**Experiment No.01**

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**Aim :** Conversion of decimal number into Base-n number system (1 ≤ n ≤ 9).

**Code :**

import java.util.Scanner;

public class BaseConverter {

static void convert(double num, int base) {

long intPart = (long) num;

double fracPart = num - intPart;

StringBuilder intResult = new StringBuilder();

if (intPart == 0) {

intResult.append("0");

} else {

StringBuilder temp = new StringBuilder();

long n = intPart;

while (n > 0) {

temp.append(n % base);

n /= base;

}

intResult.append(temp.reverse());

}

StringBuilder fracResult = new StringBuilder();

if (fracPart > 0) {

int count = 0;

while (fracPart > 0 && count < 8) { // 8 digits precision

fracPart \*= base;

int digit = (int) fracPart;

fracResult.append(digit);

fracPart -= digit;

count++;

}

}

System.out.println("Decimal " + (long) num + " converted into Base-" + base + " system = " + intResult);

if (fracResult.length() > 0) {

System.out.println("Fractional decimal " + (num - (long) num) +

" converted into Base-" + base + " system = 0." + fracResult);

System.out.println("Hence, Base-" + base + " equivalent of input decimal = " + intResult + "." + fracResult);

} else {

System.out.println("Hence, Base-" + base + " equivalent of input decimal = " + intResult);

}

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.print("Enter the Input decimal number = ");

double num = sc.nextDouble();

System.out.print("Enter the base of the destination number system = ");

int base = sc.nextInt();

convert(num, base);

sc.close();

}

}

**Output :**

