

## Template Week 2 – Logic

Student number: 550498

### 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	0	1	0
0	1	0	0
1	0	0	0
1	1	0	0
0	1	1	0
1	0	1	0
1	1	1	1

### Assignment 2.2: Android/iPhone

Which gates do you need? OR

Complete this table

Android phone	iPhone	Result (Phone in possession)
0	0	0
0	1	1
1	0	1
1	1	1

### 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.util.Scanner;

public class Application implements Runnable {

    public static void main(String[] args) {
        SaxionApp.start(new Application(), 640, 200);
    }

    public void run() {
        SaxionApp.println("Voer een getal in: ");
        int number = SaxionApp.readInt();

        if ((number & 1) == 1) {
            SaxionApp.println("Het getal is oneven.");
        } else {
            SaxionApp.println("Het getal is even.");
        }

        if (number > 0 && (number & (number - 1)) == 0) {
            SaxionApp.println("Het getal is een macht van 2.");
        } else {
            SaxionApp.println("Het getal is geen macht van 2.");
        }

        int twosComplement = ~number + 1;
        SaxionApp.println("Het two's complement van het getal is: " + twosComplement);
    }
}
```

```
Application.java x
1 import nl.saxion.app.SaxionApp;
2
3 import java.util.Scanner;
4
5 public class Application implements Runnable {
6
7     public static void main(String[] args) { SaxionApp.start(new Application(), width: 640, height: 200); }
8
9
10
11     public void run() {
12         SaxionApp.println(text: "Voer een getal in: ");
13         int number = SaxionApp.readInt();
14
15         if ((number & 1) == 1) {
16             SaxionApp.println(text: "Het getal is oneven.");
17         } else {
18             SaxionApp.println(text: "Het getal is even.");
19         }
20
21         if (number > 0 && (number & (number - 1)) == 0) {
22             SaxionApp.println(text: "Het getal is een macht van 2.");
23         } else {
24             SaxionApp.println(text: "Het getal is geen macht van 2.");
25         }
26
27         int twosComplement = ~number + 1;
28         SaxionApp.println(text: "Het two's complement van het getal is: " + twosComplement);
29     }
30 }
31
```

```
Saxion Drawingboard
Voer een getal in:
22
Het getal is even.
Het getal is geen macht van 2.
Het two's complement van het getal is: -22

APPLICATION EXITED NORMALLY
```

Ready? Then save this file and export it as a pdf file with the name: [week2.pdf](#)