

What are Variables and Data Types?

Worksheet

A variable is a labeled container that stores a value in memory, and a data type (like integer, string, or boolean) defines what kind of value it holds and how it can be used.

Questions

- Which of these is a valid variable declaration storing a whole number?
 - age = 27
 - age = "27"
 - age = 27.5
 - age = true
- What data type would you use to store true or false?
 - Integer
 - String
 - Boolean
 - Float
- Which best describes a data type?
 - The name given to a variable
 - The classification of what kind of value a variable holds
 - The line number where a variable is declared
 - The comment describing a variable
- What happens if you try to add a string and an integer directly in most strongly typed languages?
 - It always works silently
 - It usually causes a type error
 - It converts the integer into a boolean
 - It deletes the string
- Declare a variable that stores a person's age as a whole number.
- Store a user's name as text.
- Track whether a light switch is on or off.
- Define: What is a variable?
- Define: What is a data type?
- Define: Name three common data types.

Answer Key

1. A) age = 27 - 27 is a whole number, so it matches the integer data type.
2. C) Boolean - Boolean stores exactly two values: true and false.
3. B) The classification of what kind of value a variable holds - A data type classifies the kind of value stored, such as integer or string.
4. B) It usually causes a type error - Strongly typed languages flag mismatched types as an error unless you convert explicitly.
5. Choose a name: age Choose a type: integer (whole number) Assign a value: age = 27 Result: age now holds the integer 27
6. Choose a name: userName Choose a type: string (text) Assign a value: userName = "Elif" Result: userName holds the string "Elif"
7. Choose a name: isOn Choose a type: boolean (true/false) Assign a value: isOn = true Result: isOn holds the boolean true, showing the light is on
8. A named storage location in memory that holds a value a program can read or change.
9. A classification that tells the computer what kind of value a variable holds (e.g., integer, string, boolean) and what operations are valid.
10. Integer (whole numbers), string (text), and boolean (true/false) are three of the most common data types.

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