COURSE INFO

Java

Java has data types:

1) primitive data type - stores basic data - built into Java language.
   
   int: 10, -5, 0 \([-2 \text{ billion}, +2 \text{ billion}]\)
   double: 5.63, -7.1, 100
   char: 'a', 'A', '7', '8'
   boolean: true, false

Each data type has a range of values:
   set of operations

ex. int operations: + - * / % = , < , >, <= , >=

Terminology:
   int x = \text{semi-colon} \text{ declaration}: set variable type + name
   x = 5:
   assign = \text{assignment/definition}: set value
   int y = 10 \text{ initialization}: declare + assign
   int sum = x + y: \text{initialization} + \text{operation}

\(<\text{Sample Code}>\)
Object data type - stores complex data

- "Object-oriented programming"

(a) built into Java (like primitive data);
(b) built by programmer (later).

4. (a) ex. String "stores" sequence of characters
methods (operations): +, =, toUpperCase(), toLowerCase(), equals().

String a = "Hello";
String b = "hello";
String c = a.toLowerCase();
System.out.println(a.equals(b)); => false
System.out.println(c.equals(b)); => true
(c == b)

Sample code

For primitive data, operations are basic.
For objects, methods are more complex.
 Might be wondering: which methods can be performed?

Class - defines (data values) + methods of an object

⇒ Java API for String class

Notice: methods have input, output


```java
public class convertString
{
    public static void main(String[] args)
    {
        String s1 = "bitter"
        String s2 = s1.replace('t', 'g')
        String s3 = s2.toUpperCase();
        // print and skip to new line
        System.out.println("new String is : " + s3);
        // print and stay on same line
        System.out.println(s3);
        System.out.println("done
        }";
    }
    
    Output:
    new String is BIGGER
    BIGGER done
}</sample code above>
Strings try to mimic primitive data types.

Most other classes require an import from Java library.

```java
import java.util.Scanner;

public class Input {

    public static void main(String[] args) {
        int x = 5;
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter day");

        String day = scan.nextLine();
        System.out.println("Happy "+ day);
    }
}
```