

**Lab-HW-1**

*Due Date.27.08.2014*

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**Instructions:**

1. This lab is to be done as home work.
2. The skeleton code is provided; please fill the blanks with correct code snippets and execute the code in eclipse.
3. The lab shall be evaluated during lab hours on 27.08.2014.

**The Reading Reference:**

1. Read **Ch 6 – 10** from *The Java Programming Language, Ken Arnold, James Gosling and David Holmes, 4th Edition / 3rd Edition.*

**The Problem Statements:**

1. Write a program to shuffle cards. To do this, first you should define two different **enums**: **Suit** and **Value**.  
**Suit** can be spades, hearts, clubs, or diamonds.  
**Value** can be ace, 2,3,4,5,6,7,8,9,10, jack, queen, king.  
You should then define a class **Card** which has two instance variables: a variable representing a **Suit** and one representing a **Value**. Your class should then have 5 methods, 2 each to get the values of the variables, and 2 to set them and an additional method that prints the values. Note that to print an **enum** you can put it into a *System.out.println* statement as normal.  
You should write a main method which should do the following:
  - a) Create a new deck (i.e. an array) of 52 cards. It should fill these in with the appropriate values that are sorted.
  - b) Print the entire deck using the **print** method defined in the card class.
  - c) Call a method called **shuffle** that you will write and will take as input an array and returns void.  
The **shuffle** method should, however, modify the values inside the array. Your **shuffle** method should pick 2 random integers between 0 and 51 (inclusive). It should then swap the cards that are at those locations in the array. This should be in a for loop so that the method repeats NUMTIMES (a final-type attribute declared at the for the class).  
To choose a random integer, you will need to use a random number generator. In Java, to do this , you can use `random.nextInt(52)` to get a random integer between 0 (inclusive) and 52 (not inclusive). you must have to import the class **java.util.Random**.
  - d) Print the entire deck after shuffling.

2. Write a program that reads in three floating point values, storing the values in three variables of type double. Print the three values, their sum and their average, a double value and the average rounded to the nearest integer.

**Sample output:**

*The sum of 58.351, 29 and 43.68 is 131.031.*

*The average is 43.677*

*Rounded to the nearest integer, the average is 44*

To round the average you may either use formatting or use the Math class method `public static long round(double)` which returns the double rounded as an integer of type long.

3. Write a program that prompts the user for an integer and prints the number as binary and hexadecimal numerals.

The `java.lang.Integer` class has methods,

- a) `public static String toBinaryString(int n)` returns a String representation of n as a binary numeral.
- b) `public static String toHexString(int n)` returns a String representation of n as a hexadecimal numeral.

4. Write a program that reads input from the command line and prints out the Wind Chill Index. The user should input the temperature (T) and wind velocity (V). Wind chill is calculated using the formula

$$windchill = 35.74 + (0.6215)T - 35.75(V^{0.16}) + (0.4275) T (V^{0.16})$$

The wind chill should be printed as an integer value.