Variables and data types play a significant role in programming as they are used to store and manipulate data.

Variables act as containers for holding data values. They have names that programmers assign to them, which allows for easy reference and manipulation of data. When a variable is created, a memory space is allocated to store its value.

Data types define the kind of data that can be stored in a variable. Different programming languages offer different data types, but commonly used ones include integers, floating-point numbers, characters, strings, boolleans, and arrays.

Here's how variables and data types are used:

1. Storing and Retrieving Data: Variables allow programmers to store data values that can be accessed and used later in the program. For example, a variable "age" can store an integer value representing a person's age. The value can be retrieved and used in calculations or comparisons.

2. Manipulating Data: Variables allow for the manipulation of data using various operations such as arithmetic (addition, subtraction, multiplication, etc.) and logical (AND, OR, NOT, etc.) operations. For example, variables can be used to perform calculations or concatenate strings.

3. Type Safety: Data types ensure that only compatible values can be stored in variables and prevent unintended operations. For example, a variable of type integer cannot store a string value. Type safety helps catch errors during compilation or runtime.

4. Memory Optimization: Data types help optimize memory usage by allocating the appropriate amount of memory for storing values. For instance, an integer typically requires less memory than a floating-point number.

By using variables and data types effectively, programmers can store and manipulate data accurately and efficiently in their programs.