Template Week 2 – Logic

Student number:

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	1	
0	1	0	

Assignment 2.2: Android/iPhone

Which gates do you need?

Complete this table

Android phone	iPhone	Result (Phone in possession)
0	0	

Assignment 2.3: Four NAND gates

Complete this table

A	B	Q

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?

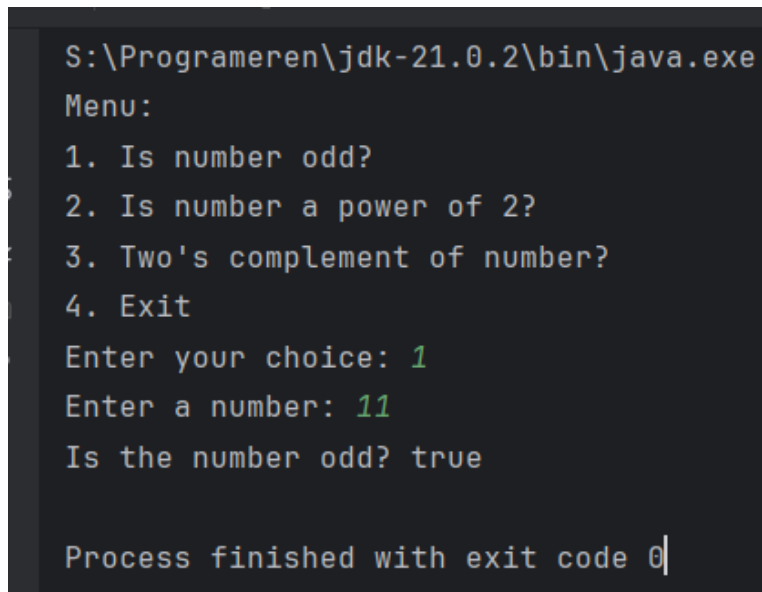Implement the methods by using the bitwise operators you have just learned.

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.

Create a java program that accepts user input and presents a menu with options.

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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.

```java
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.println("Menu:");
        System.out.println("1. Is number odd?");
        System.out.println("2. Is number a power of 2?");
        System.out.println("3. Two's complement of number?");
        System.out.println("4. Exit");
        System.out.print("Enter your choice: ");

        int choice = scanner.nextInt();

        if (choice == 4) {
            System.out.println("Exiting the program. Goodbye!");
            return;
        }

        System.out.print("Enter a number: ");
        int number = scanner.nextInt();

        if (choice == 1) {
            System.out.println("Is the number odd? " + ((number & 1) == 1));
        } else if (choice == 2) {
            System.out.println("Is the number a power of 2? " + (number > 0 && (number & (number -
```

```
1)) == 0));
    } else if (choice == 3) {
        System.out.println("Two's complement of the number: " + (~number + 1));
    } else {
        System.out.println("Invalid choice. Please try again.");
    }

  scanner.close();  } }
```

```
S:\Programeren\jdk-21.0.2\bin\java.exe
Menu:
1. Is number odd?
2. Is number a power of 2?
3. Two's complement of number?
4. Exit
Enter your choice: 1
Enter a number: 11
Is the number odd? true


Process finished with exit code 0
```

```
S:\Programeren\jdk-21.0.2\bin\java.exe "-javaagent:S:
Menu:
1. Is number odd?
2. Is number a power of 2?
3. Two's complement of number?
4. Exit
Enter your choice: 2
Enter a number: 8
Is the number a power of 2? true


Process finished with exit code 0
```

```
S:\Programeren\jdk-21.0.2\bin\java.exe "-ja
Menu:
1. Is number odd?
2. Is number a power of 2?
3. Two's complement of number?
4. Exit
Enter your choice: 3
Enter a number: 10
Two's complement of the number: -10


Process finished with exit code 0
```

```
S:\Programeren\jdk-21.0.2\bin\java.exe "-javaagent:S:
Menu:
1. Is number odd?
2. Is number a power of 2?
3. Two's complement of number?
4. Exit
Enter your choice: 4
Exiting the program. Goodbye!

Process finished with exit code 0
```

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