Prerequisite

To begin, clone the repository template from GitHub. This approach allows you to work easily from home.
You must solve all the exercises in a single file. To ensure a structured approach, each exercise should be solved in a separate method, and you should call the respective method in a switch case. Start with the provided project, which contains sample code, and add new methods for subsequent exercises.

Mathematical Operators

TypeScript uses the standard order of operations for calculations, so (), *, /, and % (modulo) have priority over + and -.

When dividing integers in TypeScript, integer division is not used by default. This means 10 / 3 will yield the result 3.333... as you might expect. However, if you want to perform integer division similar to C#, you can use the Math.floor function to discard the fractional part: Math.floor(10 / 3) which yields 3.

To get the remainder, use the modulo operator like let remainder = 10 % 3; which yields 1.

To get the floating-point result, you simply perform the division, as TypeScript will handle floating-point numbers by default: let result = 10 / 3; which yields 3.333....

Type casting does not change the variable type permanently. When type casting a floating-point number to an integer, the number will be truncated. For example: let truncated = Math.floor(3.9999); will result in 3.

Basic Exercises

Exercise 1

Declare two string variables, one of them is going to store your first name and the other your last name, so assign them informative names.
Then let the program print following output on a console:

"Hello<firstname><lastname>! I am glad to inform you that you are the test subject of my very first assignment!"

Example: Hello Sebastian Vallin! I am glad to inform you that you are the test subject of my first assignment!

Exercise 2

Ask user to enter there firstname and lastname from the console and greet the user by name and the phrase 'Have a nice day!'

Example: *"Hello Sebastian Vallin! Have a nice day!"*

Exercise 3

A) Add any two integer numbers and store the sum result in a variable of type double, display the result.

B) Store an even number and an odd number in two different integer variables. Divide odd number by even number and display an accurate result.

Exercise 4 (Optional)

Ask user to enter a value of a radius. Calculate the area of a circle and the area of a sphere and display the results on the console.

Conditional Exercises

Exercise 5

Ask user to enter two consecutive numbers and write the code to validate them (are they consecutive or not?) and display message accordingly

Example 1: User enters: 2, 3

Result: Consecutive

Example 2: User enters: 4, 6

Result: Not consecutive

Exempla 3: User enters 8, 7

Result: Consecutive

Exercise 6

Ask user to enter any positive integer, check, and display message whether number is even or odd

Exercise 7

Ask user to enter their body temperature in degree Celsius. Display him a message if he has a fever or not.

Exercise 8

Ask user to enter his grade of exam (A, B, C, D, E) and print a relevant message for the user as per the grade they have.

Exercise 9

Let the user input any string, then check if the string is a palindrome sentence or not and display that result.

Example 1: Entered "A man, a plan, a canal – Panama"

Result: A man, a plan, a canal – Panama is a palindrome.

Example 2: Entered Aibohphobia

Result Aibohphobia is a palindrome.

Example 3: Entered Palindrome

Result: Palindrome is not a palindrome.

Exercise 10

String manipulation

A) Change string "The quick fox Jumped Over the DOG" to the string "The brown fox jumped over the lazy dog" using required string manipulation functions.

B) Enter any two words from console and check whether they are same words or not.

C) Input word Donkey and display it as the word Monkey on the console.

D) Replace 'I' with 'We' and 'am' with 'are' in given text below.

"I am going to visit Kolmården zoo tomorrow. I am a big fan of the dolphin show. I may watch all dolphin shows during the day. I would like to take a gondola safari as well. I wish to visit Bamse and his team there."

E) Actual string is "She is the popular singer." and the expected string is "She is the most popular singer."

F) Actual string is "A friend is the asset of your life." and the expected string is "A true friend is the greatest asset of your life"

G) Actual string is "My name is Sebastian Vallin." Expected string: "Sebastian Vallin"

H) Actual string is "Arrays are very common in programming, they look something like: [1,2,3,4,5]" Expected string: "[1,4,5,6,7,8]"

Exercise 11 (Optional)

Write a program that asks user an arithmetic operator ('+','-','*' or '/') and two operands. Perform the corresponding calculation on the operands and display the result (use switch case).

Loop Exercises

Exercise 12

Ask user to enter any number smaller than 100. Print all values from 1 to the entered number in ascending and descending order.
Write the same thing using the different loops (for, while and do-while).

Exercise 13

Generate a random number and save it to a variable, SecretNumber.
If he/she misses the first guess ask the user if he/she wants to guess the number again. Repeat the guessing until user answers no or guess the correct number.

Limit the secret number to be from 1 to 10 so that it not become to hard to guess right.

Exercise 14

Display the following multiplication table shown below on the console.

Print a math table from 1 to 10 using for loop.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

Exercise 15 (Optional)

Print the following * pattern on console using loop

```
*****
****
***
**
*
```

Exercise 16 (Optional)

Write a method that keeps asking the user to enter numbers, until the user enters 0. Then displays a sum and average of all numbers entered before 0

Exercise 17 (Optional)

Ask the user to enter the number of values to display from the Fibonacci series, this number can be ither number of values to display or max number to display (you only need to implement one of those two). Calculate and display the selected number from the Fibonacci series on the console.

Example *Entered 7*
Result 0, 1, 1, 2, 3, 5, 8 *(assuming the max number off values was implemented)*