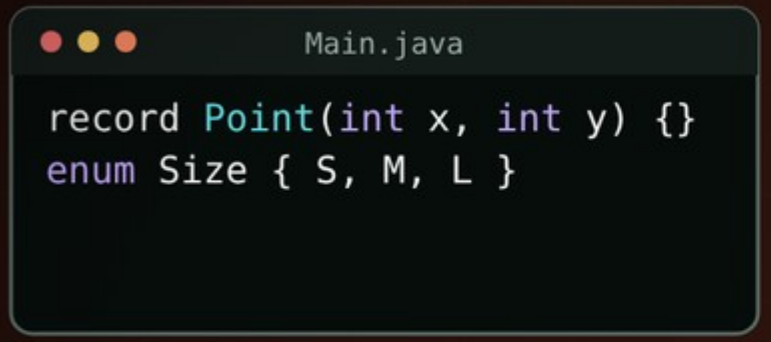
LESSON 7



Java

Records & Enums

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JAVA PROGRAMMING

LESSON 7

Interfaces, Records and Enums

interface, default methods, record, enum and sealed types

Interfaces

Payable.java

```
interface Payable {
    double amountDue();
    default String receipt() {              // default method
        return "Due: " + amountDue();
    }
}
class Invoice implements Payable {
    public double amountDue() { return 250.0; }
}
```

- An interface is a contract: a list of methods a class promises to provide. A class can …
- Code that depends on an interface works with any class that implements it.

01

Functional Interfaces



- Runnable — void run()
- Comparator<T> — int compare(a, b)
- Predicate<T> — boolean test(t)

02

Records

Point.java

```java
record Point(int x, int y) { }

record Student(String name, double score) {
    Student {
        if (score < 0) throw new IllegalArgumentException();
    }
}
var p = new Point(3, 4);
p.x();               // 3
System.out.println(p);   // Point[x=3, y=4]
```

- A record is a short way to write an immutable data class. One line gives you private final …
- Add a compact constructor to validate the values.

03

Enums

Size.java

```
enum Size {
    SMALL(250), MEDIUM(350), LARGE(500);
    final int ml;
    Size(int ml) { this.ml = ml; }
}
Size s = Size.MEDIUM;
s.ml;                   // 350
Size.valueOf("LARGE");  Size.values();
```

- An enum is a type with a fixed set of named values, like the days of the week or the states …
- Java enums are full classes: they can have fields, constructors and methods, and they work …

04

Sealed Types and Pattern Matching

Shapes.java

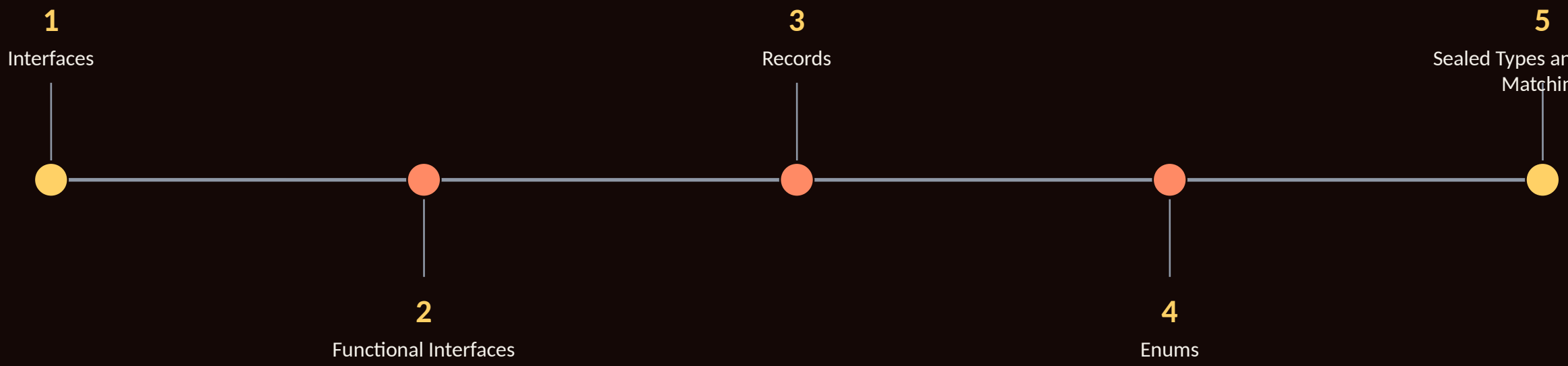
```
sealed interface Shape permits Circle, Rect { }
record Circle(double r) implements Shape { }
record Rect(double w, double h) implements Shape { }

double area(Shape s) {
    return switch (s) {
        case Circle(double r)         -> Math.PI * r * r;
        case Rect(double w, double h) -> w * h;
    };
}
```

- A sealed interface lists exactly which classes may implement it. The compiler then knows …
- A switch with record patterns can take objects apart and must cover every case, so you …

05

Lesson Map


1
Interfaces
2
Functional Interfaces
3
Records
4
Enums
5
Sealed Types and Pattern Matching

Sources and Further Reading

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System.out.println(p);   // Point[x=3, y=4]
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Thank you for watching

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