CS108L Computer Science for All
Week 3: Computer Science Concepts

Loop
A loop is an instruction or set of instructions that is performed over and over again.

Iterations
Iterations are the number of times a loop is run

Conditional Loop
A conditional loop is a loop that runs until a certain condition is met. For instance a loop that has a turtle stop moving once it gets to the edge of a map is a conditional loop.

Iterated Loop
An iterated loop is a loop that runs a predetermined number of times. For example, a loop that adds up 10 numbers is an iterated loop.

Infinite Loop
An infinite loop is a loop that runs endlessly, either due to the loop having no terminating condition, having one that can never be met, one that causes the loop to start over, or having a condition that requires user input, such as clicking a button, to stop. For example, a simple screen saver may loop endlessly until the keyboard or mouse is used.

RGB Color
RGB color is a color representation scheme that uses a combination of red, green, and blue mixed together to create colors.

HSL/HSB Color
HSB color is a color representation scheme that uses a combination of hue, saturation, and lightness to create colors.

Indexed Color
Indexed color a color representation scheme used to save computer memory by making a list of the colors you want to use beforehand and giving each of those colors a number, or index, to identify it.

Complex System
A complex system is a collection of simple units or agents or smaller systems interacting in a system according to simple rules. Large scale behaviors of the system are hard to understand and predict and may change, evolve, or adapt.

Leaderless
A group of units or agents that have no one agent giving instructions to the others is called “Leaderless”. Leaderless systems can be thought of as decentralized systems.

Emergent Patterns
Emergent patterns are patterns that emerge from the interaction of individual agents and may become apparent from observation.

Nonlinearity
Nonlinearity is a mathematical concept that says the whole is more than the sum of the parts. For example $(2 + 5)^2 = 49$ $2^2 + 5^2 = 29$.

Self Organization
Self organization is a process where some form of global order or coordination arises out of the local interactions between the units or agents of an initially disordered system.

Variable
A variable is storage location that contains a value. This storage location has a name. The value of the variable can change as the program is executed. Variables are generally declared (named), initialized (given an initial value), and modified (have the value changed) during the execution of a program.

Local Variable
A local variable is a variable that is only used in a portion of the program, such as a procedure. It cannot be called in a different portion of the program.

Abstraction
A simplification process. Ignoring some details to focus on what is important at that time.

Levels of Abstraction
Each level of the abstraction includes things \that can be grouped together in some way.