Java Programming - Module 1 Cheat Sheet (1.1 to 1.10)

1.1 History of Java

Developed by Sun Microsystems (Dr. James Gosling). Originally Oak, renamed Java in 1995. Key principle: 'Write Once, Run Anywhere'. Runs on JVM. First release in 1996. Acquired by Oracle in 2010.

1.2 Basic Syntax and Structure

Each Java program starts with a class and main method. Statements end with ; and are case-sensitive. Uses CamelCase. Example:

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

1.3 Data Types and Variables

Primitive: int, float, double, char, boolean, etc. Reference: String, arrays, objects. Example:

```
int age = 25;
String name = "Java";
```

1.4 Operators and Expressions

Arithmetic (+, -, *, /), Relational (==, !=, >), Logical (&&, ||), Assignment (=, +=), Unary (++/--). Example:

```
int x = 5;
x += 3; // x is now 8
```

1.5 Console Input/Output

Output: System.out.print/println. Input: Scanner sc = new Scanner(System.in);

```
int age = sc.nextInt();
sc.close();
```

1.6 Writing & Running Java Programs

Write in .java file. Compile with 'javac File.java'. Run with 'java ClassName'. IDEs like IntelliJ or Eclipse are preferred for ease.

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1.7 Summary of Module 1

Covers Java history, structure, variables, operators, input/output, and execution. Prepares base for OOP and projects.

1.8 Keywords

Important: class, public, static, void, main, new, int, String. Reserved words cannot be used as identifiers.

1.9 Self-Assessment Questions

1. List Java's historical milestones.
2. How does Java enforce strong typing?
3. Difference between int and String?
4. What is Scanner used for?
5. Explain '==' vs '='.

1.10 Case Study: XYZ Corporation

Scenario: Replace old systems using Java. Task: Use class structures, variables, operators, and I/O to build a prototype. Start with simple programs.