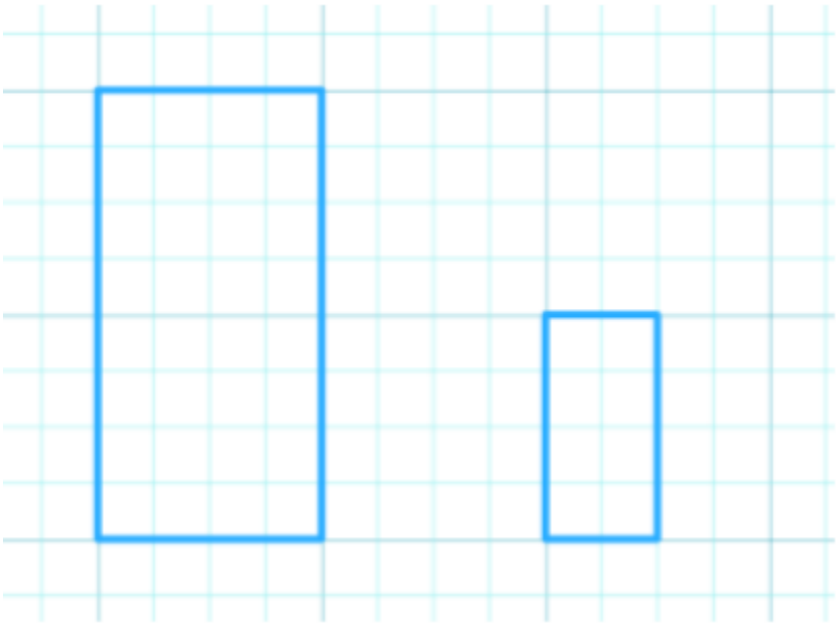
However, since normally it is impossible to sell a fraction of a browny, I will have to sell another brownie, for a total of 16 brownies.

3. Apply Methods
    a. Take a look at the list of numbers below, You have the method available: swap(a,b) where a and b are the LOCATIONS of the numbers in the line. Sort the list of numbers in as few uses of 'swap' as possible. Ask your peers if they managed to do it in less steps! 3,5,1,2,4,10,7
        i. Starting array: 3,5,1,2,4,10,7
        ii. 1. Move 3 to fourth position - 5,1,2,3,4,10,7
        iii. 2. Move 5 to fifth position - 1,2,3,4,5,10,7
        iv. 3. Move 10 to last (seventh) position - 1,2,3,4,5,7,10
    b. Look at the two rectangles in this grid. You have two methods:

        translate(a,b): Move the rectangle to the right for a positive value of a, and move up for a positive value of b.

        resize(c): Multiply the size of the rectangle (if you choose 2, both the length and the height are doubled). In all cases, the top left corner stays static as the rectangle resizes.

What methods would you call on the second rectangle so it becomes superimposed (perfectly overlaps) the first rectangle?



I would first translate the top left corner of the smaller rectangle to share the same coordinates as the big rectangle. Then I would multiply the length of each side by 2.

What does the sampleMethod auto-created do?

A: It prints “Hello World”