Notes for the Introductory Chapter

Swarup Tripathy *

January 2022

A curated key points with regards to the introductory chapter.

1. As for memory, a small computer might have hundreds of gigabytes of storage. How big is that? If a byte (the number of bits, typically eight, required to represent one character) weighed one gram(which it doesn't), 100 gigabytes would weigh 10000 metric tons. For comparison, that's roughly the combined weight of 15000 African elephants.

2. Heron of Alexandria was the first to document a way to compute the square root of a number.

3. An algorithm is a finite list of instructions that describe a **computation** that when executed on a set of inputs will proceed through a set of well-defined states and eventually produce an output.

4. The first truly modern computer was the Manchester Mark 1

5. Most often, the interpreter simply goes to the next instruction in the sequence, but not always. In some cases, it performs a test, and on the basis of that test, execution may jump to some other point in the sequence of instructions. This is called **flow of control**.

6. In 1936, the british mathematician Alan Turing described a hypothetical computing device that has come to be called a Universal Turing Machine.

7. Anything that can be programmed in one programming language (e.g., Python) can be programmed in any other programming language (e.g., Java)

*John V Guttag

8. Python is not optimal for programs that have high reliability constraints (because of its weak static semantic checking) or that are built and maintained by many people or over a long period of time (again because of the weak static semantic checking)

9. Python was introduced by Guido Von Rossum in 1990

10. Within the computer, values of type float are stored in the computer as **floating point numbers.**

11. In python, variable names can contain uppercase and lowercase letters, digits(but they can not start with a digit), and the special character.

12. Unicode standard is a character coding system designed to support the digital processing and display of the written texts of all languages. The standard contaims more than 120,000 different characters - covering 129 modern and historic scripts and multiple symbol sets.

13. You can tell python which encoding to use by inserting a comment of the form -*- coding: encoding name -*-