```
Code: 1
package Topic_03_NumberSystem;
import java.util.*;
public class A_DigitFrequency {
        public static void main(String[] args) {
                Scanner scn = new Scanner(System.in);
                int n = scn.nextInt();
                int d = scn.nextInt();
                int freq = getDigitFrequency(n, d);
                System.out.println(freq);
        }
        public static int getDigitFrequency(int n, int digit) {
                // write code here
                int c = 0;
                while (n > 0) {
                        int rem = n % 10;
                        if (rem == digit)
                                 C++;
                        n = n / 10;
                }
                return c;
        }
}
```

```
Code: 2
package Topic_03_NumberSystem;
import java.util.Scanner;
public class B_DecimalToAnyBase {
        public static void main(String[] args) {
                Scanner scn = new Scanner(System.in);
                int n = scn.nextInt();
                int b = scn.nextInt();
                int dn = getDecimalInBase(n, b);
                System.out.println(dn);
        }
        private static int getDecimalInBase(int n, int b) {
                // TODO Auto-generated method stub
                int rv = 0;
                int d = 0;
                int p = 1;
                while (n > 0) {
                        d = n \% b;
                        n = n / b;
                        rv = rv + (d * p);
                        p = p * 10;
                return rv;
        }
}
```

```
Code: 3
package Topic_03_NumberSystem;
import java.util.Scanner;
public class C_AnyBaseToDecimal {
        public static void main(String[] args) {
                Scanner scn = new Scanner(System.in);
                int n = scn.nextInt();
                int b = scn.nextInt();
                int dn = getBaseInDecimal(n, b);
                System.out.println(dn);
        }
        private static int getBaseInDecimal(int n, int b) {
                // TODO Auto-generated method stub
                int rv = 0;
                int p = 1;
                while (n > 0) {
                        int rem = n % 10;
                        n = n / 10;
                        rv = rv + (rem * p);
                        p = p * b;
                }
                return rv;
        }
}
```

```
Code: 4
package Topic_03_NumberSystem;
import java.util.Scanner;
public class D_AnyBaseToAnyBase {
        public static void main(String[] args) {
                Scanner scn = new Scanner(System.in);
                int n = scn.nextInt();
                int srcBase = scn.nextInt();
                int destBase = scn.nextInt();
                int rv = anyBaseToDecimal(n, srcBase);
                rv = getDecimalToAnyBase(rv, destBase);
                System.out.println(rv);
        }
        private static int getDecimalToAnyBase(int n, int b) {
                // TODO Auto-generated method stub
                int rv = 0;
                int d = 0;
                int p = 1;
                while (n > 0) {
                        d = n \% b;
                        n = n / b;
                        rv = rv + (d * p);
                        p = p * 10;
                }
                return rv;
        }
        private static int anyBaseToDecimal(int n, int b) {
                // TODO Auto-generated method stub
                int rv = 0;
                int p = 1;
                while (n > 0) {
                        int rem = n % 10;
                        n = n / 10;
                        rv = rv + (rem * p);
                        p = p * b;
                return rv;
        }
```

}

```
Code: 5
package Topic_03_NumberSystem;
import java.util.*;
public class E_AnyBaseAddition {
        public static void main(String[] args) {
                 Scanner s = new Scanner(System.in);
                int b = s.nextInt();
                int n1 = s.nextInt();
                int n2 = s.nextInt();
                System.out.println(getAnyBaseAddition(b, n1, n2));
        }
        public static int getAnyBaseAddition(int b, int n1, int n2) {
                int rv = 0;
                int c = 0;
                int p = 1;
                while (n1 > 0 | | n2 > 0) {
                         int d1 = n1 % 10;
                         int d2 = n2 \% 10;
                         int add = d1 + d2 + c;
                         if (add >= b) {
                                  c = 1;
                                  add = add % b;
                                  rv = rv + (add * p);
                         } else {
                                  c = 0;
                                 rv = rv + (add * p);
                         }
                         n1 = n1 / 10;
                         n2 = n2 / 10;
                         p = p * 10;
                if (c == 1)
                         rv = rv + (c * p);
                 return rv;
        }
}
```

```
Code: 6
package Topic_03_NumberSystem;
import java.util.*;
public class F_AnyBaseSubtraction {
        public static void main(String[] args) {
                Scanner scn = new Scanner(System.in);
                int b = scn.nextInt();
                int n1 = scn.nextInt();
                int n2 = scn.nextInt();
                int d = getDifference(b, n1, n2);
                System.out.println(d);
        }
        public static int getDifference(int b, int n1, int n2) {
                int rv = 0;
                int borrow = 0;
                int p = 1;
                while (n2 > 0) {
                         int d2 = n2 \% 10;
                         int d1 = n1 \% 10;
                         d2 = d2 - borrow;
                         int d = d2 - d1;
                         if (d < 0) {
                                 borrow = 1;
                                 d = d + b;
                         } else {
                                 borrow = 0;
                                 d = d + 0;
                         rv = rv + d * p;
                         p = p * 10;
                         n1=n1/10;
                         n2=n2/10;
                return rv;
        }
}
```

```
Code: 7
package Topic_03_NumberSystem;
import java.util.*;
public class G_AnyBaseMultiplication {
        public static void main(String[] args) {
                 Scanner scn = new Scanner(System.in);
                int b = scn.nextInt();
                int n1 = scn.nextInt();
                int n2 = scn.nextInt();
                int d = getProduct(b, n1, n2);
                 System.out.println(d);
        }
        public static int getProduct(int b, int n1, int n2) {
                int rv = 0, p = 1;
                while (n2 > 0) {
                         int d = n2 \% 10;
                         int temp = getProducts(b, n1, d);
                         temp = temp * p;
                         rv = getAnyBaseAddition(b, rv, temp);
                         n2 = n2 / 10;
                         p = p * 10;
                }
                 return rv;
        }
        public static int getProducts(int b, int n1, int d2) {
                 int rv = 0, p = 1, d = 0, c = 0;
                 while (n1 > 0 | | c > 0) {
                         int d1 = n1 \% 10;
                         d = d1 * d2 + c;
                         if (d >= b) {
                                  c = d / b;
                                  d = d \% b;
                         } else {
                                  c = 0;
                                  d = d;
                         rv = rv + d * p;
                         n1 = n1 / 10;
                         p = p * 10;
                 return rv;
        }
        public static int getAnyBaseAddition(int b, int n1, int n2) {
                int rv = 0;
                int c = 0;
                int p = 1;
                 while (n1 > 0 || n2 > 0) {
                         int d1 = n1 % 10;
```

```
int d2 = n2 % 10;
                int add = d1 + d2 + c;
                if (add >= b) {
                         c = 1;
                         add = add % b;
                         rv = rv + (add * p);
                } else {
                         c = 0;
                         rv = rv + (add * p);
                }
                n1 = n1 / 10;
                n2 = n2 / 10;
                p = p * 10;
        if (c == 1)
                rv = rv + (c * p);
        return rv;
}
```

}