Java module 1

Exercises Day 3

1.1 - While	Counting down
Instructions	Print the numbers counting down from 10 using a while loop
Expected output	10 9 8 7 6 5 4 3 2 1 0
Solution	`public class Ex11 {` `  public static void main(String[] args) {` `  int counter = 10;` `  while (counter >= 0) {` `  System.out.println(counter);` `  counter--;` `  }` `  }` `}`

1.2 - While	Enter the right password
Instructions	The user should enter a password, and it keeps asking until they enter the correct one. The right password is “password123”
Expected output	Enter the password: >>>ABC123 Incorrect password. Try again. Enter the password: >>>password123 Password correct!
Solution	`import java.util.Scanner;` `public class Ex12 {` `  public static void main(String[] args) {`

	`` Scanner scanner = new Scanner(System.in); System.out.print("Enter the password: "); String password = scanner.nextLine(); while (!password.equals("password123")) { System.out.println("Incorrect password. Try again"); System.out.print("Enter the password: "); password = scanner.nextLine(); } System.out.println("Password correct!"); scanner.close(); } } ```

1.3 - While	Guessing a number
Instructions	The program will select a random number between 1 and 100. The user will be asked to guess the number until he finds the right one. Each time, the program will tell him if the number is higher or lower. hint: to choose a random number use Math.random() https://www.w3schools.com/java/java_howto_random_number.asp
Expected output	Guess the number (1-100): >>>33 Too low. Try again. Guess the number (1-100): >>>87 To high. Try again. Guess the number (1-100): >>>57 Congratulations! You guessed the number!
Solution	``` import java.util.Scanner; public class Ex13 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); ```

```
        //Get a random number
        int randomNum = (int)(Math.random() * 101);

        boolean continueGuessing = true;
        while (continueGuessing) {
            System.out.print("Guess the number (0 - 100):
");
            int userGuess = scanner.nextInt();
            if (userGuess < randomNum) {
                System.out.println("Too small. Try
again.");
            } else if (userGuess > randomNum) {
                System.out.println("Too big. Try again.");
            } else {
                System.out.println("You guessed!");
                continueGuessing = false;
            }
        }

        scanner.close();
    }
}
```

1.4 - While	Find the greatest number
Instructions	Write a program that reads numbers from the user until the user enters -1. The program should print the largest number entered.
Expected output	Enter any number: >>> 33 Enter any number: >>> -20 Enter any number: >>> 57 Enter any number: >>> -1 The greatest number was 57
Solution	

```
import java.util.Scanner;

public class Ex14 {
    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);
```

	`` System.out.print("Enter any number: "); int number = scanner.nextInt(); int greatestNumber = number; while (number != -1) { System.out.print("Enter any number: "); number = scanner.nextInt(); if (number > greatestNumber) { greatestNumber = number; } } System.out.print("The greatest number was: " + greatestNumber); scanner.close(); } } ```

2.1 - String +While	Ask for a word starting with A
Instructions	Ask the user to type a word starting with the letter A. Check if it's correct, otherwise ask again until it is correct.
Expected output	Enter a word starting with A: >>> Kiwi Incorrect! Enter a word starting with A: >>> Apple Correct!
Solution	``` import java.util.Scanner; public class Ex21 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); while (true) { System.out.print("Enter a word starting with A: "); ```

	`` String word = scanner.nextLine(); if (word.startsWith("A") || word.startsWith("a")) { System.out.println("Correct!"); break; } else { System.out.println("Incorrect!"); } } scanner.close(); } } ```

2.2 - Strings	Uppercase or Lowercase?
Instructions	Ask the user a number, and a sentence. if the number is even, output the sentence in lowercase; otherwise, output it in uppercase.
Expected output	Enter a number: >>> 7 Enter a sentence: >>> Java is so Cool! JAVA IS SO COOL!
Solution	``` import java.util.Scanner; public class Ex22 { public static void main(String[] args) { Scanner scanner = new Scanner(System.in); System.out.print("Enter a number: "); int number = scanner.nextInt(); scanner.nextLine(); System.out.print("Enter a sentence: "); String sentence = scanner.nextLine(); if (number % 2 == 0) { System.out.println(sentence.toLowerCase()); } else { System.out.println(sentence.toUpperCase()); } ```

	`` scanner.close(); } } ```

3.1 - Casting	byte to short
Instructions	Create a byte variable with the value 100. Cast it to a short and print the value. Is it implicit or explicit casting?
Solution	``` byte myByte = 100; short myShort = myByte; System.out.println(myShort); ``` It is implicit casting.

3.2 - Casting	long to int
Instructions	Create a long variable with the value 100000L. Cast it to an int and print the value. Is it implicit or explicit casting?
Solution	``` long myLong = 100000L; int myInt = (int) myLong; System.out.println(myInt); ``` It is explicit casting.

3.3 - Casting	long to float
Instructions	Create a long variable with the value 100000L. Cast it to a float and print the value. Is it implicit or explicit casting?
Solution	``` long myLong2 = 100000L; float myFloat = myLong2; System.out.println(myFloat); ``` It is implicit casting.

3.4 - Casting	What would the output be?
Instructions	short shortVal = 128; byte byteVal = (byte) shortVal; // Explicit casting System.out.println(byteVal); Try it out. This conversion lead to data lost due to byte's range of -128 to 127.
Solution	The output was -128.