Java Full Stack Developer Q&A - Part 1

## Q1: What are the features of Java 8?

Java 8 introduced several major features:  
- Lambda Expressions  
- Stream API  
- Functional Interfaces  
- Default and Static methods in Interfaces  
- Optional Class  
- New Date and Time API (java.time)  
- Nashorn JavaScript Engine

## Q2: What is a Functional Interface in Java?

A functional interface has only one abstract method. Used as target types for lambda expressions.  
Example:  
@FunctionalInterface  
interface MyFunc {  
 void execute();  
}

## Q3: Explain Stream API with an example.

Stream API enables functional-style operations on collections.  
Example:  
List<String> names = List.of("Alice", "Bob");  
names.stream().filter(n -> n.startsWith("A")).forEach(System.out::println);

## Q4: What is the difference between HashMap and ConcurrentHashMap?

- HashMap is not thread-safe; ConcurrentHashMap is thread-safe.  
- ConcurrentHashMap uses segments and locks only a portion of the map for concurrency.  
- HashMap allows one null key; ConcurrentHashMap does not allow null keys or values.

## Q5: What is the use of Optional in Java 8?

Optional is a container object to represent null-safe values.  
Example: Optional.ofNullable(value).ifPresent(System.out::println);

## Q6: How does Lambda expression improve code?

It enables concise representation of anonymous functions, improves readability and reduces boilerplate.

## Q7: What are method references in Java 8?

A shorthand notation of lambda expressions. Example: names.forEach(System.out::println);

## Q8: What is the difference between filter() and map() in streams?

filter() is used for conditional selection, while map() transforms each element.  
Example: .filter(n -> n>10), .map(n -> n\*2)

## Q9: How is Date/Time API in Java 8 better?

It is immutable, thread-safe, and more comprehensive. Example: LocalDate, LocalTime, ZonedDateTime

## Q10: What is a default method in an interface?

It provides method implementation in the interface. Allows backward compatibility.  
Example: default void log() { System.out.println("log"); }