

## 1. Problems.

1. Create a class Beer containing fields (data members) for the beer's brand (with max length of 127 characters) and volume (in ml). Write a default constructor. Create an object of this class.
  - a. Write set and get methods for the beer's brand and volume. Write a parameterized constructor. Create a beer (an object of type Beer) with brand's name Stella Artois and volume of 500ml.
  - b. Write a method that can add a beer to another beer, that works like this:  
*beer1* is **Becks** and there's **500**ml of it.  
*beer2* is **Heineken** and there's **500**ml of it.  
`beer1.add(beer2, 250);`  
After this line of code the beers are now as follows:  
*beer1* is **Becks&Heineken** and there's **750**ml of it.  
*beer2* is **Heineken** and there's **250**ml of it.

Write a method that checks whether a beer has any amount of a certain brand mixed into it.

Example:

From b. *beer1* is **Becks&Heineken** and there's **750**ml of it.

```
beer1.check("Heineken"); // Should return true
beer1.check("Stella Artois") // Should return false
beer1.check(beer2.getBrand()); // Should return true
```

## 2. Problems

Create a class Rational containing information for such number defined by a numerator p and a non-zero denominator q. Once the object is created, the values cannot be directly changed. What should be the default constructor here? Do we need another one?

Create methods

- Rational sum

$(1,2).sum((1,2)) = (1,1)$

- Rational minus

$(1,2).minus((1,2)) = (0,1)$

- Rational multiply

$(1,2).multiply((1,2)) = (1,4)$

- Bool isEqual

$(3,4) == (6,8)$   $(3,4) != (1,2)$

- Rational division

$(1,2).division((1,2)) = (1,1)$