

A modern conference room with large windows and a long table. The room is empty, with several black office chairs arranged around a long, dark wooden table. The windows offer a view of a city skyline. The image has a blue tint and a stylized, torn-paper effect along the edges.

Fixed- and Floating-Point Data Types

Fixed- and Floating-Point Data Types

<u>number:</u>	precision	
10.523	5	

precision

refers to the number of digits in a number

Fixed- and Floating-Point Data Types

<u>number:</u>	precision	scale	
10.523	5	3	

scale

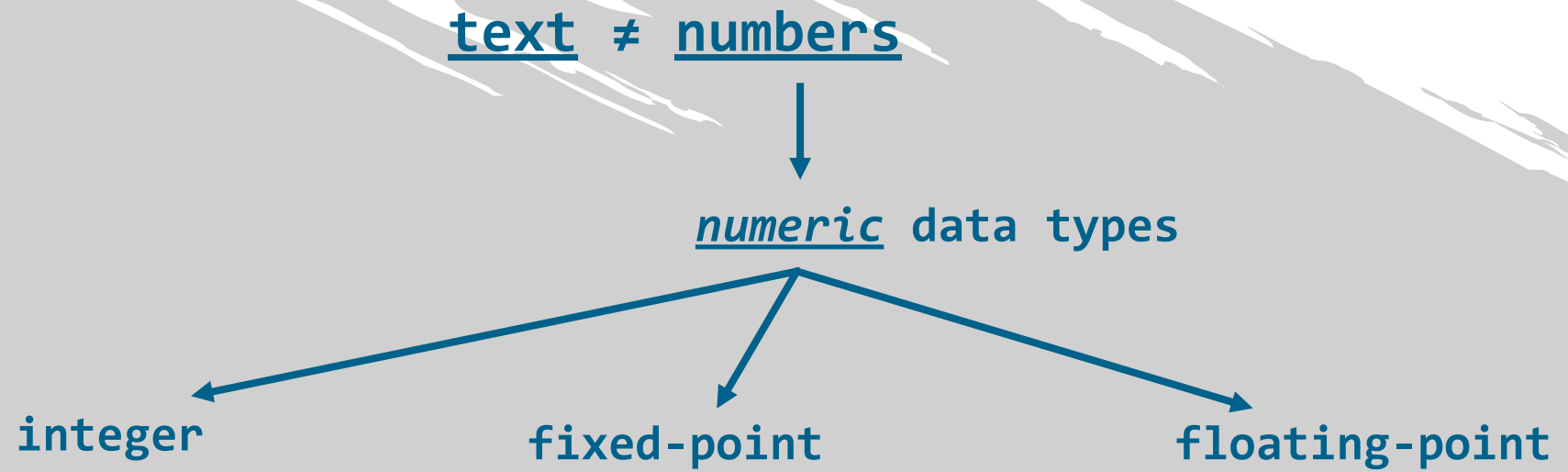
refers to the number of digits to the right of the decimal point in a number

Fixed- and Floating-Point Data Types

<u>number:</u>	precision	scale	
10.523	5	3	
36.875	5	3	

e.g. `DECIMAL (5 , 3)`

Fixed- and Floating-Point Data Types



Fixed- and Floating-Point Data Types

- fixed-point data represent exact values

DECIMAL (5 , 3)

10.523

10.5

10.500

10.5236789

10.524



Fixed- and Floating-Point Data Types

- fixed-point data represent exact values

when only one digit is specified within the parentheses, it will be treated as the precision of the data type

DECIMAL (7)

1234567

DECIMAL (7, 0)

Fixed- and Floating-Point Data Types

- fixed-point data represent exact values

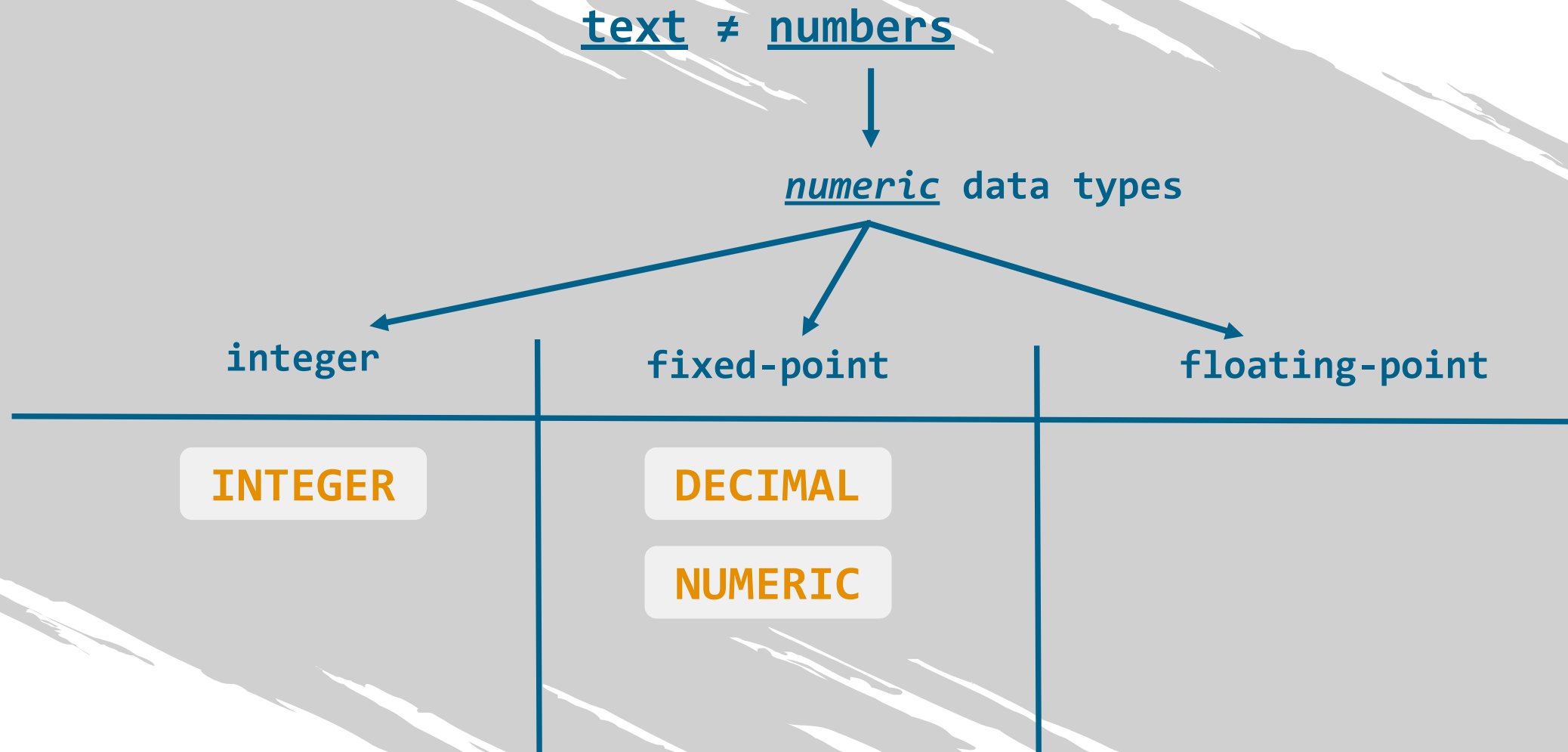
DECIMAL has a synonymous data type. It is called NUMERIC.

DECIMAL

=

NUMERIC

Fixed- and Floating-Point Data Types



Fixed- and Floating-Point Data Types

DECIMAL = NUMERIC

e.g. salaries

NUMERIC (p , s)

precision: p = 7

scale: s = 2

e.g. NUMERIC (7,2) \$ 75,000.50

Fixed- and Floating-Point Data Types

- floating-point data type

- used for approximate values only
- aims to balance between range and precision (=> “floating”)

Float (5 , 3)

10.523

10.5236789

10.524



(10.524 is an approximate value)

Fixed- and Floating-Point Data Types

the main difference between the fixed- and the floating-point type is in the way the value is represented in the memory of the computer

DECIMAL (5 , 3)

10.5236789

10.524



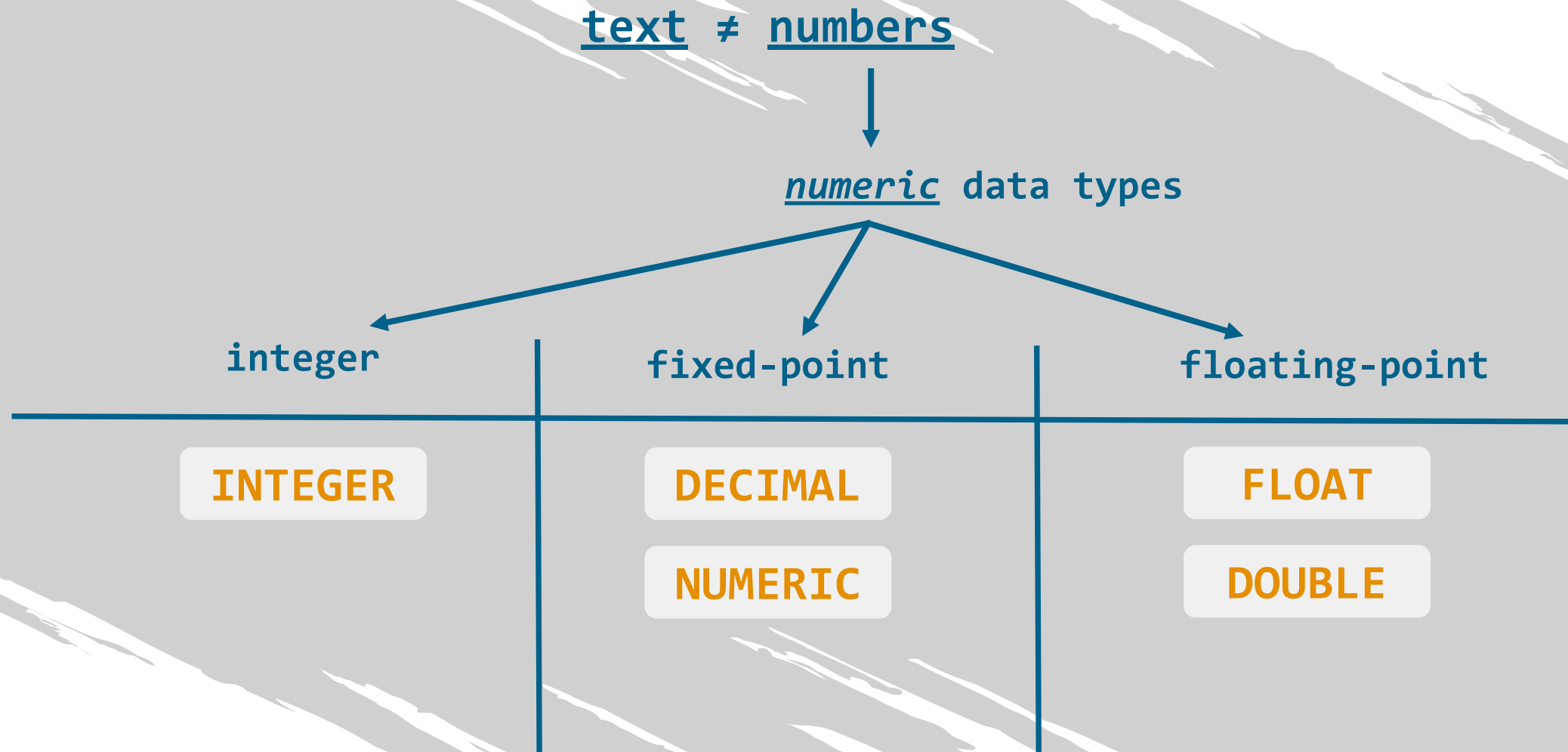
FLOAT (5 , 3)

10.5236789

10.524



Fixed- and Floating-Point Data Types



Fixed- and Floating-Point Data Types

<u>Floating-point data type</u>	<u>size</u> (bytes)	<u>precision</u>	<u>maximum number of digits</u>
FLOAT	4	<i>single</i>	23
DOUBLE	8	<i>double</i>	53