```java
package com.company;
import java.util.Scanner;

public class Main {
  /**
   *
   *    Konwersje liczb miedzy systemami liczbowymi Bin2Dec  i odwrotnie, Hex2Dec i odwrotnie.
   *    Program udostępnia tekstowe menu pozwalające wybrać rodzaj operacji.
   *    Należy zadbać o odpowiednie formatowanie wyświetlanych informacji.
   *
   *    a. Dodatkową funkcjonalnością jest możliwość wygenerowania liczby zapisanej dziesiętnie w dowolnym systemie liczbowym.
   *    Użytkownik w takiej sytuacji jako parametr, oprócz liczby, podaje cyfrę (liczbę) będącą podstawą systemu (dla Hex podstawa = 16, dla Bin = 2)
   */

  public static void main(String[] args) {


    Scanner scn = new Scanner(System.in);

        //ALPHABET FOR 10-36 NUMERICAL SYSTEMS
    char[] alphabet = "0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ".toCharArray();
    //for other op-s

    String value;

    //for DEC2ANY
    int decVal;
    int operation;
    int numSys = 0;
    StringBuilder result = new StringBuilder();

        //HERE IS A VARIABLE FOR CHECKING IF ENTERED NUMBER IS NEGATIVE

    boolean isNegative = false;

    //ENTERING NUMBER
    System.out.println("ENTER YOUR NUMBER TO BE CONVERTED: ");
    value = scn.nextLine();

        //HERE WE ARE SELECTING AN OPERATIONS TO BE MADE
    //START
    System.out.println("PLEASE CHOOSE YOUR OPERATION");
    System.out.println("0. DEC2BIN");
    System.out.println("1. BIN2DEC");
    System.out.println("2. HEX2DEC");
    System.out.println("3. DEC2HEX");
    System.out.println("4. DEC2ANY");
    operation = scn.nextInt();
```

```
        //HERE IS A LOOP TO CHECK IF VALUE OF ENTERED OPERATION IS IN RANGE THAT FITS OUR OPERATIONS
        //OPERATIONS MUST BE ENTERED CORRECTLY
    while (operation < 0 || operation > 4){
        System.out.println("PLEASE CHOOSE A CORRECT OPERATION FROM 0 TO 4");
        operation = scn.nextInt();
    }
        //IF OPERATION OF CONVERTING DEC TO ANY OTHER NUMERICAL SYSTEM CHOSEN WE NEED A VALUE OF IT'S NUMSYS TO BE ENTERED
    if (operation == 4){
        System.out.println("PLEASE ENTER A VALUE OF NUMERIC SYSTEM YOU WANT YOUR NUMBER BE CONVERTED TO");
        numSys = scn.nextInt();
    }

        // SWITCH-CASE FOR CONVERTING OPERATIONS
    switch (operation)
    {
        //CASES FROM 0 TO 3 ARE MADE WITH STANDARD JAVA METHODS
      //DEC2BIN
      case 0:
        String dec2bin = Integer.toBinaryString(Integer.parseInt(value));
        System.out.println(dec2bin);
        break;
```

```
ENTER YOUR NUMBER TO BE CONVERTED:
16
PLEASE CHOOSE YOUR OPERATION
0. DEC2BIN
1. BIN2DEC
2. HEX2DEC
3. DEC2HEX
4. DEC2ANY
0
10000
```

```
      //BIN2DEC
      case 1:
        int bin2dec = Integer.parseInt(Integer.toString(Integer.parseInt(value)), 2);
        System.out.println(bin2dec);
        break;
```

```
ENTER YOUR NUMBER TO BE CONVERTED:
10000
PLEASE CHOOSE YOUR OPERATION
0. DEC2BIN
1. BIN2DEC
2. HEX2DEC
3. DEC2HEX
4. DEC2ANY
1
16
```

```
//HEX2DEC
    case 2:
      int hex2dec = Integer.parseInt(value, 16);
      System.out.println(hex2dec);
      break;
```

```
ENTER YOUR NUMBER TO BE CONVERTED:
AAA
PLEASE CHOOSE YOUR OPERATION
0. DEC2BIN
1. BIN2DEC
2. HEX2DEC
3. DEC2HEX
4. DEC2ANY
2
2730
```

```
    //DEC2HEX
    case 3:
      String dec2hex = Integer.toHexString(Integer.parseInt(value));
      System.out.println(dec2hex.toUpperCase());
      break;
```

```
ENTER YOUR NUMBER TO BE CONVERTED:
2730
PLEASE CHOOSE YOUR OPERATION
0. DEC2BIN
1. BIN2DEC
2. HEX2DEC
3. DEC2HEX
4. DEC2ANY
3
AAA
```

//SIMPLE REALIZATION TO CONVERT DEC VALUES TO ANY NUMSYS

```
    //DEC2ANY
    case 4:
      decVal = Integer.parseInt(value);
      if (decVal < 0){
          decVal = Math.abs(decVal);
          isNegative = true;
      }
```

```
ENTER YOUR NUMBER TO BE CONVERTED:
9999
PLEASE CHOOSE YOUR OPERATION
0. DEC2BIN
1. BIN2DEC
2. HEX2DEC
3. DEC2HEX
4. DEC2ANY
4
PLEASE ENTER A VALUE OF NUMERIC SYSTEM YOU WANT YOUR NUMBER BE CONVERTED TO
16

270F
```

```
 while (decVal > numSys){
                result.insert(0, alphabet[decVal % numSys]);
                decVal = (decVal - decVal % numSys) / numSys;
            }

            System.out.println();

                        //IF ENTERED VALUE WAS NEGATIVE IT ADDS “-” TO RESULT
            if (isNegative){
                System.out.println("-"+decVal+result);
            }
            else
                System.out.println(decVal+ result.toString());
          default:
            break;
     }
   }
}
```