Johns Hopkins University
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Advanced Java Programming

Assignment 1

The following class, that models some basic functionality associated with dates, already exists. The compiled class file is available in the Course Downloads folder.

Date
-month: int
-day: int
-year: int
#editMonth(int m): int
#editDay(int d): int
#editYear(int y): int
+Date()
+Date(int m, int d, int y)
+setDate(int m, int d, int y): void
+getDate(): String
+getMonth(): int
+getDay(): int
+getYear(): int

The Date class models a date using integer month, day, and year values. It has a default constructor that sets the date values to zero, and a parameterized constructor that takes specific values for the date. When a Date object is instantiated using the parameterized constructor and when the values of the date data members are set using the setDate() method, the parameters are edited using three protected methods. The month parameter must be 1-12, the day parameter must be 1-31 (the class code checks this against the specified month), and the year parameter must be greater than 1. If the date parameters are invalid, the user is prompted to re-enter them. The getDate() method returns the date as a String type, formatted as mm/dd/yyy. It is not necessary to handle leap years for purposes of this assignment.

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Using inheritance, develop the code for a class called LongDate, that uses the name of a month as its data attribute. The LongDate class shall also have at least the methods indicated below:

LongDate
-monthName: String
+LongDate(String m, int d, int y) +setDate(String m, int d, int y): void +getDate(): String +getShortDate(): String

The getDate() method shall return the date in long form (e.g., May 1, 2011) and the getShortDate() should return the date as mm/dd/yyyy. The LongDate class shall edit the date parameters when the parameterized constructor and the setDate() methods are used. Edit criteria are the same as for the Date class, and the month name (January, …, December) must begin with an upper case letter. If invalid parameters are specified, the user shall be prompted to re-enter the information until it is correct. The Input class methods can be used to prompt the user for input. The compiled code for the Input class methods can be found in the Course Downloads folder, and a tutorial on how to use these methods is provided in the Unit 1 lecture links.

Write a program that creates an array of type Date, and populates the array with several Date objects and LongDate objects. The program should loop through the array and display the output of the getDate() method for each object in the array.

Please comment your code and make good use of indentation and white space.

Submit the source code (the .java file) for your program and a screen shot of the program output in a zip file named as follows: Assignment1 followed by an underscore (_), followed by your first name initial, followed by your last name, followed by your CTYOnline student ID. For example, if your name is Jane Smith and your student ID is 999999, your zip file would be *Assignment1_jsmith999999.zip*.

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