Template Week 2 – Logic

Student number:592513

Assignment 2.1: Parking lot

Which gates do you need?

Twee 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

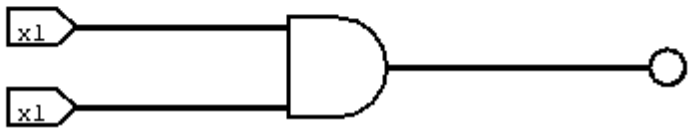
How can the design be simplified?

Xor gate

Assignment 2.4: Getting to know Logisim evolution

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

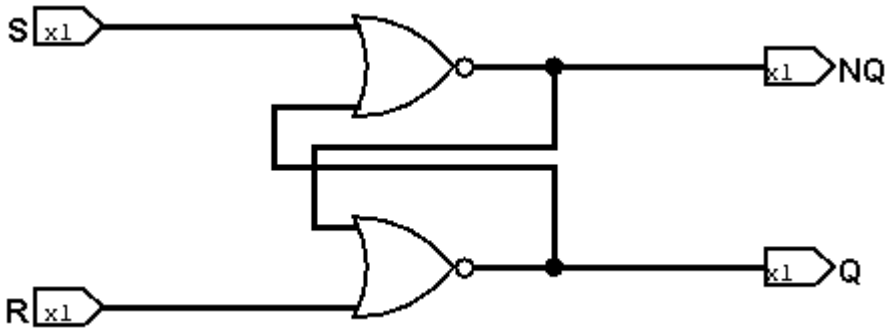
david den hartog 592513



Assignment 2.5: SR Latch

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

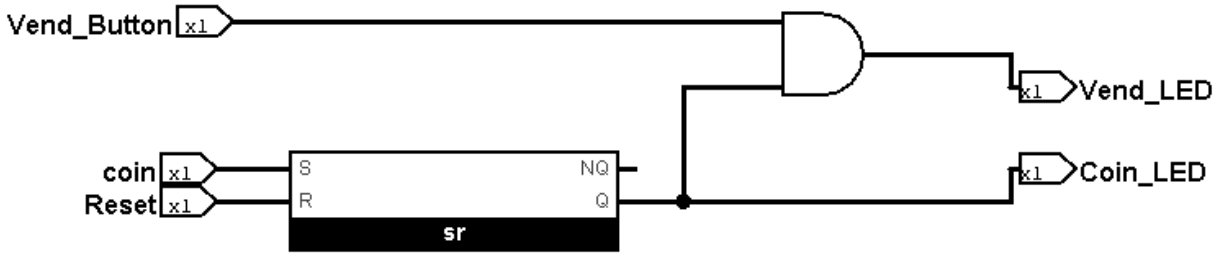
592513 David den hartog



Assignment 2.6: Vending Machine

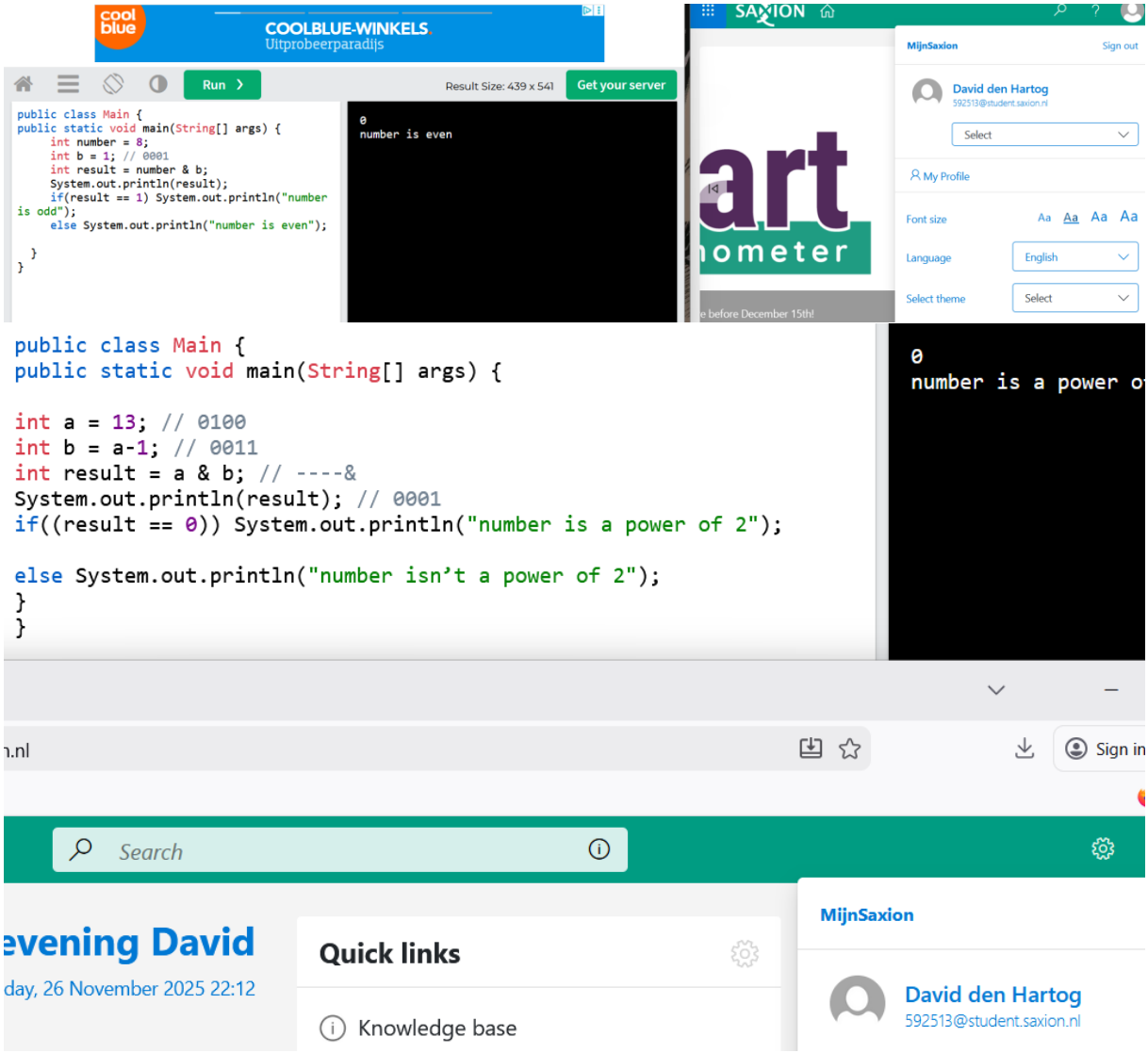
Screenshot Vending Machine in Logisim with your name and student number:

592513 David den hartog



Assignment 2.7: Bitwise operators

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



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.printLine("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.printLine("number is a power of 2");
        }else {
            SaxionApp.printLine("number isn't a power of 2");
        }
        return result;
    }
    public int even_or_uneven (int a){
        int result = a & 1;
        if (result == 1){
            SaxionApp.printLine("number is uneven");
        }else{
            SaxionApp.printLine("number in even ");
        }
        return result;
    }
    public int make_two_compliment (int a){
```

```
        int result = (~a)+1;
        SaxionApp.printLine("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**