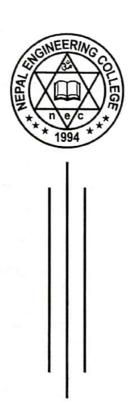
# **NEPAL ENGINEERING COLLEGE**

(Affiliated to Pokhara University)
Changunarayan, Bhaktapur



2. Generation of Random Number using in built functions & implementing

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Date: 2024 / May /09

#### LABSHEET 2

#### OBJECTIVE

Frenerate Random Number using in built functions & implementing its application in dice roll.

### THEORY

In Java programming, we often required to generate random numbers while we develop applications. Many applications have the feature to generate numbers randomly, such as to verify the user many applications use the OTP.

#### Random Number

Random numbers are the numbers that use a large set of numbers and selects a number using the mathematical algorithm, It sadisfies the following two conditions:

· The generated values uniformly distributed over a definite

o It is impossible to guess the future value based on current and past values.

#### Generaling Random Number in Java

In Java, there are 3-way to generate random numbers using the method & classes.

· Using the random () Method

olsing the Random Class

· Using the Thread Local Random Class

olsing the install Method

# Using the Math. random () Method

The Java Math class has many methods for different mathematical operations. One of them is the random() method. It is a static method of the Math class.

It generates only double type random number get greater than or equal to 0.0 & less than 1.0.

ode + : Create a program that generales random numbers using the random () method. Random Number Examples java import java. Lang. Math; public class Random Number Examples public static void main (string args[]) System. out. println ("1st Random Number:"+ Mathrandom ()),
System. Out. println ("2nd Random Number:"+ Math. random ()); System.out.println ("uth Random Number:" + Math. random(1); System.out.println ("3rd Random Number:" + Math. random (1); · tuptul Random Number: 0.164341603245 and Random Number: 0.4927410030702 3rd Random Number: 0.48286513813 uth Random Number: 0.13267917059 Code 2: Create a program that generates random numbers between 200 to 400. Random Number Example 2-java public class Random Number Enample ? public static void main (String args []) int min = 200;

System. out println ("Random value of type double between "+min+" to "+man+":"

int max = 400;

```
double a = Math. random() * (man-min+1) + min;

System.out.println(a);

System.out.println("Random value of type int between

"+min+" to "+man+":");

int b = (int) (Math. random() * (man-min+1) + min);

System.out.println(b);
```

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## tugtuo:

Random value of type double between 200 to 400:

Random value of type int between 200 to 400:

# Using the Random Class

- · First, import the class java. Lang. Random.
- · Create an Object of the Random class.
- · Invoke any of the following methods:
  - (brund tri) trItxen-
  - nextInt ()
  - next Float()
  - next Double ()
  - next Long()
  - -next Boolean()

The next Int (int bound) method accepts a parameter bound (upper) that must be positive. It generales a random number in the range o to bound - 1.

```
#Create a program that generales random numbers using
 the Random class
    Random Number Examples. java
   import java - util Random;
   public class Random Number Examples
   of public static void main (String args[])
         Random random = new Random ();
          intx = random. next Int (50);
           inty = random. next Int (1000);
           System. out-printly ("Randomly Generated Integers
                             Nalues");
            System. out-println(x);
            System. out. println (y);
        / Generales Random Double values
            double a = random. nextDouble ();
            double b = random. next Double ();
            System-out-println ("Random Double Values");
            System.out.println (2);
            System. out. println (b);
        McGenerales Float Values
             float f = random. next float ();
             float i = random . next Float();
             System. out. println ("Random Float values");
System. out. println (f);
              System. out. println (i);
       11 Generates Long Values
              long p= random. nextlong();
               long q = random, next Long();
              System.out. println ("Random Long Values");
```

```
System. out. println (f);
      System. out. println (i);
// Generates Boolean Values
      boolean m = random. next Boolean ();
      boolean n = random. next Boolean ();
     System. out. println ("Random Boolean Values");
      System - out println (m);
    System. out. println(n);
 3
: Lughud:
      Randomly Generated Integers Values
      T67
      Randomfy Gene Double Values
       0.478238144942
       0. 9780581726795
     Random Float Values
      0.87804186
      0.93880254
     Random Long Values
       4974823544291679138
       36 50 240 1384160 76(93
     Random Boolean Values
       false
      True
```

#### CONCLUSION

To conclude, in this lab we got familiarized with the generation of Random Numbers in java.

We generaled Random Numbers using in built functions using method & classes where we used math. random() exast which generated random numbers from 0 to 1 & Random class which is used to generate random numbers of all types like Integer, float, boolean etc.