

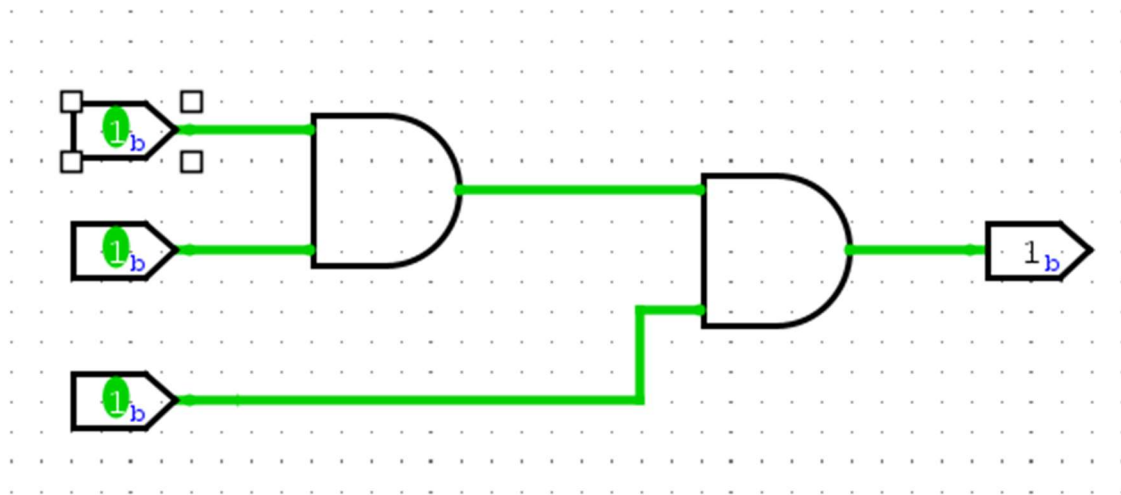
Template Week 2 – Logic

Student number:572750

Assignment 2.1: Parking lot

Which gates do you need?

2 And gates



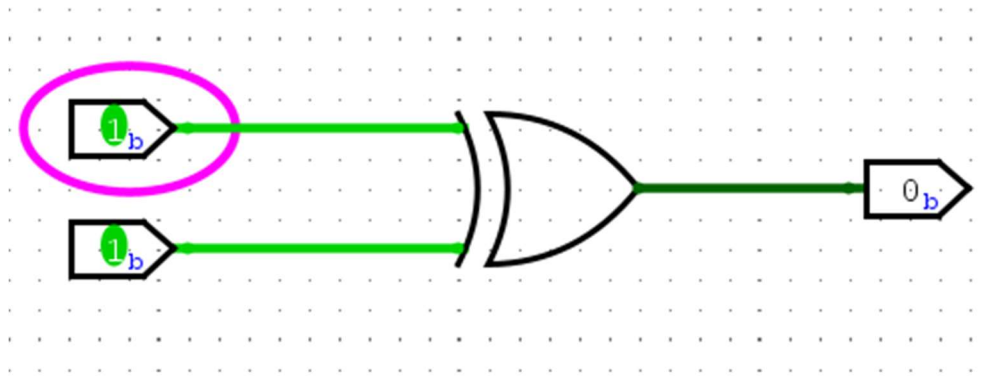
Complete this table

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

Assignment 2.2: Android/iPhone

Which gates do you need?

XOR



Complete this table

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

Assignment 2.3: Four NAND gates

Complete this table

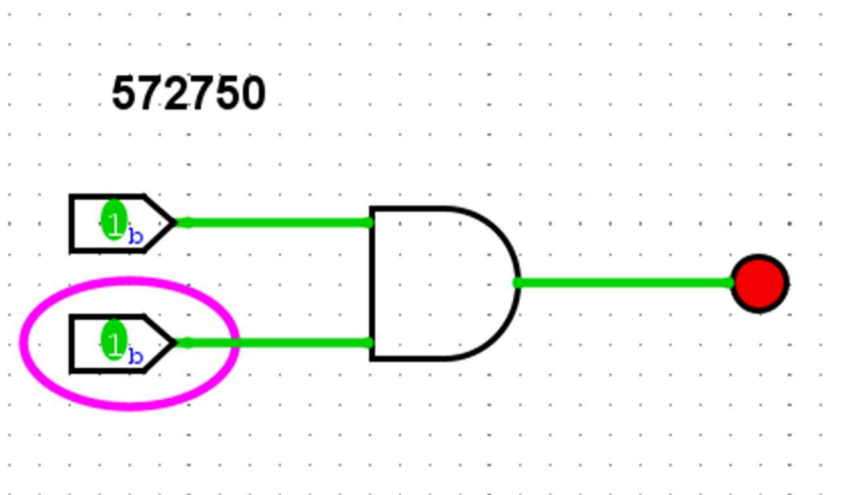
A	B	Q
0	1	1
1	0	1
0	0	0

How can the design be simplified?

Gebruik XOR

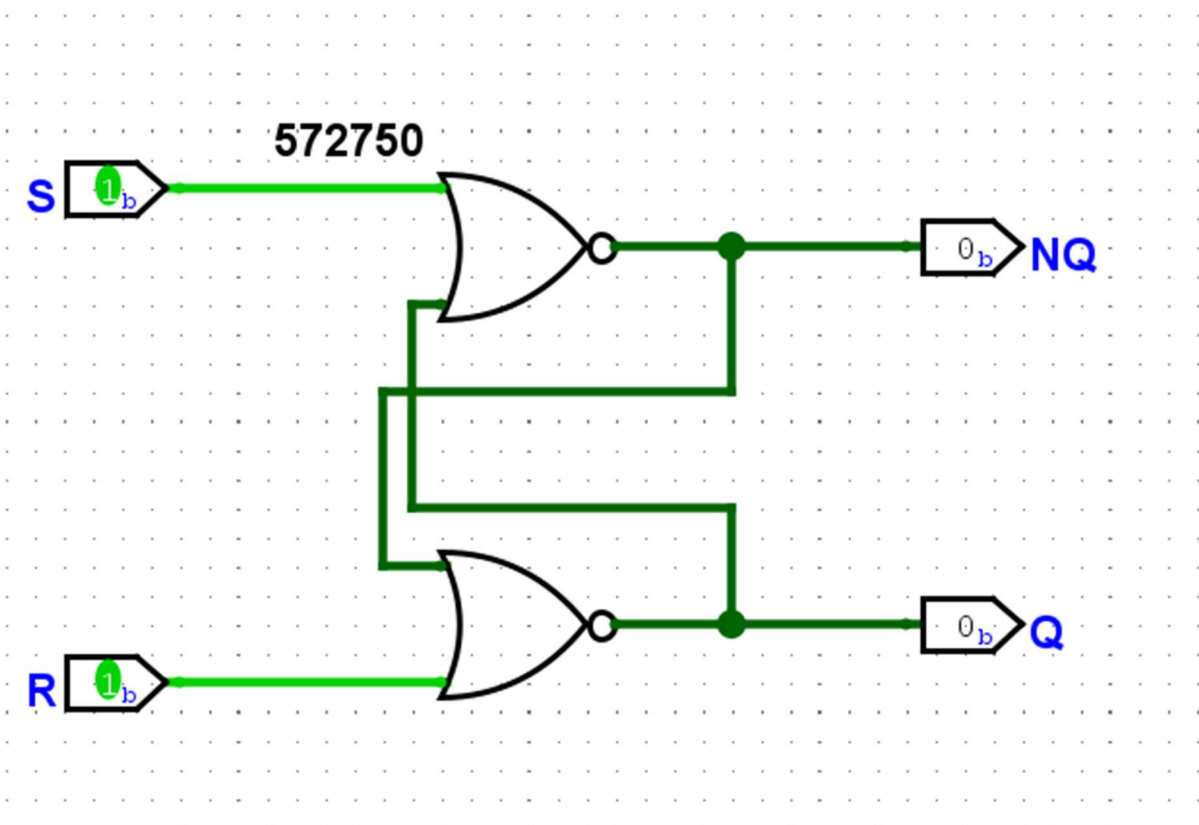
Assignment 2.4: Getting to know Logisim evolution

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



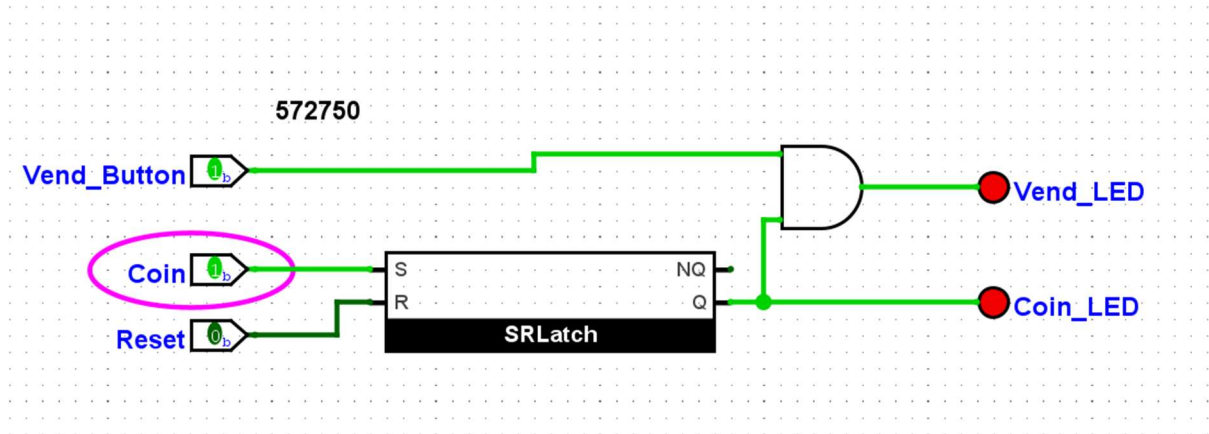
Assignment 2.5: SR Latch

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;

public class Main implements Runnable {

    public static void main(String[] args) {
        SaxionApp.start(new Main(), 1100, 550);
    }

    public void printmenu() {
        SaxionApp.println("1. Even or odd?");
        SaxionApp.println("2. Power of 2?");
        SaxionApp.println("3. 2's compliment of number");
        SaxionApp.print("Choice: ");
    }

    public void evenodd(int number) {
        int result = (number & 1);
        if(result == 1) SaxionApp.println(number + " is odd");
        else SaxionApp.println(number + " is even");
    }

    public void power2(int number) {
        int result = (number & (number - 1));
        if(result == 0) SaxionApp.println(number + " is a power of 2");
    }
}
```

```

        else SaxionApp.println(number + " isn't a power of 2");
    }
    public void twos(int number) {
        int result = ~number + 1;
        SaxionApp.println("Number: "+result);
    }

    public void run() {
        SaxionApp.print("Pick a number: ");
        int number = SaxionApp.readInt();
        SaxionApp.clear();
        printmenu();
        int choice = SaxionApp.readInt();
        SaxionApp.clear();
        if (choice == 1) {
            evenodd(number);
        }
        else if (choice == 2) {
            power2(number);
        }
        else if (choice == 3) {
            twos(number);
        }
        else {
            SaxionApp.println("This is not an option");
        }
    }
}

```



Saxion Drawingboard

Pick a number: 25

1. Even or odd?
2. Power of 2?
3. 2's compliment of number

Choice: 1

25 is odd



Saxion Drawingboard

Pick a number: 8

1. Even or odd?
2. Power of 2?
3. 2's compliment of number

Choice: 2

8 is a power of 2



Pick a number: 1

1. Even or odd?

2. Power of 2?

3. 2's compliment of number

Choice: 3

Number: -1

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