Java Data Types :

1. **byte**:
   The `byte` data type is an 8-bit signed integer, which means it can hold values between -128 and 127.

   ```java
   byte myByte = 42;
   ```

2. **short**:
   The `short` data type is a 16-bit signed integer, with a range from -32,768 to 32,767.

   ```java
   short myShort = 10000;
   ```

3. **int**:
   The `int` data type is a 32-bit signed integer, with a range from -2^31 to 2^31 - 1.

   ```java
   int myInt = 1000000;
   ```

4. **long**:
   The `long` data type is a 64-bit signed integer, with a larger range from -2^63 to 2^63 - 1. To specify a `long` literal, you should append an 'L' or 'l' to the value.

   ```java
   long myLong = 1000000000L;
   ```

5. **float**:
   The `float` data type is a 32-bit floating-point type, used to represent decimal numbers. It has lower precision compared to `double`.

   ```java
   float myFloat = 3.14f;
   ```

6. **double**:
   The `double` data type is a 64-bit floating-point type, offering higher precision for decimal numbers.

```java
double myDouble = 3.14159;
```

7. **char**:
   The `char` data type is a 16-bit Unicode character, representing a single character. It is enclosed in single quotes.

```java
char myChar = 'A';
```

8. **boolean**:
   The `boolean` data type represents a binary value, either `true` or `false`.

```java
boolean isJavaFun = true;
boolean isCodingHard = false;
```

Remember that primitive data types have specific sizes and ranges. They are used to efficiently store basic values in memory.

Here's a comprehensive example using these data types:

```java
public class DataTypesExample {
    public static void main(String[] args) {
        byte myByte = 42;
        short myShort = 10000;
        int myInt = 1000000;
        long myLong = 1000000000L;
        float myFloat = 3.14f;
        double myDouble = 3.14159;
        char myChar = 'A';
        boolean isTrue = true;

        System.out.println("byte: " + myByte);
        System.out.println("short: " + myShort);
        System.out.println("int: " + myInt);
        System.out.println("long: " + myLong);
        System.out.println("float: " + myFloat);
        System.out.println("double: " + myDouble);
```

```
        System.out.println("char: " + myChar);
        System.out.println("boolean: " + isTrue);
    }
}
```

This program demonstrates the initialization and printing of variables of each primitive data type.