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SCT211-0055/2022

PROGRAMMING LANGUAGES ASSIGNMENT (ICS 2204)

Variables:

Variables are named storage locations in a program's memory where data can be stored and retrieved.

Variables enable the programmer to give meaningful names to data which makes the code more readable and easier to maintain.

Variables hold various types of data and the data values can be changed when the program is being executed.

Variables allow the programmer to store and retain data for later use in the program.

Data Types:

These are named constructs that specify the set of values and a set of allowable operations that can be performed on them. Examples are; integers, Floating-points, Boolean(bool), List/Array, String(str), and Dictionary.

Each data type has associated operations and constraints. For instance, mathematical operations can only be performed on integers and floats but not strings without converting them first.

Storage:

Integers- They store whole numbers like 1,2,5,68 etc.

Floating-point- They store numbers with decimal points like 3.5,78.9 etc.

String- stores text or sequence of characters like "Nairobi".

Boolean- stores true or false values.

Arrays- store collection of data.

Dictionary- stores key-value pairs.

Data manipulation:

Arithmetic operations – mathematical operations like addition, subtraction, multiplication, and division are done on numeric data types.

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Logical Operations – Boolean data types are used in conditional statements to make decisions in the code.

String manipulations – with string data types it's possible to concatenate, split, search, and replace text.

Data structures – variables store collection of data such as lists, arrays, and dictionaries that can be iterated, filtered, sorted, and modified.