Chatper 1 – Types

1. What is Typescript?
   1. TypeScript is a programming language that adds *types* to JavaScript
   2. Allows us to write JavaScript with a set of tools called a *type system* that can spot potential bugs in, clarify the structure of, and help refactor our code
   3. Added newer JavaScript language features, such as arrow functions and classes, years before they were added to JavaScript officially
2. Type Inferences
   1. JavaScript allows us to assign any value to any variable.
   2. In typescript, variable can never be assigned to variable with different data type
   3. TypeScript recognizes JavaScript’s built-in “primitive” data types
      1. Boolean
      2. Number
      3. Null
      4. String
      5. Undefined

|  |
| --- |
| let aged = true;  let realAge = 0;  if (aged) {  realAge = 4;  }  let dogAge = realAge \* 7;  console.log(`${dogAge} years`); |

1. Type Shapes
   1. It also knows what shapes our object adheres to
   2. Also knows what properties and methods it does or doesn’t contain

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| --- |
| let firstName = 'muriel!';  console.log(firstName.toUpperCase());  console.log(firstName.length); |

1. Any
   1. Is data type that is assigned when a variable is declared without being assigned an initial value
   2. TypeScript won’t give an error if they’re reassigned to a different type later on.

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| --- |
| let onOrOff;    onOrOff = 1;  onOrOff = false; |

|  |
| --- |
| let guess;  guess = "red";  guess = 1; |

1. Variable Type Annotations
   1. provide a type annotation by appending a variable with a colon (:) and the type

|  |
| --- |
| let mustBeAString : string;  mustBeAString = 'Catdog';    mustBeAString = 1337;  // Error: Type 'number' is not assignable to type 'string' |

Exercise

|  |
| --- |
| let phoneNumber: string;  if (Math.random() > 0.5) {  phoneNumber = '+61770102062';  }  else {  phoneNumber = '7167762323';  } |

Quiz

1. When declaring a variable with an initial value in TypeScript, the variable can never be reassigned a value of a different data type.  
     
   Which line of code will cause an error in TypeScript:
   1. isHungry = ‘yes’;
2. What is the benefit of TypeScript?
   1. TypeScript adds types to JavaScript to help spot potential bugs in, clarify the structure of, and help refactor our code
3. Given the following code, what will happen after running the TS compiler?  
   1. Compiles without any issues.
4. TypeScript’s tsc command will let you know if your code tried to access members of variables known to not exist. TypeScript helps us quickly locate bugs in our code.

How many errors will TypeScript show based on the code provided?

* 1. 2

1. In the following line of code, we have declared the variable shouldWeOrderPizza without initializing a value. Fill in the code using type annotation to cause an error if a string value is assigned in the future rather than a boolean. Then assign the correct value type to shouldWeOrderPizza to avoid throwing an error:
   1. Boolean, true
2. After running tsc main.ts, what happens?
   1. The TypeScript transcompiler reads **main.ts** file and creates a new **main.js** file that will be used for code execution.
3. Which of the following has a valid TypeScript file extension?  
   1. hello.ts
4. Select a statement that is NOT true about the TypeScript transcompiler.  
   1. The TypeScript transcompiler replaces TypeScript code with JavaScript code in place.