Java Interview Cheat Sheet with Practice Problems

Basics

- Data Types → int, double, char, boolean, String, long, float
- Printing → System.out.println("Hello");
- Input → Scanner sc = new Scanner(System.in); int x = sc.nextInt();

Operators

- Arithmetic: + - * / %
- Comparison: == != < > <= >=
- Logical: && || !
- Increment/Decrement: i++, --i

Conditionals

- if (x > 10) { ... } else { ... }

Loops

- for (int i=0; i<5; i++) { }
- while (i<5) { }
- do { } while(i<5);

Arrays

- int[] arr = {1,2,3}; System.out.println(arr[0]); // 1

Strings

- String s = "Hello"; s.length(); s.charAt(0); s.equals("Hi"); s.toUpperCase();

OOP Concepts

- Class & Object → class Car { String color; void drive() { ... } }
- Constructor → Car(String color) { this.color = color; }
- Inheritance → class Dog extends Animal { }
- Polymorphism → Overloading / Overriding
- Encapsulation → private variables + getter/setter
- Abstraction → abstract class / interface

Exception Handling

- try { int a = 5/0; } catch(Exception e) { System.out.println(e); }

Collections

- ArrayList list = new ArrayList<>(); Methods: add(), get(), remove(), size()

Must-Practice Java Coding Problems

Q: Reverse a String

```
String s = "hello";
String rev = "";
for (int i=s.length()-1; i>=0; i--) rev += s.charAt(i);
System.out.println(rev);
```

Q: Check Palindrome

```
String s = "madam";
String rev = new StringBuilder(s).reverse().toString();
System.out.println(s.equals(rev) ? "Palindrome" : "Not Palindrome");
```

Q: Factorial

```
int n=5, fact=1;
for(int i=1; i<=n; i++) fact *= i;
System.out.println(fact);
```

Q: Fibonacci

```
int a=0, b=1;
for(int i=0; i<5; i++) {
   System.out.print(a + " ");
   int c=a+b; a=b; b=c;
}
```

Q: Largest in Array

```
int[] arr = {2,5,1,9,3};
int max = arr[0];
for(int i=1; i<arr.length; i++) {
   if(arr[i] > max) max = arr[i];
}
System.out.println("Max: " + max);
```