Intro to Java

5 - Loops / Exercises: if + loops

Exercises: if and loops

Exercise 1: Multiplication Table

1 Read in one number with the `Scanner` class.

2 Print the multiplication table of that number from 1 to 10, e.g.:

```
Input: 2


Output:


2 x 1 = 2

2 x 2 = 4

2 x 3 = 6

2 x 4 = 8

2 x 5 = 10

2 x 6 = 12

2 x 7 = 14

2 x 8 = 16

2 x 9 = 18

2 x 10 = 20
```

Exercise 2: Divisible numbers

1 Read in two numbers with the `Scanner` class.

2 Calculate if each number in an inclusive range (including the last number) of 1.. `<FIRST_NUMBER>` (the dividend) is divisible—without remainder—by the second number (the divisor).

If our first input were 6 and second 3, only two results would pass the acceptance criteria and be printed:

```
- 1 / 3 = 0 R 1 FAIL

- 2 / 3 = 0 R 2 FAIL

- 3 / 3 = 1 R 0 PASS

- 4 / 3 = 1 R 1 FAIL

- 5 / 3 = 1 R 2 FAIL

- 6 / 3 = 2 R 0 PASS
```

Example:

```
First: 6

Second: 3


Output:


3 is divisible by 3

6 is divisible by 6
```

Exercise 3: Bank Account

```
AS a user I want to be able to deposit and withdraw from my bank account.


Example: New User

    GIVEN I am a new user, my balance should start at 100.0

    WHEN the program is initially run, "Current balance is: 100.0" is printed

    THEN "Enter 1 for withdraw or 2 for deposit" is printed


Example: Withdraw money (Happy day)

    GIVEN I am shown "Enter 1 for withdraw or 2 for deposit"

    WHEN I enter 1

    THEN I am asked "What is the amount you wish to withdraw?"

    WHEN I submit the amount

    THEN the amount is subtracted from my balance

    WHEN the result of this calculation is > 0

    THEN "<AMOUNT> was withdrawn successfully, current balance is <CURRENT_BALANCE>" is printed
```

```
Example: Withdraw money (Sad day)

    GIVEN I am shown "Enter 1 for withdraw or 2 for deposit"

    WHEN I enter 1

    THEN I am asked "What is the amount you wish to withdraw?"

    WHEN I submit the amount

    THEN the amount is subtracted from my balance

    WHEN the result of this calculation is < 0

    THEN "<AMOUNT> was withdrawn successfully, current balance is <CURRENT_BALANCE>" is printed

    THEN "You are now in your overdraft, program stopped!"

    THEN the program exits


Example: Deposit money (Happy day)

    GIVEN I am shown "Enter 1 for withdraw and 2 for deposit"

    WHEN I enter 2

    THEN I am asked "What is the amount you wish to deposit?"

    WHEN I submit the amount

    THEN the amount is added to my balance

    THEN "<AMOUNT> was deposited successfully, current balance is <CURRENT_BALANCE>" is printed
```

Example:

```
Current balance is: 100


Enter 1 for withdraw and 2 for deposit

1

What is the amount you wish to withdraw?:

60

60 was withdrawn successfully, current balance is 40


Enter 1 for withdraw and 2 for deposit

2

What is the amount you wish to deposit?

30

30 was deposited successfully, current balance is 70


Enter 1 for withdraw and 2 for deposit

1
```

```
What is the amount you wish to withdraw?:

80

Withdrawing 80 exceeds current balance of 70
```

Exercise 4: FizzBuzz

Write a program that prints the numbers in the range 1..100.

- For multiples of three print "Fizz".

- For multiples of five print "Buzz".

- For mulitples of both three and five print "FizzBuzz".

Exercise 5: Stars

Lines and rectangles

Write a program that, given a number as input, prints a line with that many stars.

```
input: 4
output: * * * *
```

Change your program so that it accepts two numbers and prints a rectangle of stars.

```
input: 4
input: 3
output:
* * * *

* * * *

* * * *
```

Triangle

Write a program that, given a number as input, prints a triangle with that many stars.

```
input: 4
output:

*

* *
```

```
* * *

* * * *
```

and after this, invert the triangle:

```
input: 4

output:

* * * *

* * *

* *

*
```

Border

Write a program that, given two numbers as input, prints the border of a rectangle.

```
input: 4

input: 5

output:

* * * *

*     *

*     *

*     *

* * * *
```

Made with ❤ by teachers at ReDI School.