

Exercises with the Ticket Machine

Some Java Arithmetic Operators

+	additive operator (also used for String concatenation)
-	subtraction operator
*	multiplication operator
/	division operator
%	remainder operator

(from <http://download.oracle.com/javase/tutorial/java/nutsandbolts/operators.html>)

A new data type that might be useful: floating point numbers
(Fließkommazahlen)

`float discount = 0.2f; // the f makes this a float value`

(from <http://download.oracle.com/javase/tutorial/java/nutsandbolts/datatypes.html>)

1. Make the Ticket Machine count the tickets issued.
2. Introduce a discount to the TicketMachine and initialize it with a default value and/or set it from a parameter in a constructor or setter method.
3. Write an assignment statement that will store the result of multiplying two variables, price and discount, into a third variable, saving.
4. Make the ticket machine use the discount when issuing tickets.
5. Write an assignment statement that will divide the value in total by the value in count and store the result in mean.
6. Discuss ways to use (5) within the ticket machine.
7. Make `printTicket` print the current balance, both if the ticket was printed as well as if the balance was not sufficient.
8. Add a new Method, `emptyMachine`, that is designed to simulate emptying the machine of money. It should both return the value in total and reset total to be zero. Is `emptyMachine` an accessor, a mutator, or both?
9. *Challenge Exercise* Suppose we wished a single TicketMachine object to be able to issue tickets with different prices. For instance, users might press a button on the physical machine to select a particular ticket price. What further methods and/or fields would need to be added to TicketMachine to allow this kind of functionality? Do you think that many of the existing methods would need to be changed as well?