OBJECT TECHNOLOGY LABORATORY	LAB ASSIGNMENT- 2 (Class & Object in JAVA)	Doc No.: **CEMK/IT/IT491/02**
		Revision No.: 2.0
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College of Engineering and Management, Kolaghat
Object Technology Laboratory, (5th Semester, IT)

[Tips: Keep all the instance variables private and all the methods public]

1. Create a class called **Box** having following properties:
   a. Three instance variables for three dimensions
   b. Three constructors – one with no argument, one with one argument and another with three arguments
   c. A method to calculate volume of the Box

   Now create three objects of class **Box** using three different constructors and test it.

2. Create a class called **Car** that includes the following:
   a. Instance variables – no_of_wheels, distance, oil_consumed, mileage
   b. A set and a get method for each instance variable except mileage
   c. A method to calculate and display mileage of the Car

   Now create two objects of class **Car** and compare their mileage.

3. Create a class called **Date** having following properties:
   a. Three instance variables (integer) – date, month and year
   b. Three constructors
      i. *Date()* – initializes to 1 January, 1970

ii. *Date(int date, int month)* – initializes to specified date and month of 2013.
iii. *Date(int date, int month, int year)* – initializes to specified date, month and year

c. A method called *setDate()* to take all the date values from user at runtime
d. A get method for each instance variable
e. A method to display the date in the format – **dd/mm/yyyy**

Write a JAVA program that will test the **Date** class.

4. Create a class called **Complex** for performing arithmetic operation with complex numbers with the following criteria:

a. A two-argument constructor
b. Methods for add, subtract, multiply and divide two complex numbers
c. A method to display the complex number in the form A+iB

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Write a JAVA program to implement all the arithmetic operations and display the result for **Complex** class.

5. Create a class called **Employee** that includes the following:

   a. Four instance variables – emp_id (integer), name (String), salary (double) and hiredate [Use the class **java.util.GregorianCalendar** or **java.util.Date** to implement hiredate]

   b. A constructor that initializes all instance variables except emp_id

   c. A method called *setId()* to increment emp_id by 1 for each new Employee (use one extra static instance variable)

   d. A get method for each of the instance variables

   e. A method called *calcSalary()* to calculate the current monthly salary of an Employee depending upon hiredate on the scale 5000-200-10000 and 30% DA and 15% HRA

   f. A method called *display()* to print Employee details as below:

   ```
   EMPID  NAME           HIREDATE      SALARY
      = ================      ==============
      =======
   1    Paul Deitel  19/06/2004  8990.00
   ```

Write a JAVA program that will test **Employee**'s capabilities.

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