208077

CSC 341: DATA STRUCTURES ASSIGNMENT (2021/2022 SESSION)

Primitive Data Types

These are set of basic data types from which all other data types are constructed. They are data type that are built on into a programming language, or one that could be characterized as a basic structure for building more sophisticated data types. It is predefined by the language and is named by a reserved keyword, which means that all variables must first be declared before they can be used. This involves stating the variable's type and name, as seen below:

```
int plate = 1;
```

Doing so tells your program that a field named "plate" exists, holds numerical data, and has an initial value of "1". A variable's data type determines the values it may contain, plus the operations that may be performed on it. Primitive values do not share state with other primitive values. The common eight primitive data types are:

byte
The byte data type is an 8-bit signed two's complement integer. It has a minimum value of -128 and a maximum value of 127 (inclusive). The byte data type can be useful for saving memory in large arrays, where the memory savings actually matters.

short
The short data type is a 16-bit signed two's complement integer. It has a minimum value of -32,768 and a maximum value of 32,767 (inclusive). As with byte, the same guidelines apply: you can use a short to save memory in large arrays, in situations where the memory savings actually matters.

int
By default, the int data type is a 32-bit signed two's complement integer, which has a minimum value of -231 and a maximum value of 231-1.

long
The long data type is a 64-bit two's complement integer. The signed long has a minimum value of -263 and a maximum value of 263-1.

float
The float data type is a single-precision 32-bit IEEE 754 floating point. As with the recommendations for byte and short, use a float (instead of double) if you need to save memory in large arrays of floating point numbers. This data type should never be used for precise values, such as currency.

double
The double data type is a double-precision 64-bit IEEE 754 floating point. For decimal values, this data type is generally the default choice. This data type should never be used for precise values, such as currency.

boolean
The Boolean data type has only two possible values: true and false. Use this data type for simple flags that track true/false conditions.

char
The char data type is a single 16-bit Unicode character. It has a minimum value of '\u0000' (or 0) and a maximum value of '\uffff' (or 65,535 inclusive).