//This is a program that can read and print binary to decimal and vice versa with a menu.

**import** java.util.Scanner;

**public** **class** hw1b

{

**private** **static** Scanner *scanNum*;

**public** **static** **void** main (String[] args)

{

**int** [] posnumarr= {1,2,4,8,16,32,64,128,256,512,1024};

**int**[] numsplit = **new** **int** [8];

*scanNum* = **new** Scanner(System.***in***);

**int** count1 = 0;

**int** decval=0;

**while** (**true**)

{

System.***out***.println("Enter 1 to convert binary to decimal");

System.***out***.println("Enter 2 to convert decimal to binary");

System.***out***.println("Enter 3 to quit");

**int** number = *scanNum*.nextInt();

**if**(number == 1)

{

System.***out***.println("Enter binary:");

**int** number1 = *scanNum*.nextInt();

**while** (number1 > 0) //converting to decimal

{

numsplit[count1]=( number1 % 10);

**if**(numsplit[count1]!=1 && numsplit[count1] !=0)

{

System.***out***.println("Please Enter a correct binary number!");

*main*(**null**);

}

count1++;

number1 = number1 / 10;

}

**for**(**int** count2 = 0;count2<8;count2++)

{

**if**(numsplit[count2]==1)

{

decval=decval+posnumarr[count2];

}

}

System.***out***.print(decval);

System.***out***.println();

}

**if**(number == 2)

{

System.***out***.println("Enter decimal:");

**int** number2 = *scanNum*.nextInt();

**while**(number2 > 0) //converting to binary

{

numsplit[count1++] = number2 % 2;

number2 = number2 /2;

}

**for** (**int** i=number2 - 1; i>=0;i--)

{

System.***out***.println(numsplit[i]);

}

}

**if**(number == 3) //will exit program when selected in menu

{

**break**;

}

}

System.***out***.println("End of program");

}

}

**Output**

**Menu to 1**

Enter 1 to convert binary to decimal

Enter 2 to convert decimal to binary

Enter 3 to quit

1

Enter binary:

00000000

0

Enter 1 to convert binary to decimal

Enter 2 to convert decimal to binary

Enter 3 to quit

1

Enter binary:

10101010

170

Enter 1 to convert binary to decimal

Enter 2 to convert decimal to binary

Enter 3 to quit

**Menu to 2**

Enter 1 to convert binary to decimal

Enter 2 to convert decimal to binary

Enter 3 to quit

2

Enter decimal:

23

Enter 1 to convert binary to decimal

Enter 2 to convert decimal to binary

Enter 3 to quit

**Menu to 3**

Enter 1 to convert binary to decimal

Enter 2 to convert decimal to binary

Enter 3 to quit

3

End of program