Template Week 2 – Logic

Student number: 566787

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?

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

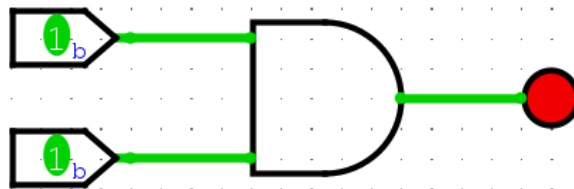| A	B	Q
1	0	1
0	1	1
0	0	0
1	1	0

How can the design be simplified?
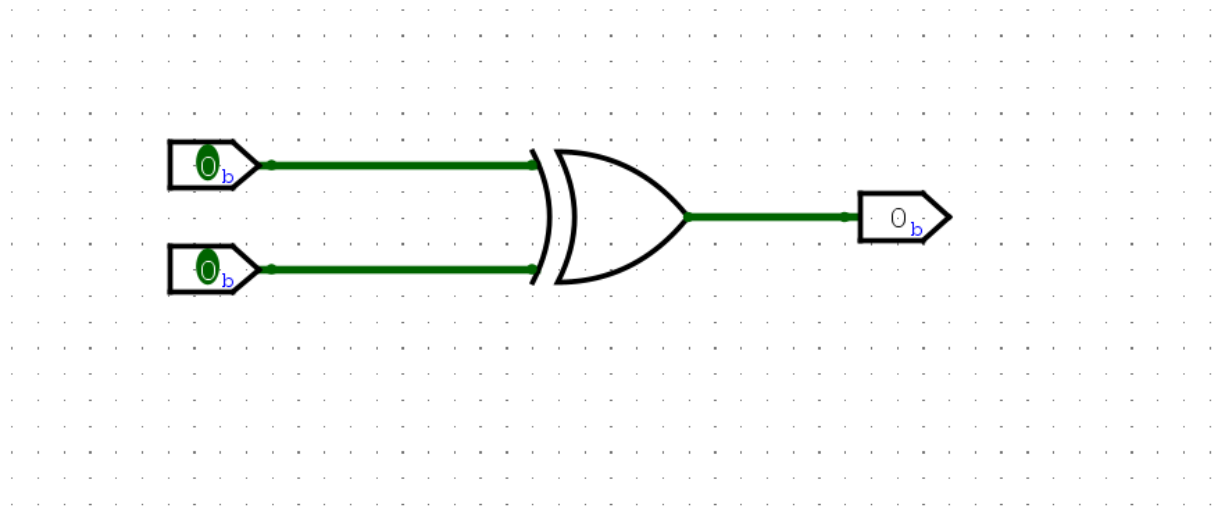
Assignment 2.4: Getting to know Logisim evolution

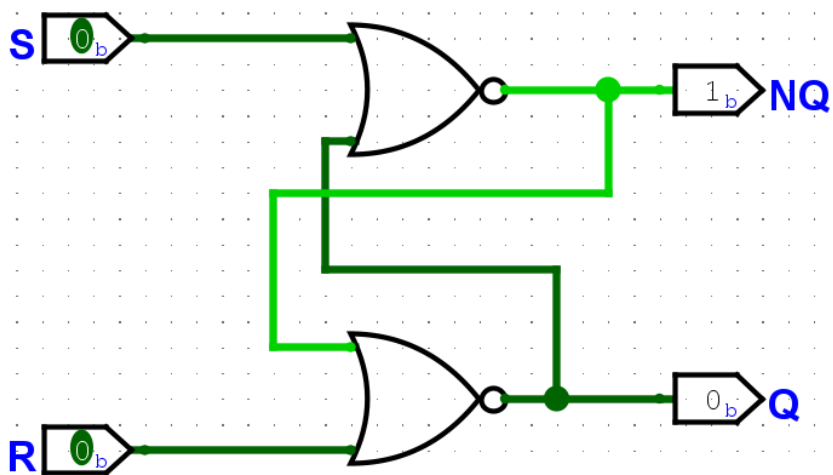Screenshot of the design with your name and student number in it:

Danylo Kuchugura 566787
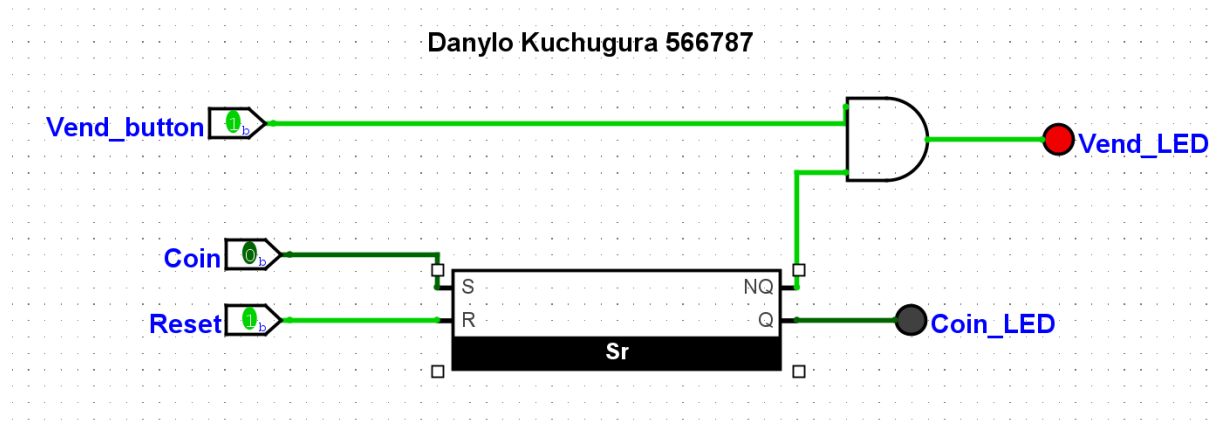
Assignment 2.5: SR Latch

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

Danylo Kuchugura 566787

Assignment 2.6: Vending Machine

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

Danylo Kuchugura 566787

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.

SaxionApp.*printLine*("1.\tIs number odd?\n" +
        "2.\tIs number a power of 2?\n" +
        "3.\tTwo's complement of number?\n");

```java
      int input = SaxionApp.readInt();
      int number = 0;
      while (input != 4) {
         if (input == 1) {
            number = SaxionApp.readInt();
            ifTheNumberOdd(number);
         } else if (input == 2) {
            number = SaxionApp.readInt();
            powerOfTwo(number);
         } else if (input == 3) {
            number = SaxionApp.readInt();
            twosComplement(number);
         } else {
            break;
         }
         input = SaxionApp.readInt();
      }
}

public void ifTheNumberOdd(int input) {
   if ((input & 1) == 1) {
      SaxionApp.printLine("number is odd");
   } else {
      SaxionApp.printLine("number is even");
   }
}

public void powerOfTwo(int input) {
   if ((input & input - 1) == 0) {
      SaxionApp.printLine("Power of two");
   } else {
      SaxionApp.printLine("Not power of two");
   }
}

public void twosComplement(int input) {
   SaxionApp.printLine(~input + 1);
}
```
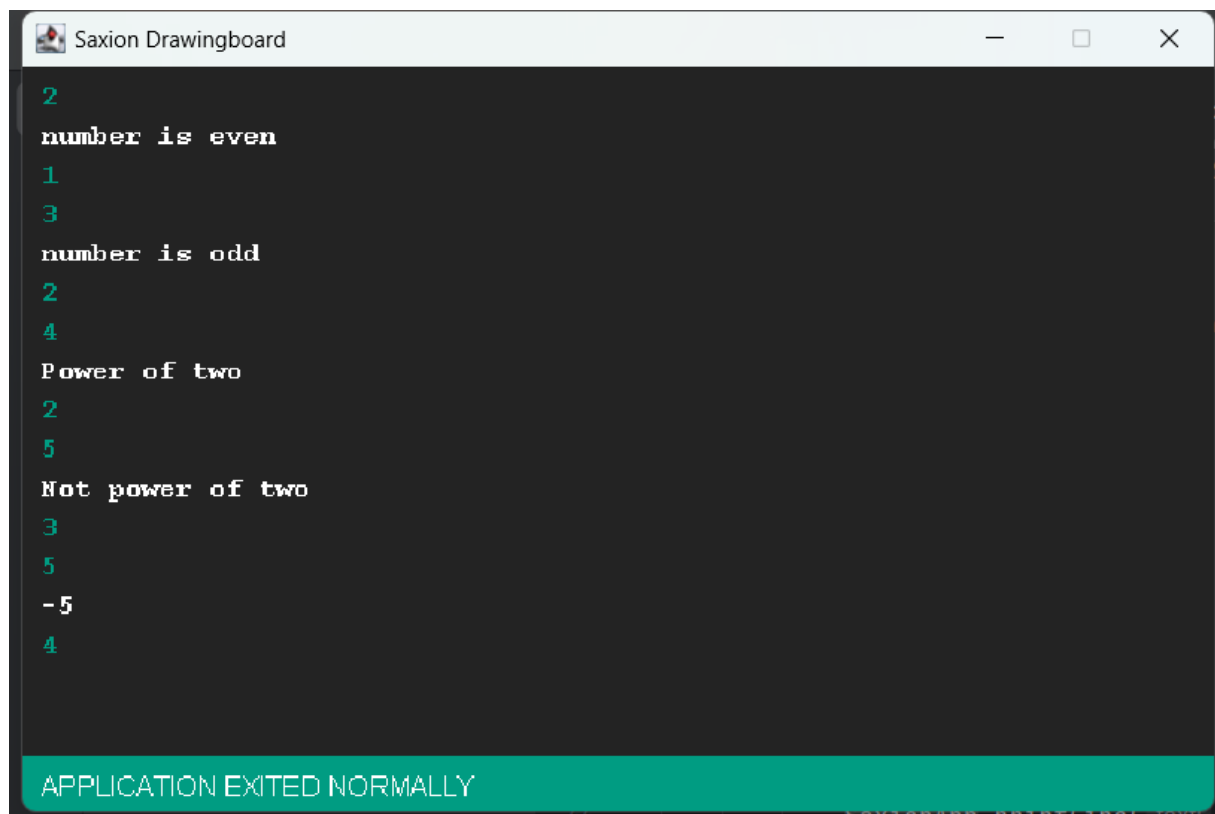
```
2
number is even
1
3
number is odd
2
4
Power of two
2
5
Not power of two
3
5
-5
4
```

APPLICATION EXITED NORMALLY

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