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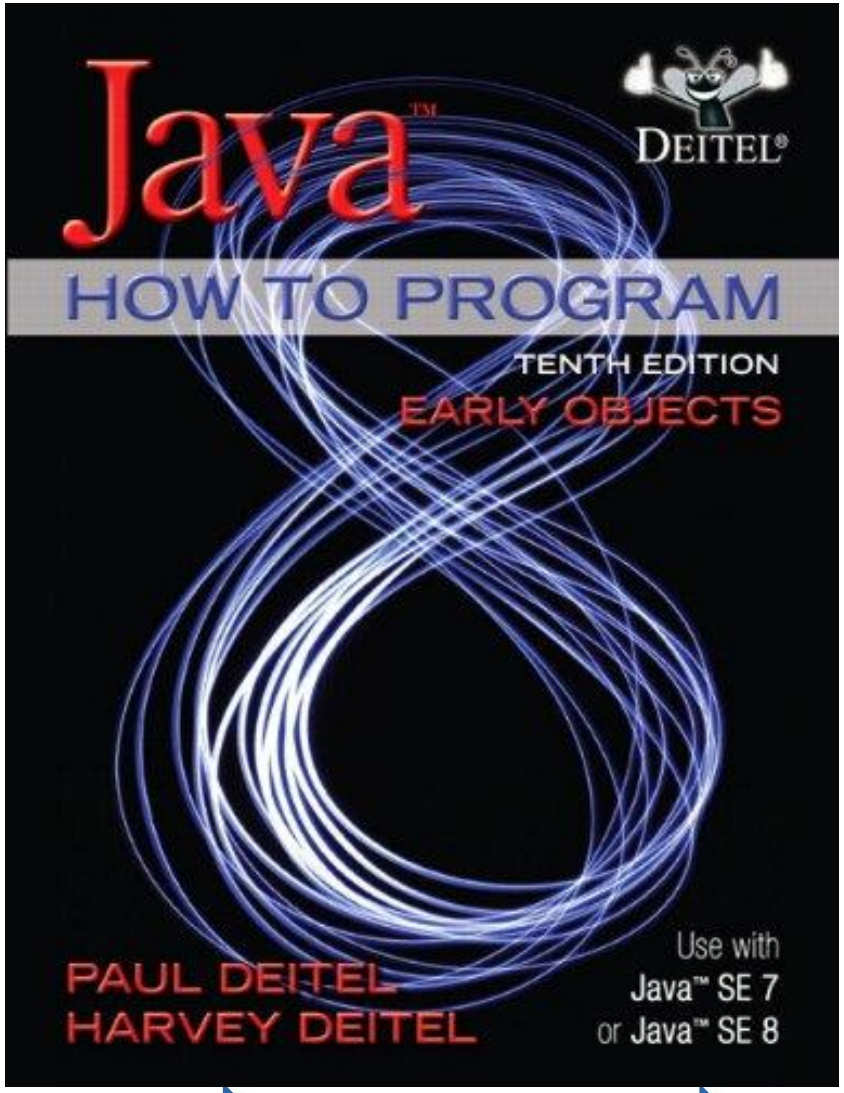
Object Oriented Programming (Java)

Java Programming basics

Text Book



Title: Java How to Program, Early Objects

Author(s): Paul Deitel, Harvey Deitel

Publisher: Pearson Education

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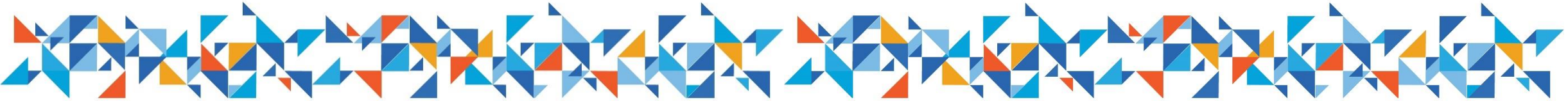
ISBN: 0133807800,9780133807806

Object Oriented Programming using Java by Simon Kendal

Learning Outcomes

- **Students will be able to understand Java Variables**

- **Will be able to use different Java Data Types**



Java Variables

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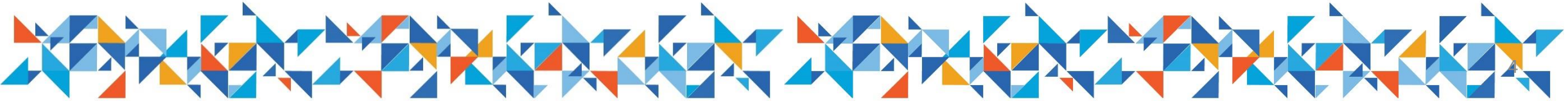
- Variables are containers for storing data values.

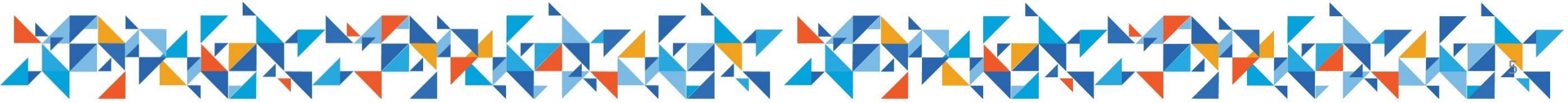
- In Java, there are different **types** of variables, for example:

✓**String** - stores text, such as "Hello". String values are surrounded by double quotes
✓**int** - stores integers (whole numbers), without decimals, such as 123 or -123
✓**float** - stores floating point numbers, with decimals, such as 19.99 or -19.99
✓**char** - stores single characters, such as 'a' or 'B'. Char values are surrounded by single quotes
✓**boolean** - stores values with two states: true or false



Identifiers

- All Java **variables** must be **identified** with **unique names**.
- These unique names are called **identifiers**.
- Identifiers can be short names (like x and y) or more descriptive names (age, sum, totalVolume).
- **Note:** It is recommended to use descriptive names in order to create understandable and maintainable code.



```
// Good
int minutesPerHour = 60;

// OK, but not so easy to understand what m actually is
int m = 60;
```

The general rules for naming variables are:

- Names can contain letters, digits, underscores, and dollar signs
- Names must begin with a letter
- Names should start with a lowercase letter, and cannot contain whitespace
- Names can also begin with $ and
- Names are case-sensitive ("myVar" and "myvar" are different variables)
- Reserved words (like Java keywords, such as int or boolean) cannot be used as names

Java Data Types

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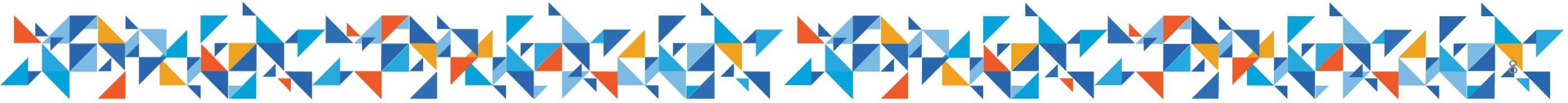
- As explained before, a variable in Java must be a specified data type:

- Data types are divided into two groups:

✓**Primitive data types** - includes byte, short, int, long, float, double, boolean and char

✓**Non-primitive data types** - such as String, Arrays and Classes (you will learn more about these in a later chapter)



Primitive Data Types

- A primitive data type specifies the size and type of variable values, and it has no additional methods.
- There are eight primitive data types in Java:

S.No	Data Type	Size	Description
1.	byte	1 byte	Stores whole numbers from -128 to 127
2.	short	2 bytes	Stores whole numbers from -32,768 to 32,767
3.	int	4 bytes	Stores whole numbers from -2,147,483,648 to 2,147,483,647
4.	long	8 bytes	Stores whole numbers from -9,223,372,036,854,775,808 to 9,223,372,036,854,775,807
5.	float	4 bytes	Stores fractional numbers. Sufficient for storing 6 to 7 decimal digits
6.	double	8 bytes	Stores fractional numbers. Sufficient for storing 15 decimal digits
7.	boolean	1 bit	Stores true or false values
8.	char	2 bytes	Stores a single character/letter or ASCII values

Numbers

- Primitive number types are divided into two groups:

- **Integer types** stores whole numbers, positive or negative (such as 123 or -234), without decimals.
- Valid types are byte, short, int and long.
- Which type you should use, depends on the numeric value.

- **Floating point types** represents numbers with a fractional part, containing one or more decimals.
- There are two types: float and double.

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Thank You…!