Template Week 2 – Logic

Student number: 573190

Assignment 2.1: Parking lot

Which gates do you need?

You will need the AND gate. Because the system must check if all the parking spots are empty or occupied. When all the parking spots are occupied, the sign should display full. If there is one spot available, the sign should not display full.

Complete this table

Parking lot 1	Parking lot 2	Parking lot 3	Result (full)
0	0	0	False
0	0	1	False
0	1	0	False
1	1	1	True
1	1	0	False
0	1	1	False
1	0	1	False
1	0	0	False

Assignment 2.2: Android/iPhone

Which gates do you need?

You will need a XOR gate, because the employee can only have one of the devices, and not two.

Complete this table

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

Assignment 2.3: Four NAND gates

Complete this table

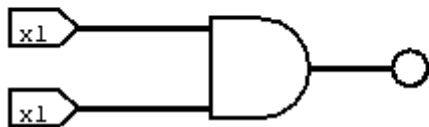| A	B	Q
0	0	1
0	1	1
1	0	1
1	1	0

How can the design be simplified?

Instead of adding only NAND gates, you can replace some NAND gates with XOR gates.

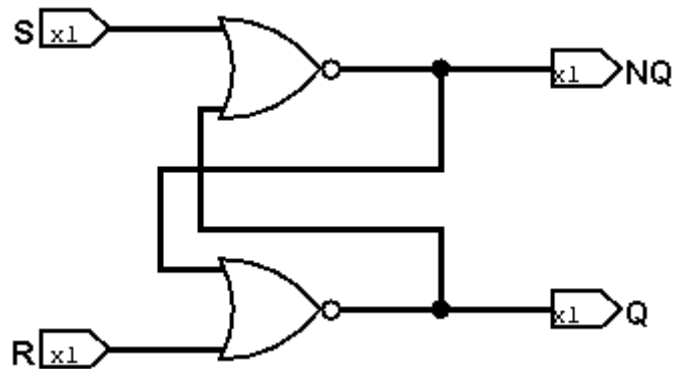**Assignment 2.4: Getting to know Logisim evolution**

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

Kian Kamphuis 573190
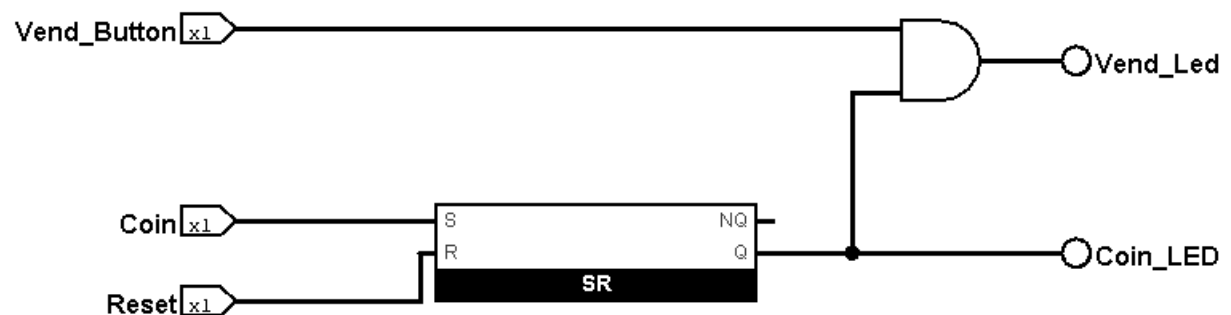
Assignment 2.5: SR Latch

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:

Kian Kamphuis 573190

Bonus point assignment – week 2
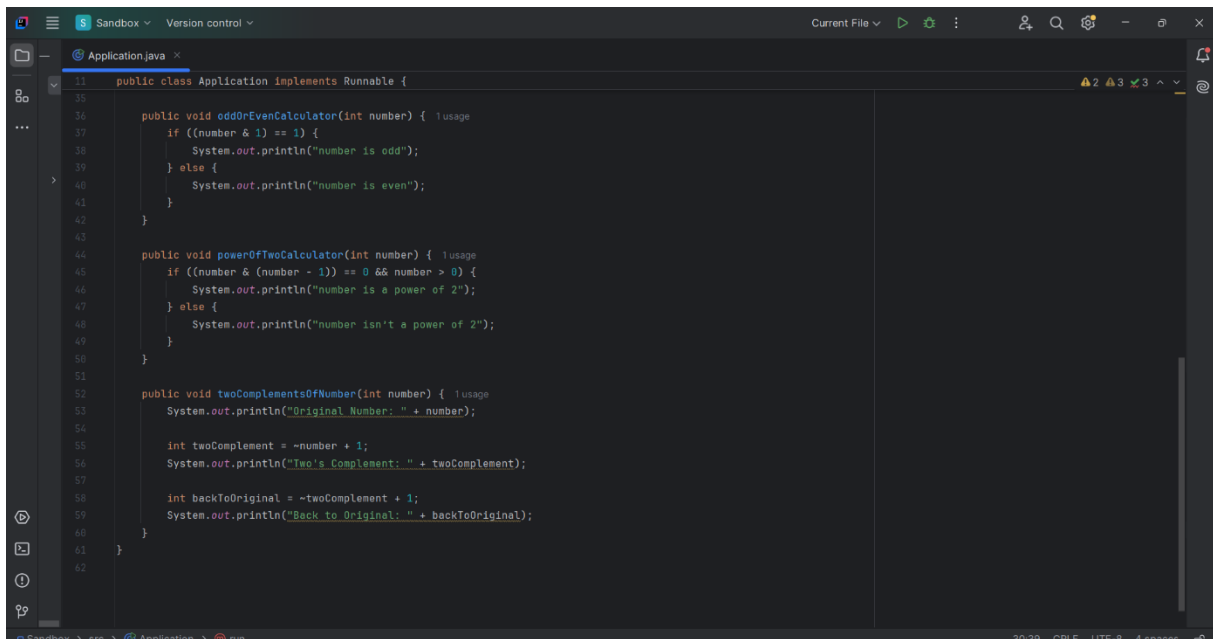
Create a java program that accepts user input and presents a menu with options.

1. Is number odd?
2. Is number a power of 2?
3. Two's complement of number?
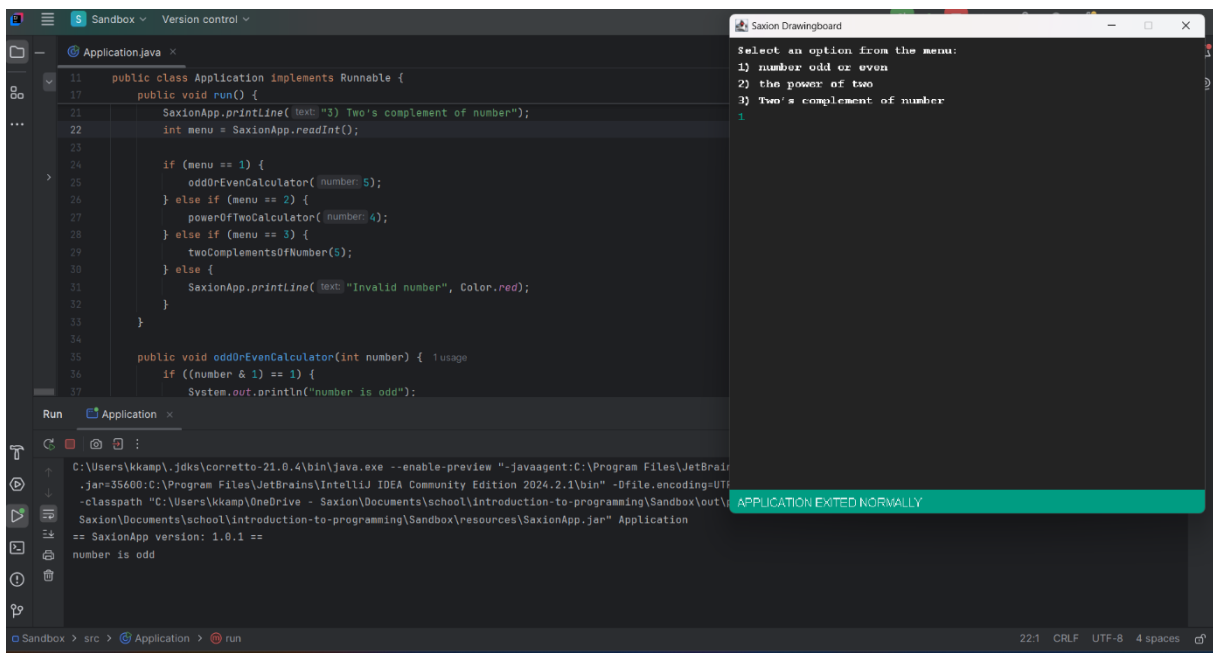
Implement the methods by using the bitwise operators you have just learned.

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.

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