Review practice #1
Programming 1 (420-101-VA) – Fall 2025
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Deliverable

Bring your solutions on paper for your weekly demo session.

Part I: Variables, methods, conditionals and loops

Please solve questions on paper first, then type them in a BlueJ project and check your answers. If you find errors in your paper answers, correct them on your paper, *using another pen color.*

1. Declare the variable *name* of type *String*.

2. Declare the variable *age* of type *Integer*.

3. Declare and instantiate an *ArrayList<String>* called *words*.

4. Declare a private field *year* of type *int*.

5. Choose the name and type of a variable to hold a number with decimals. Declare and initialize it as a public field that cannot change later. For instance, it could be a variable to hold a price, gravity value, etc.

6. Write down a *getter* and a *setter* methods for the field *name* of type *String*.

7. Write a getter method for the field *groupSizes* of type *HashMap<String, Integer>*.

8. Write a method called *canRide*() that receives the age of a child as a parameter and returns a *boolean* indicating if they can ride the rollercoaster in an amusement park. If the kid is above 10 years old, they can ride. The method should also output a text message to the user, depending on their riding capabilities.

9. Write the code for a calculatePay() method that returns the net pay based on the values of hours and wage received as parameters. Assume that all taxes and deductions sum up to 30%. As an example, if the an employee works 10 hours for a 10 CAD hourly wage, the total salary should be 100 CAD, and after taxes being deducted, the net pay is 70 CAD.

10. Write the code for a paySalary() method, which should make use of the calculatePay() in the previous question and simulate the payment with a message on the terminal. For instance, if an employee with fullname “John Deere” is going to be paied 70 CAD, it should print “John Deere has received a wire transfer of 70 CAD”.

Part II: Object-Oriented Programming (OOP) and basic programming concepts

For each of the following, you should (a) define the concept; (b) identify 2 examples from any book project; and (c) create your own sample code in java.

1. Classes
2. Objects
3. Variables
4. Constants
5. Fields (or attributes)
6. Methods
7. Visibility
8. Constructors
9. Accessors (or getters)
10. Mutators (or setters)
11. Return types
12. void keyword
13. Static class members (*static* keyword)
14. Primitive types *vs* Class types
15. Enum types