

# Template Week 2 – Logic

Student number:592513

## Assignment 2.1: Parking lot

Which gates do you need?

Twice and gates

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	1	0
0	1	1	0
1	1	0	0
1	0	1	0
1	1	1	1

## Assignment 2.2: Android or iPhone

Which gates do you need?

xor

Complete this table

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

### Assignment 2.3: Four NAND gates

Complete this table

A	B	Q
0	0	0
1	0	1
0	1	1
1	1	0

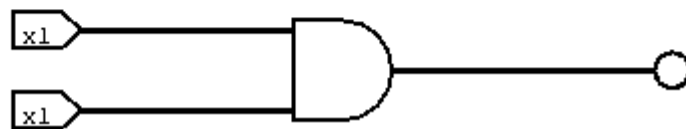
How can the design be simplified?

Xor gate

### Assignment 2.4: Getting to know Logisim evolution

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

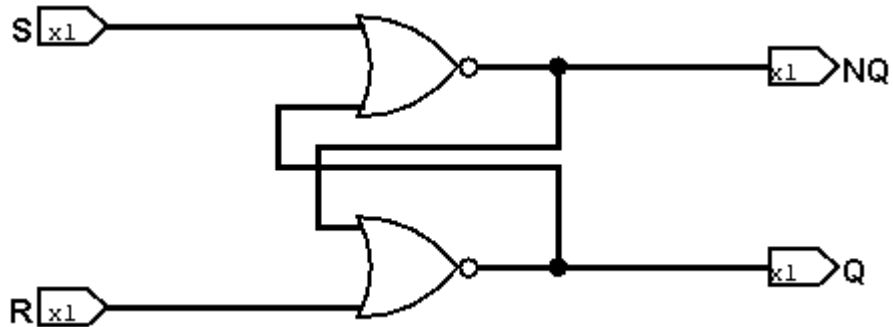
**david den hartog 592513**



### Assignment 2.5: SR Latch

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

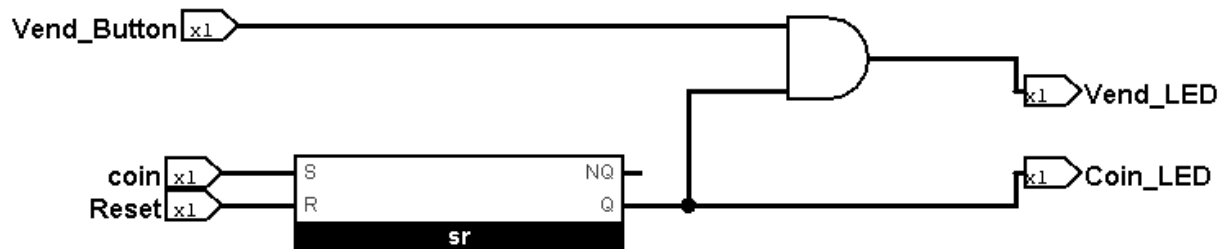
592513 David den hartog



#### Assignment 2.6: Vending Machine

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

592513 David den hartog



#### Assignment 2.7: Bitwise operators

Complete the java source code for bitwise operators. Put the source code here.

The screenshot shows a web browser with a Java IDE on the left and a user profile on the right. The IDE has a blue header with 'cool blue' and 'COOLBLUE-WINKELS. Uitprobeerparadijs'. It contains a Java code editor with the following code:

```
public class Main {
    public static void main(String[] args) {
        int number = 8;
        int b = 1; // 0001
        int result = number & b;
        System.out.println(result);
        if(result == 1) System.out.println("number
is odd");
        else System.out.println("number is even");
    }
}
```

The output window shows '0' and 'number is even'. The user profile on the right is for 'David den Hartog' with email '592513@student.saxion.nl'. It includes options for font size, language (English), and theme.

Below the IDE, there is a search bar and a 'Quick links' section with a link to 'Knowledge base'. The footer shows 'evening David' and 'day, 26 November 2025 22:12'.

## Assignment 2.8: Java Application Bit Calculations

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.

Keep this application because you need to expand it in week 6 for calculating network segments.

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

```

public static void main(String[] args) {
    SaxionApp.start(new Application(), 800, 800);
}

public void run() {
    // Your code goes here!
    while(0==0) {
        SaxionApp.println("options \n 1. is the number even or not\n
2. is the number a power of two\n 3. make it negative");
        int choice = SaxionApp.readInt();
        if (choice == 1) {
            int input = SaxionApp.readInt();
            even_or_uneven(input);
        } else if (choice == 2) {
            int input = SaxionApp.readInt();
            power_of_2(input);
        } else if (choice == 3) {
            int input = SaxionApp.readInt();
            make_two_compliment(input);
        } else{
            break;
        }
        SaxionApp.pause();
        SaxionApp.clear();
    }
}

public int power_of_2 (int a ) {
    int b = a-1;

    int result = a & b; // ----&
    if(result == 0) {
        SaxionApp.println("number is a power of 2");
    }else {
        SaxionApp.println("number isn't a power of 2");
    }
    return result;
}

public int even_or_uneven (int a){
    int result = a & 1;
    if (result == 1){
        SaxionApp.println("number is uneven");
    }else{
        SaxionApp.println("number in even ");
    }
    return result;
}

public int make_two_compliment (int a){

```

```
    int result = (~a)+1;
    SaxionApp.println("number = "+result);
    return result;
}

}
```

options

1. is the number even or not
2. is the number a power of two
3. make it negative

3

18

number = -18

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