

Java Basics Quick Reference

Basic Program Structure

```
public class HelloWorld {  
    public static void main(String[] args) {  
        System.out.println("Hello, World!");  
    }  
}
```

Variable Declarations

```
// Integer  
int age = 25;  
int count = 0;  
  
// Floating point  
double price = 19.99;  
float temperature = 98.6f;  
  
// Character and String  
char grade = 'A';  
String name = "John Doe";  
  
// Boolean  
boolean isActive = true;  
boolean isComplete = false;
```

Basic Data Types

- **int**: whole numbers (-2,147,483,648 to 2,147,483,647)
- **double**: decimal numbers (64-bit precision)
- **boolean**: true or false
- **char**: single character ('A', 'l', '@')
- **String**: text ("Hello World")

Basic Operations

```
// Arithmetic  
int sum = 10 + 5;           // 15  
int difference = 10 - 3;    // 7  
int product = 4 * 6;        // 24  
int quotient = 15 / 3;      // 5  
int remainder = 17 % 5;     // 2  
  
// Comparison  
boolean isEqual = (5 == 5); // true  
boolean isGreater = (10 > 5); // true  
boolean isLess = (3 < 8);    // true
```

Output to Console

```
System.out.println("Hello World");           // With new line
System.out.print("Hello ");                  // Without new line
System.out.println("Age: " + age);           // With variable
System.out.printf("Price: $%.2f", price);    // Formatted output
```

Simple Input (Scanner)

```
import java.util.Scanner;

Scanner input = new Scanner(System.in);
System.out.print("Enter your name: ");
String name = input.nextLine();

System.out.print("Enter your age: ");
int age = input.nextInt();
```

Basic Control Structures

```
// If statement
if (age >= 18) {
    System.out.println("Adult");
} else {
    System.out.println("Minor");
}

// For loop
for (int i = 1; i <= 5; i++) {
    System.out.println("Count: " + i);
}

// While loop
int count = 0;
while (count < 3) {
    System.out.println("Count: " + count);
    count++;
}
```

Common Mistakes to Avoid

- Forgetting semicolons ;
- Not matching braces {}
- Case sensitivity issues
- Not importing Scanner when using input
- Using = instead of == for comparison