Template Week 2 – Logic

Student number: 562505

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
0	0	1	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?

The only gate needed is OR

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	0	0
0	1	1
1	0	1
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:

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.

1.

```java
public class Main {

    public static void main(String[] args) {


        int number = SaxionApp.readInt("Enter a number: ");

        if ((number & 1) == 1) {

            SaxionApp.printLine("The number is odd.");

        } else {

            SaxionApp.printLine("The number is even.");

        }

    }
```

```
 Number is even

Process finished with exit code 0
```

2.

```java
    public class Main {

        public static void main(String[] args) {


            int number = SaxionApp.readInt("Enter a number: ");

            if ((number & (number - 1)) == 0 && number > 0) {
```

```
        SaxionApp.printLine("The number is a power of 2.");

    } else {

        SaxionApp.printLine("The number is not a power of 2.");

    }

}
```

```
 Number is a power of 2

 Process finished with exit code 0
```

3.

```
public class Main {

    public static void main(String[] args) {


        int number = SaxionApp.readInt("Enter a number: ");


        int result = ~number + 1;


        SaxionApp.printLine("The result after bitwise NOT and converting to positive: " + result);

    }

}
```

```
 Number: 5

 Process finished with exit code 0
```

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