Java8

got confused when to use map and mapToObect?

**ChatGPT said:**

That's a great question — and a common confusion when working with Java Streams. Let's clarify the **difference between map() and mapToObject()**, and **when to use each**.

**🔹 map() — For Reference Type Stream ➝ Reference Type Stream**

* **Used with:** Stream<T>
* **Returns:** Stream<R>

**Example:**

java

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Stream<String> names = Stream.of("Alice", "Bob");

Stream<Integer> lengths = names.map(String::length); // Returns Stream<Integer>

✅ Use map() when:

* You have a Stream<T> and want to convert each element to another object.
* You're not dealing with **primitive streams** (like IntStream, DoubleStream, etc).

**🔹 mapToObject() — For Primitive Stream ➝ Reference Type Stream**

* **Used with:** IntStream, LongStream, DoubleStream
* **Returns:** Stream<T>

**Example:**

java

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IntStream numbers = IntStream.of(1, 2, 3, 4);

Stream<String> words = numbers.mapToObj(i -> "Num: " + i); // Returns Stream<String>

✅ Use mapToObj() when:

* You're working with a **primitive stream** (like IntStream) and want to convert elements to objects.

**📌 Summary Table**

| **Method** | **Input Stream Type** | **Output Stream Type** | **Use When...** |
| --- | --- | --- | --- |
| map() | Stream<T> | Stream<R> | You’re transforming from object to object |
| mapToObj() | IntStream, etc. | Stream<R> | You’re converting from primitive to object |

**🧠 Real-World Example**

java

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// Using map on Stream<String>

Stream<String> names = Stream.of("Ravi", "Kiran");

names.map(name -> name.toUpperCase());

// Using mapToObj on IntStream

IntStream.range(1, 4)

.mapToObj(i -> "Number: " + i)

.forEach(System.out::println);

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java8 features

###### ChatGPT said:

Here are the **key features of Java 8**, along with simple explanations and examples:

## ✅ 1. ****Lambda Expressions****

Lambda expressions allow you to write **anonymous methods** in a compact way.

🔹 **Before Java 8:**

java

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Runnable r = new Runnable() {

public void run() {

System.out.println("Running...");

}

};

🔹 **With Lambda:**

java

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Runnable r = () -> System.out.println("Running...");

## ✅ 2. ****Functional Interfaces****

An interface with only **one abstract method** (e.g., Runnable, Comparator, etc.).

🔹 Example:

java

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@FunctionalInterface

interface MyFunction {

void execute();

}

## ✅ 3. ****Stream API****

Used to process collections in a **functional style**.

🔹 Example:

java

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List<String> names = Arrays.asList("Tom", "Jerry", "Mickey");

names.stream()

.filter(n -> n.startsWith("M"))

.forEach(System.out::println);

## ✅ 4. ****Default and Static Methods in Interfaces****

🔹 **Default Method:**

java

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interface Vehicle {

default void start() {

System.out.println("Vehicle started");

}

}

🔹 **Static Method:**

java

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interface Vehicle {

static void stop() {

System.out.println("Vehicle stopped");

}

}

## ✅ 5. ****Method References****

Shorthand for lambda expressions that call existing methods.

🔹 Example:

java

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List<String> list = Arrays.asList("A", "B", "C");

list.forEach(System.out::println); // method reference

## ✅ 6. ****Optional Class****

Helps to avoid NullPointerException.

🔹 Example:

java

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Optional<String> name = Optional.ofNullable("John");

name.ifPresent(System.out::println);

## ✅ 7. ****New Date and Time API (java.time)****

Much improved over old Date and Calendar.

🔹 Example:

java

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LocalDate date = LocalDate.now();

LocalTime time = LocalTime.now();

## ✅ 8. ****Collectors & Terminal Operations****

Helps in collecting stream results.

🔹 Example:

java

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List<String> result = list.stream()

.filter(s -> s.length() > 3)

.collect(Collectors.toList());

## ✅ 9. ****Predicate, Function, Consumer Interfaces****

Part of java.util.function package.

🔹 Example - Predicate:

java

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Predicate<String> startsWithA = str -> str.startsWith("A");

System.out.println(startsWithA.test("Apple")); // true

10. Completable feature

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