

## Experiment – 1 a: TypeScript

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Sign and Grade	

**AIM :** Write a simple TypeScript program using basic data types (number, string, boolean) and operators.

### OVERVIEW OF TASKS PERFORMED :

The experiment involves implementing a **calculator** in TypeScript that performs basic arithmetic operations (addition, subtraction, multiplication, and division) while handling invalid operations and division by zero gracefully. Additionally, a **Student Result Database Management System** was designed using TypeScript, where student details and subject marks were stored as variables. The total and average marks were calculated, and a condition was applied to determine whether the student passed or failed. The results were then displayed in the console.

**GITHUB LINK -** [https://github.com/Anuprita2022-26/WebX\\_Exp1a](https://github.com/Anuprita2022-26/WebX_Exp1a)

### OUTPUT

#### (a) TypeScript Calculator

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

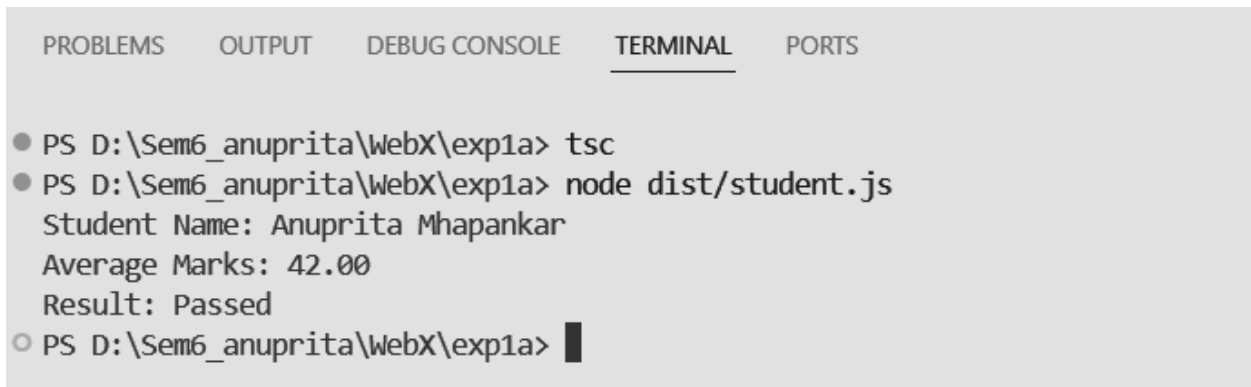
● PS D:\Sem6_anuprita\WebX\exp1a> tsc
● PS D:\Sem6_anuprita\WebX\exp1a> node dist/calculator.js
8
6
42
4
Error: Division by zero is not allowed
Error: Invalid operation
```

This screenshot showcases the output of the **TypeScript Calculator**, which performs basic

arithmetic operations such as addition, subtraction, multiplication, and division. The console displays:

- The results of valid operations (**add**, **subtract**, **multiply**, and **divide**).
- An error message when attempting **division by zero**.
- An error message for an **invalid operation** (e.g., **modulus**).

### (b) Student Result Database Management System



```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

● PS D:\Sem6_anuprita\WebX\exp1a> tsc
● PS D:\Sem6_anuprita\WebX\exp1a> node dist/student.js
  Student Name: Anuprita Mhapankar
  Average Marks: 42.00
  Result: Passed
○ PS D:\Sem6_anuprita\WebX\exp1a> █
```

This screenshot displays the output of the **Student Result Database Management System**, which calculates and prints:

- The **student's name**.
- The **average marks** (formatted to two decimal places).
- The **final result** (either "Passed" or "Failed" based on a 40% passing criteria).

## CONCLUSION

This experiment successfully showcased the development of a **calculator** and a **student result management system** using TypeScript.

The **calculator** efficiently performs arithmetic operations while ensuring proper error handling, such as managing invalid inputs and preventing division by zero.

The **student result management system** effectively organizes student data, computes total and average marks, and determines pass/fail status using object-oriented programming principles.