

1. A fair 10-section game spinner
  - a. Private attributes-
    - i. # arrow is on (int)
    - ii. constraint on arrow is # of sections(int), must be in range 0-9
  - b. Public methods-
    - i. Spin method: parameter = # arrow is currently on, return int of position
    - ii. Get current # arrow is on: no parameters, return int
    - iii. Set current # arrow is on: parameter = int of current position, return void
2. A Fraction Data Type
  - a. Private attributes-
    - i. int numerator
    - ii. int denominator,  $\neq 0$
  - b. Public methods-
    - i. Constructor:
    - ii. getNumerator- return: int numerator
    - iii. getDenominator- return: int denominator
    - iv. setNum- parameter: int of numerator
    - v. setDen: parameter: int of denominator
    - vi. Add, subtract, multiply, and divide: parameter: int numerator, int denominator return: fractions
3. A soda vending machine
  - a. Private attributes-
    - i. brand name(string),
    - ii. position of the soda(int), must be greater than or equal to 0
  - b. Public methods-
    - i. set the position of the sodas: parameter = int of current soda position, return void
    - ii. get the position of the sodas: no parameters, return int

## Problem 2

Pseudocode:

```
StringTokenizer data = new StringTokenizer(longName, ",");
last = data.nextToken();
String restOfName = data.nextToken();
```

// add expression to convert the h and m and s to seconds

three integers: hours, minutes and seconds, have to convert to seconds

- hours\*60\*60 + minutes\*60 + seconds = total seconds

- marathonTimeSecond -> convert world record holder's time & person's time to seconds

// CALCULATE THE PERCENTAGE SLOWER THAN THE WORLD RECORD

percentage slower = (person's marathon time in seconds) / (world record marathon time in seconds) - 1.0

// INITIALIZE the object attributes by using the first String argument as the player name and by parsing the second colon-delimited String argument (hh:mm:ss) into 3 integers hours, minutes, seconds

String playerName = String n

String Time = String data

\*\*\*Time ="hh:mm:ss"

String [] data = time.split(":");

hh= data[0]; mm=data[1]; ss=data[2];\*\*\*

Test Case	Sample Data	Expected Result	Tested ?
World record in 1960 Name: Bikila Hours: 2 Minutes: 15 Seconds: 16	Bikila 2 15 16	Bikila Time in seconds: 8116 Percentage slower: 9.10	Y E S
Current women's record Name: Radcliffe Hours: 2 Minutes: 15 Seconds: 25	Radcliffe 2 15 25	Radcliffe Time in seconds: 8125 Percentage slower: 9.22	Y E S

My friend's time Name: Gomez Hours: 4 Minutes: 29 Seconds: 54	Gomez 4 29 54	Gomez Time in seconds: 16194 Percentage slower: 117.69	Y E S
Your own marathon time (or estimate) Name: Ifrah Hours: 3 Minutes: 32 Seconds: 00	Ifrah 3 32 00	Ifrah Time in seconds: 12720 Percentage slower: 70.99	Y E S

Ww = 7439 seconds

Output:

8116 7439

Bikila Time in Seconds: 8116 Percentage Slower: 9.100685576018286

8125 7439

Radcliffe Time in Seconds: 8125 Percentage Slower: 9.22166957924453

16194 7439

Gomez Time in Seconds: 16194 Percentage Slower: 117.69054980508132

12720 7439

Ifrah Time in Seconds: 12720 Percentage Slower: 70.99072455975266