

COL1000: Introduction to Programming

Nuts & Bolts of Python – Variables, Expressions, Assignments

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Reminders!

Network Etiquette

- Do NOT share passwords!
 - Change it frequently
- Don't send repetitive/abusive/SPAM mass emails
 - Differentiate between *Reply* and *Reply-All*
- Don't use unlicensed s/w on the IITD Network
 - Net access can be **terminated**
- Don't download pirated content — it is criminal!

(Python) Programming Essentials: Variables

- Storage locations in memory that holds a **value**
 - Can be changed in the program
 - Identified by a **name**. Eg: **x**, **userName**, ...
 - Values could be integers, strings, boolean etc.
 - The *kind of* values that a variable holds is called a **type** (eg: Int, Float, String, etc.)
 - **Scope**: Until which part of the program can one access the variable

(Python) Programming Essentials: Statement

- An instruction that performs an action
- Assignment Statement: **x := 9, userName := “svs”, ...**
- I/O Statement: **print(“Hello”), name = input(“enter your name”)**
- Control Statement: if C: <stmt>
- **Function** Statement: **svs()**
 - **Function** is a reusable code of the program — to avoid repetition
 - **X := foo(y)** here **X** is the return value, **foo** is the name of the function, **y** is the argument
- Expressions are computable parts of the statement. E.g: **y:= “svs” + “is” + “cool”** — RHS is an expression

(Python) Programming Essentials: Operators

- Arithmetic: +, -, *, //, /, %
- Relational: <, >, <=, >=, !=, ...
- Logical: and, or, not
- Membership: in
- Build compound: (), [], {}, "", ""

Computing History Trivia

- Variables: inspired by the variables in Maths (FORTRAN 1957)
- Functions: As first-class citizens to be passed around as data (LISP 1958)
- Compound Statements/Expressions: With begin .. end or { .. } (ALGOL 1960)
- First computer program: Ada Lovelace 1840 on Analytical Engine (by Charles Babbage)