

 visual programming

Data Types



Bachelor of Information Systems
Institut Teknologi Del



Learning Objective(s)

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This session should address the following questions.

- What are data types and their importance?

Discussion Point

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Data Types:
The Core Concepts.

Data

58

false

-20.22

"cars"

Is it possible to do these operations?

`-20.22 + 58` ✓

`"cars" + 58` ✗
why?

`false < "cars"` ✗
why?

Data → Characteristics

58

numerical value,
whole number,
positive value.

false

logical value.

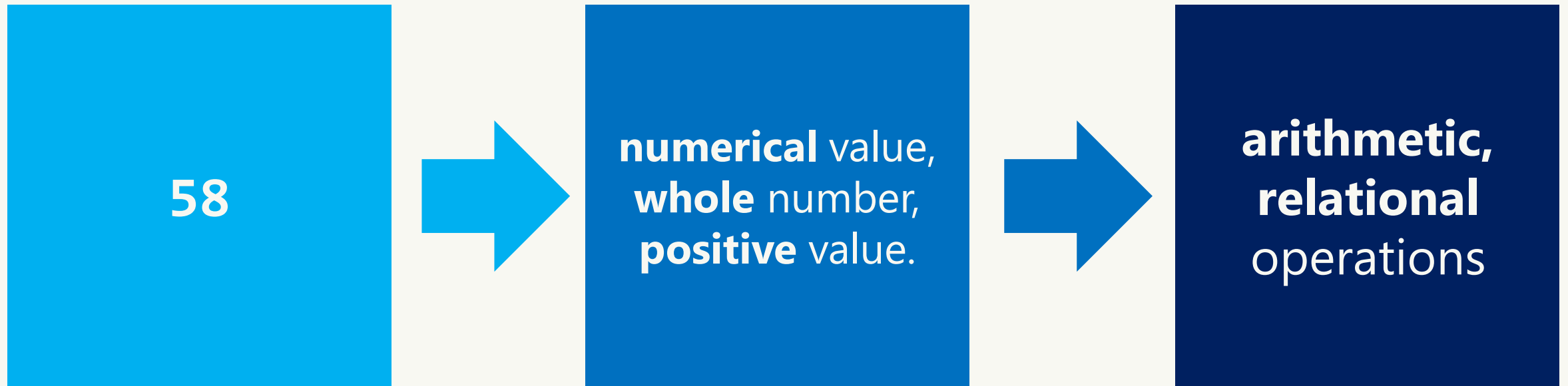
-20.22

numerical value,
fractional number,
negative value.

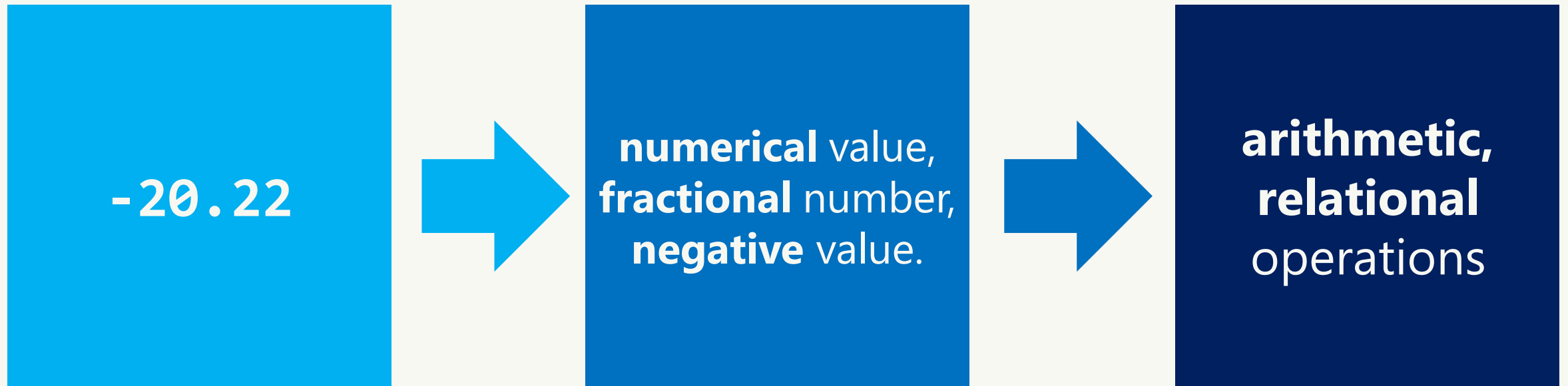
"cars"

textual value.

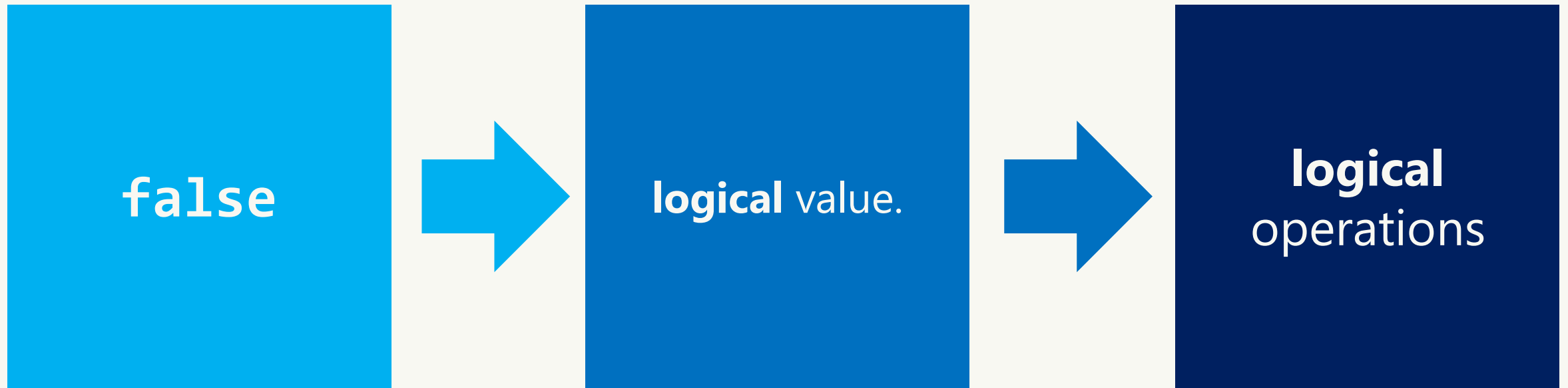
Data → Characteristics → Operations



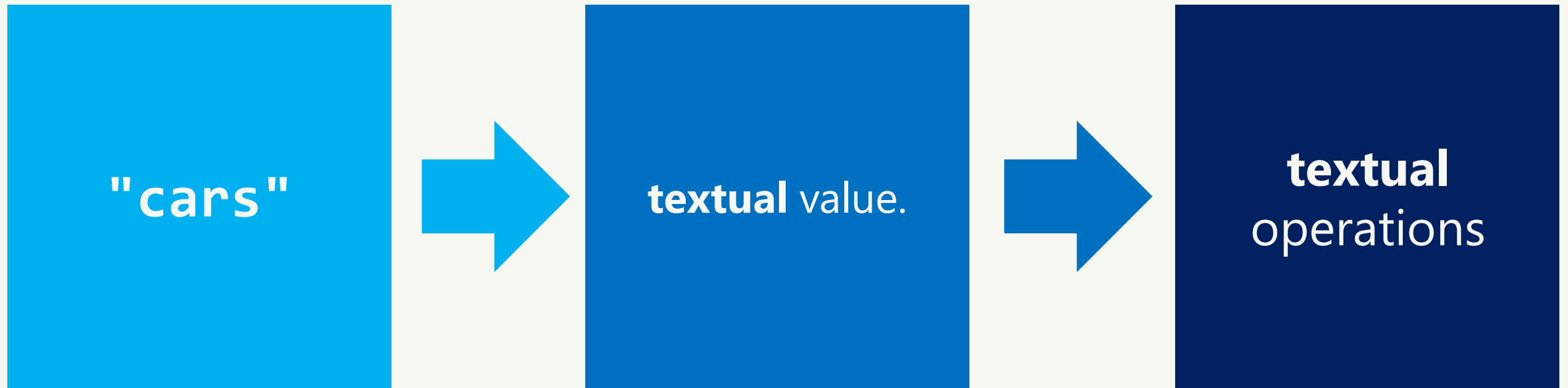
Data → Characteristics → Operations



Data → Characteristics → Operations



Data → Characteristics → Operations



Data → Characteristics → Operations





Question

What is data **type**?

Definition

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Data type: *the type that characterizes data along with the definition of its structure and the allowed operations.*

Discussion Point

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Data Types in
Programming Languages.

Data Types in Programming Language

- Unfortunately, different programming languages (PL) support different set of data types.
 - The specification of a type may also be different.



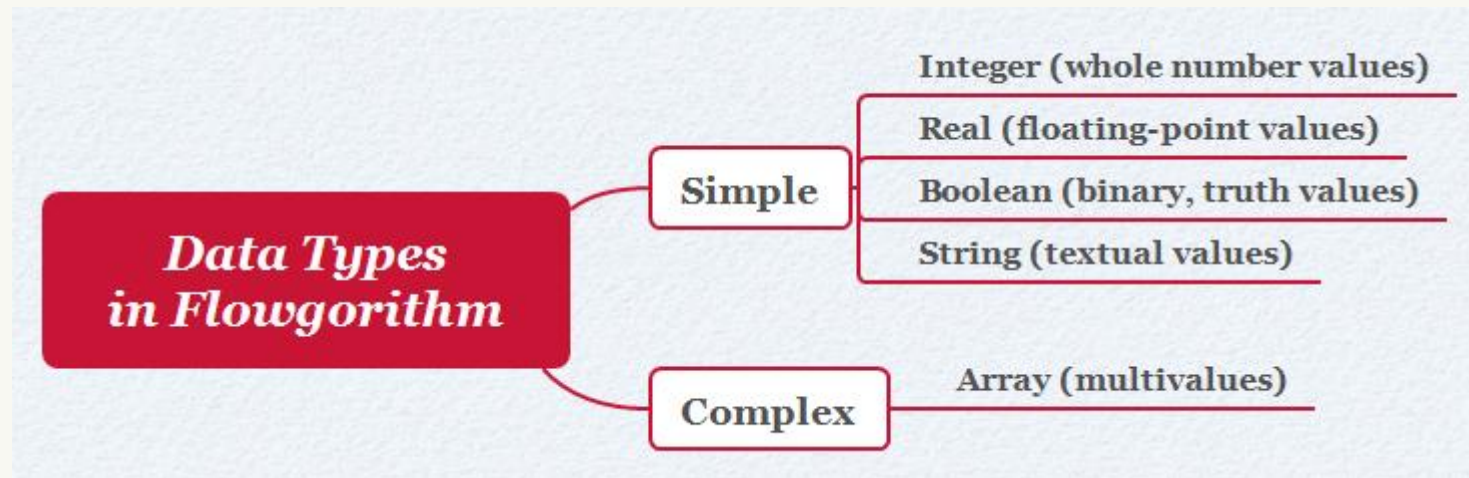
Data types in Java language:

byte, short, int, long, char, float, double, boolean, Class, Interface, Generics, and Array.

Data types in C language:

short, long, int, float, double, char, Structure, Enumeration, and Array.

Data Types in Flowgorithm



Data Types in Flowgorithm

- Flowgorithm supports four simple data types:
 - **Integer**: positive or negative whole value.
 - E.g. 2012, -72, 0
 - **Real**: positive or negative fractional value.
 - E.g. -77.11, -85.01, 3.14
 - **Boolean**: logical value.
 - E.g. true or false.
 - **String**: textual value.
 - E.g. "25.58", "Ucok", "@dasar-pemrograman"
- For a more complex structure, it supports **Array**.



Is it possible to do these operations?

`-20.22 + 58` ✓

`"cars" + 58` ✗
why?

`false < "cars"` ✗
why?

The **compatibility** between data types or data characteristics.

Final Thoughts.



Conclusion

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1. A data type describes the **characteristics** of a value.
2. Different programming languages → different data types.
3. Flowgorithm supports:
 - Integer, Real, Boolean, and String (simple).
 - Array (complex).

References

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Wassberg, J. (2020). Computer Programming for Absolute Beginners. Packt.

Data Types – Flowgorithm

<http://www.flowgorithm.org/documentation/types.html>



– EOF –



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