PRINCIPLES OF PROGRAMMING LANGUAGES

Course Overview

Prafullata Kiran Auradkar
Computer Science and Engineering

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PES UNIVERSITY ONLINE

1. What this course is…
2. What this course is not…
3. Reasons for studying this course
4. Programming Domains

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What Is This Course About...

- Understanding various constructs in programming languages from different perspectives

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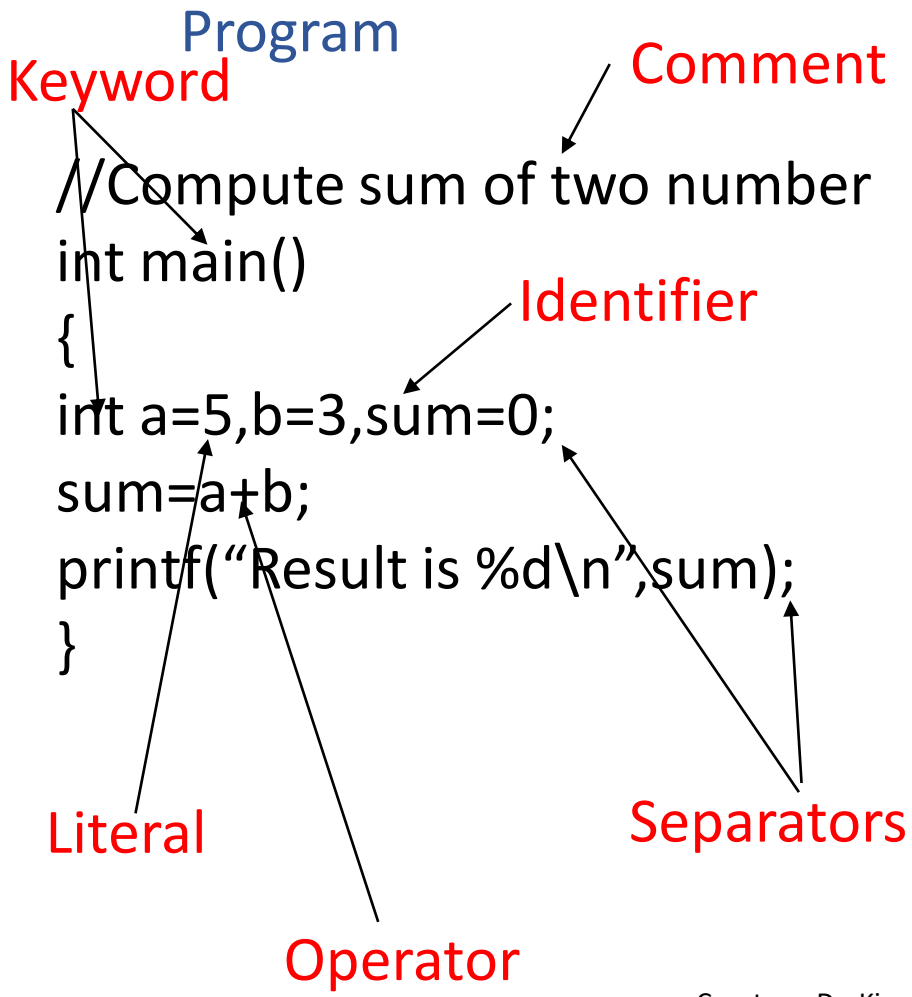
Different Views of Program



Programmer View:

- Result=8

Designer View :

- Design of comment
- Selecting Keywords
- Requirement of Identifier
- Selecting Separators
- Selecting Operators
- Designing Scopes
- Designing Literals
- …..etc

Courtesy: Dr. Kiran, Faculty @ PESU

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What Is This Course About...

- Evaluating the suitability of these constructs for diverse requirements.
- Getting to know the necessity of so many languages!!!

https://www.scienceabc.com/innovation/why-are-there-so-many-programming-languages.html

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Course Is Not About...

- Learning any programming language.
- Exploring about any one programming paradigm.
- coding expertise.
- Problem solving

Though we would be using

- Code snippets to illustrate the features of interest.
- look into various programming paradigms with working examples.
- write few programs to verify the constructs and their limitations.

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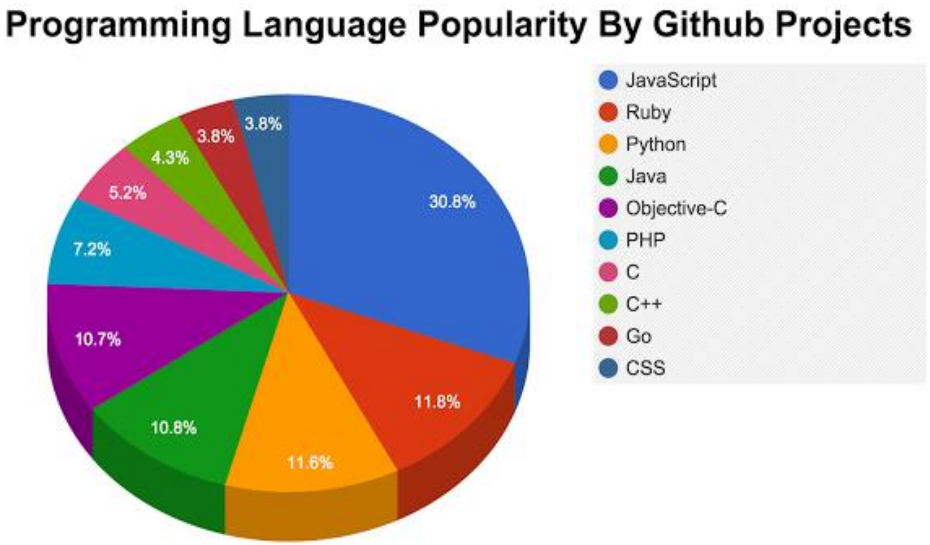
Points to Ponder:

- Why so many Programming Languages?
- Who develop so many Programming Languages ?
- What Influences design of Programming Languages ?
  (Computer Architecture and Programming methodologies)
- What makes Programming Language successful ?



https://www.juniorcoders.ca/blog/why-are-there-so-many-programming-languages/

PRINCIPLES OF PROGRAMMING LANGUAGES

TIOBE Programming Community Ranking

Jun 2020	Jun 2019	Change	Programming Language	Ratings	Change
1	2	↑	C	17.19%	+3.89%
2	1	↓	Java	16.10%	+1.10%
3	3		Python	8.36%	-0.16%
4	4		C++	5.95%	-1.43%
5	6	↑	C#	4.73%	+0.24%
6	5	↓	Visual Basic	4.69%	+0.07%
7	7		JavaScript	2.27%	-0.44%
8	8		PHP	2.26%	-0.30%
9	22	⇈	R	2.19%	+1.27%
10	9	↓	SQL	1.73%	-0.50%
11	11		Swift	1.46%	+0.04%
12	15	↑	Go	1.02%	-0.24%
13	13		Ruby	0.98%	-0.41%
14	10	⇊	Assembly language	0.97%	-0.51%
15	18	↑	MATLAB	0.90%	-0.18%

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Reasons for Studying This Course:

- Increased capacity to express ideas.
- Improved background for choosing a language.
- Increased ability to learn new languages.
- To understand implementations of languages in a better way.
- Better use of languages that are already known.
- Better overall understanding of computing.

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Programming Domains

- Scientific Applications: Fortran, ADA, MATLAB
- Business Applications: Java Script, Python, Go, Elixir, Scala
- System Programming: C, C++, Rust
- Network Programming: C/C++, Python, Java, Go
- AI & ML: LISP, Haskell, Java, TensorFlow(C++ & Python)
- Data Analysis: R, Python, Java , Julia
- Web Programming: Java, Python, Scripting - PHP, JavaScript …

THANK YOU

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