Template Week 2 – Logic

Student number:

Assignment 2.1: Parking lot

Which gates do you need?

Complete this table

Parking lot 1	Parking lot 2	Parking lot 3	Result (full)
0	0	0	
0	0	1	
0	1	0	

Assignment 2.2: Android/iPhone

Which gates do you need?

Complete this table

Android phone	iPhone	Result (Phone in possession)
0	0	

Assignment 2.3: Four NAND gates

Complete this table

A	B	Q

How can the design be simplified?

Assignment 2.4: Getting to know Logisim evolution

Screenshot of the design with your name and student number in it:

Assignment 2.5: SR Latch

Screenshot SR Latch in Logisim with your name and student number:

Assignment 2.6: Vending Machine

Screenshot Vending Machine in Logisim with your name and student number:

Bonus point assignment – week 2

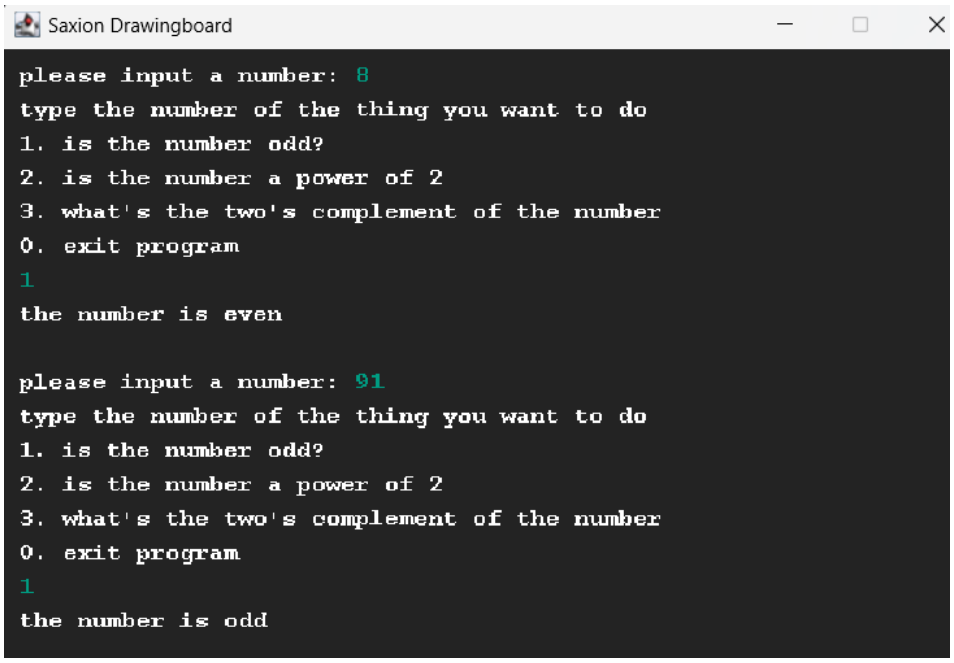
Create a java program that accepts user input and presents a menu with options.

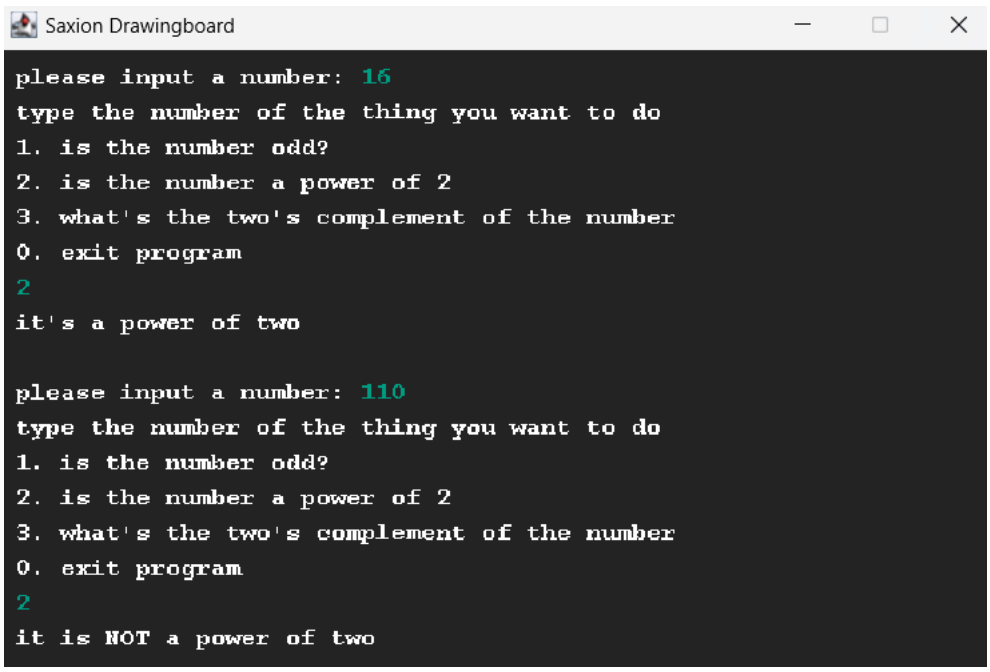
1. Is number odd?
2. Is number a power of 2?
3. Two's complement of number?

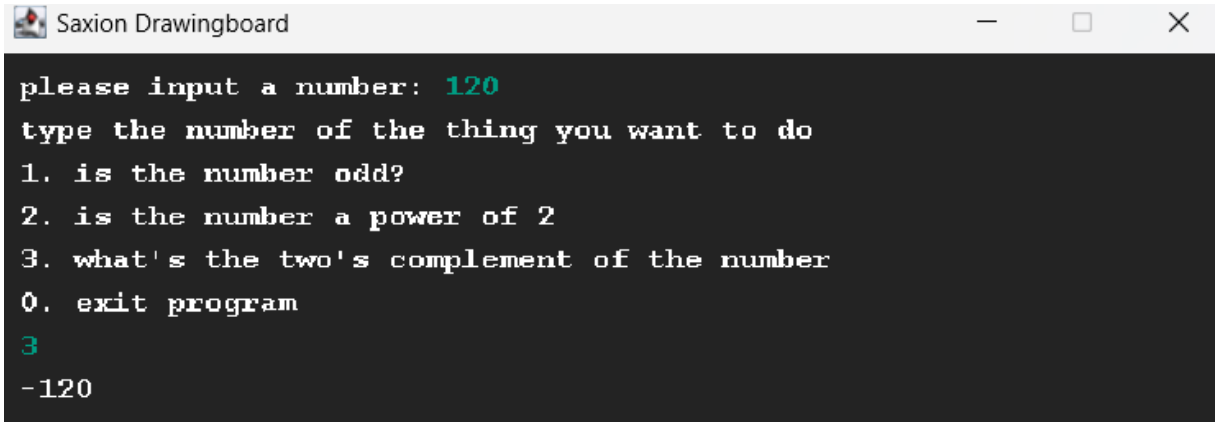
Implement the methods by using the bitwise operators you have just learned.

Organize your source code in a readable manner with the use of control flow and methods.

Paste source code here, with a screenshot of a working application.








```
import nl.saxion.app.SaxionApp;

import java.awt.*;

public class bitwise_program implements Runnable {

    public static void main(String[] args) {
        SaxionApp.start(new bitwise_program());
    }

    public void run() {
        boolean running = true;
        boolean inputReady = true;
        int inputNumber = 0;

        while (running) {
            SaxionApp.clear();


            SaxionApp.print("please input a number: ");

            inputNumber = SaxionApp.readInt();



            SaxionApp.printLine("type the number of the thing you want to do");
            SaxionApp.printLine("1. is the number odd?");
            SaxionApp.printLine("2. is the number a power of 2");
            SaxionApp.printLine("3. what's the two's complement of the number");
            SaxionApp.printLine("0. exit program");
            int choice = SaxionApp.readInt();
            if(choice == 1){
                isOdd(inputNumber);
                SaxionApp.pause();

            } else if (choice == 2) {
```

```
            isPower2(inputNumber);
            SaxionApp.pause();

        } else if (choice == 3) {
            SaxionApp.printLine(twoComplement(inputNumber));
            SaxionApp.pause();

        } else if (choice == 0) {
            running = false;
        }
    }
}
public boolean isOdd (int input){
    boolean isOdd = false;
    int test1 = 1;
    int result1 = input & 1;
    if(result1 == 1){
        isOdd = true;
        SaxionApp.printLine("the number is odd");
    }else {
        SaxionApp.printLine("the number is even");
    }
    return isOdd;
}

public void isPower2 (int input){
    int test2 = input - 1;
    int check2 = input & test2;

    if (check2 == 0 && input !=1){
        SaxionApp.printLine("it's a power of two");
    }else{
        SaxionApp.printLine("it is NOT a power of two");
    }
}

public int twoComplement (int input){
    int complement = ~input + 1;
    return complement;
}

}
```

Ready? Then save this file and export it as a pdf file with the name: **week2.pdf**