

CSE-105: Structured Programming Language

Lecture 1

Introductory Lecture

CSE-105

- Course Code: **CSE-105**
- Course Title: Structured Programming Language
- Course Teacher: **Dr. Ashikur Rahman**
Associate Professor, Dept. of CSE, BUET
- Credit: **3**
- Course Website: <http://teacher.buet.ac.bd/ashikur/CSE105>

My Brief Profile

- Dr. Ashikur Rahman

Associate Professor, CSE, BUET.

B.Sc.: BUET, 1998

M.Sc.: BUET, 2001

Ph.D.: University of Alberta, Canada, 2006

Postdoc: University of Calgary, Canada, 2011

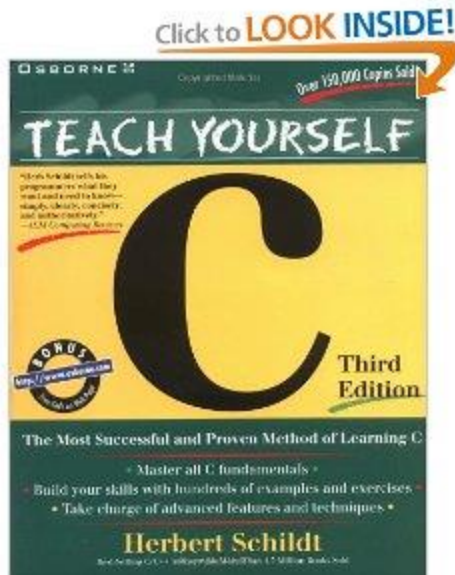
State University of New York, USA, 2012

Syllabus

- constant, variable and data types,
- operator and expression, type conversion,
- decision making, branching and looping,
- arrays and strings,
- user defined functions,
- structures and union, bit field and bit-wise operations,
- pointer,
- file management in C,
- dynamic memory allocation and linked list

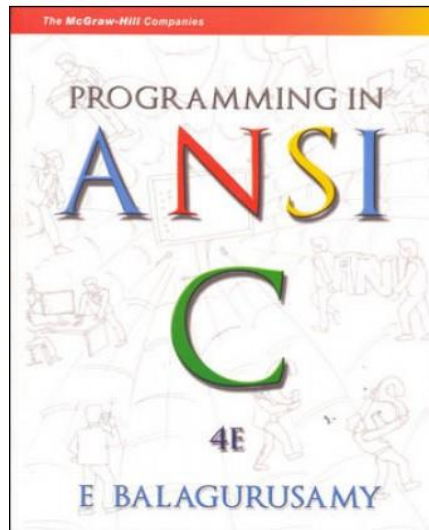
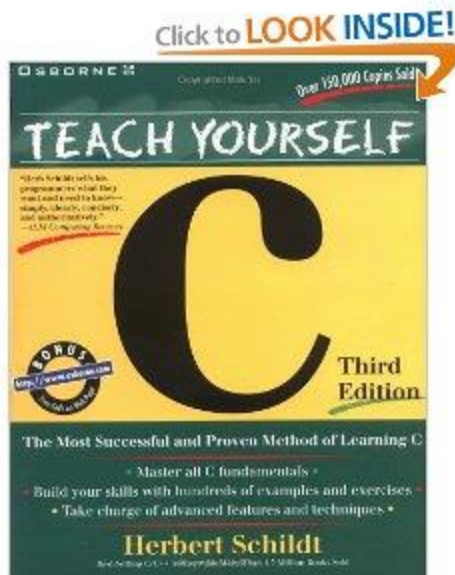
Reference Book

- Text:
 - Teach Yourself C (3rd Edition) – Herbert Schildt



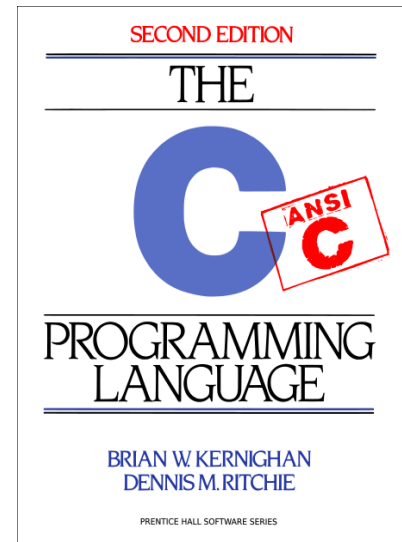
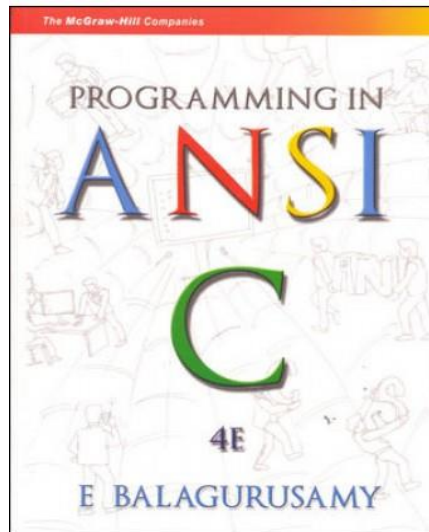
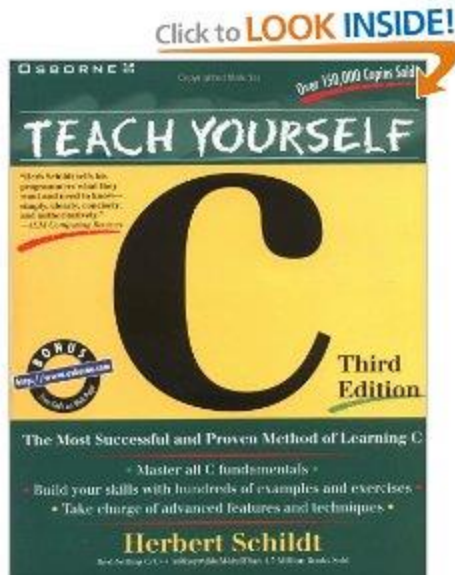
Reference Book

- Text:
 - Teach Yourself C (3rd Edition) – Herbert Schildt
 - Programming in ANSI C – Balagurusamy



Reference Book

- Text:
 - Teach Yourself C (3rd Edition) – Herbert Schildt
 - Programming in ANSI C – Balagurusamy
 - The C programming language – K & R



Learning Style

- This course is practical oriented (and not a theoretical course).
- Three key techniques to perform better in this course:

(1) Practice
(2) Practice
and (3) Practice

- (because practice makes a man perfect 😊)
- Memorization will not help you to get a good result.
- Copying Code:
 - Strictly prohibited.
 - Will be severely punished if you are caught.

Who is the inventor of C
Programming Language?







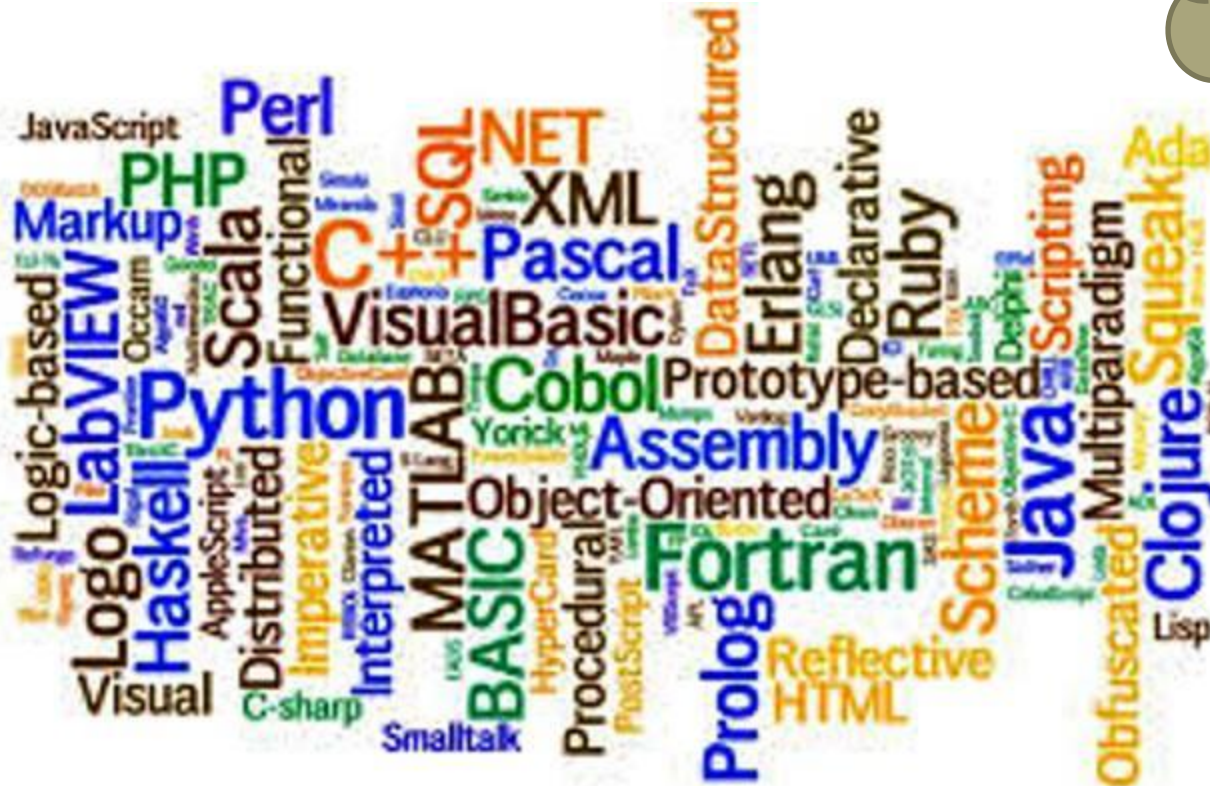
C Brief History

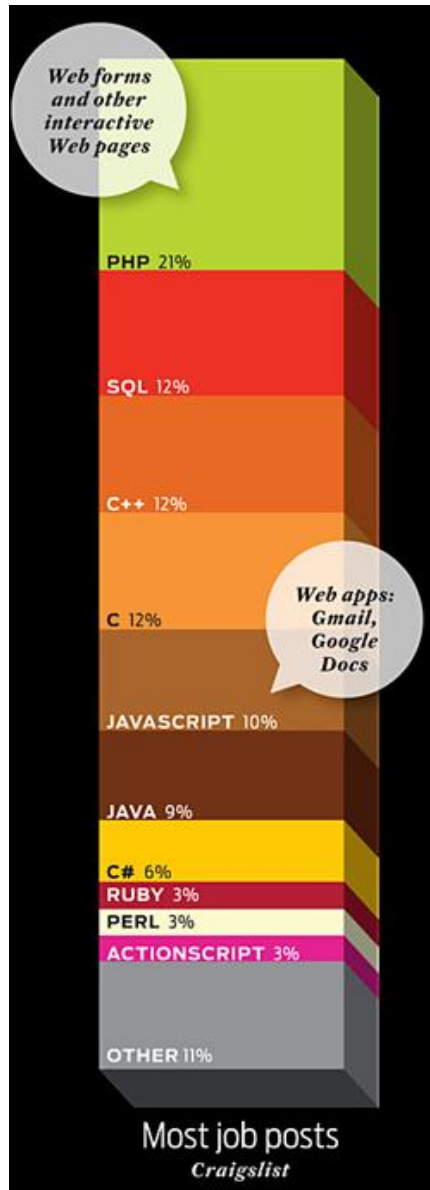
- Developed by Dennis Ritchie at AT&T, early 70s
- Unix written in, closely associated with, C
- Family of languages:
 - Fortran, IBM, 1957
 - LISP, John McCarthy, Stanford, 1958
 - Algo, 1958
 - COBOL, Business language, 1959
 - Pascal, Niklaus Wirth 1968
 - BCPL, Martin Richards , 1970
 - B (typeless), Ken Thompson, 1970
 - C, Dennis Ritchie, Bell Labs, early 1972
 - C++, Bjarne Stroustrup, Bell Labs, 80s (First official version in 93)
 - Java, James Gosling Sun, 1995
 - C#, Microsoft, recently
- C++, Java, C# conserve (much) C syntax



Which programming language?

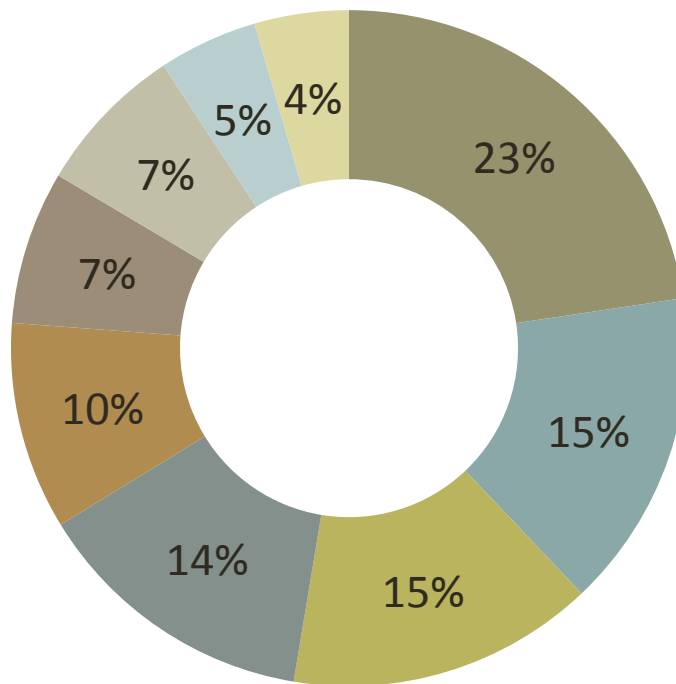
What
the
hell!!





2011 Job Posting USA

Programming Languages in Demand

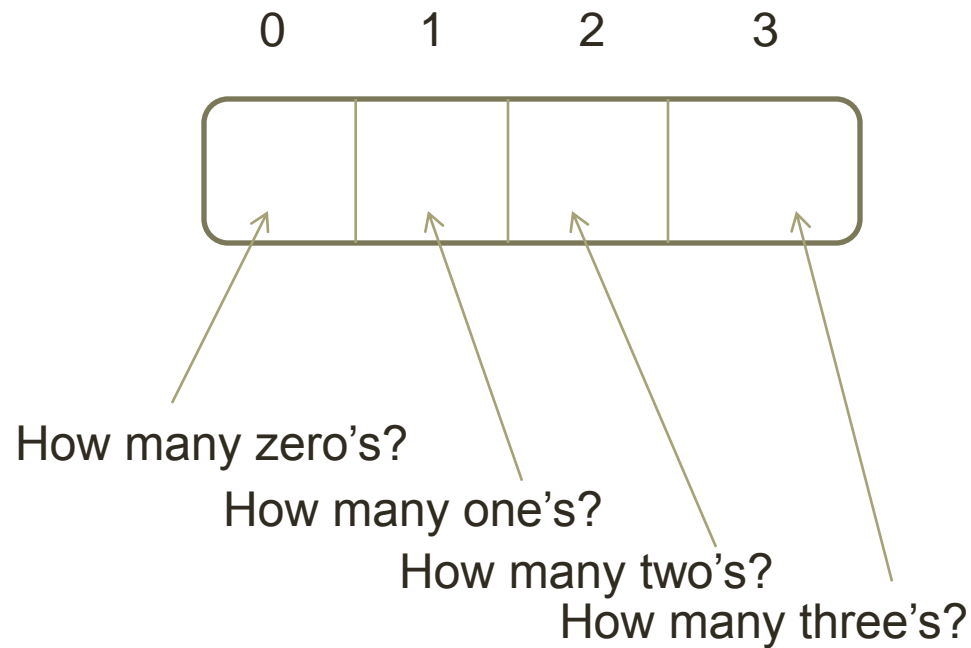


2013 Job Posting USA

Why should we learn programming?

Helps us to solve many, many, many, many, interesting, useful and/or complex problems

4-digit number problem:



Birthday Problem:

1	3	5	7
9	11	13	15
17	19	21	23
25	27	29	31

2	3	6	7
10	11	14	15
18	19	22	23
26	27	30	31

4	5	6	7
12	13	14	15
20	21	22	23
28	29	30	31

8	9	10	11
12	13	14	15
24	25	26	27
28	29	30	31

16	17	18	19
20	21	22	23
24	25	26	27
28	29	30	31

3 and 8 are good enough!

14 =

$3+3+8$

15 =

$3+3+3+3+3$

16 =

$8+8$

How to solve all these interesting problems?



But computer can only understand 0's and 1's!

- Computer's language
 - 0's and 1's
 - Machine language
 - Hard to code for human beings
- What's the solution then?
 - Develop English like-languages
 - High-level languages like C
 - Let compiler translate at the background

A Simple C Code

```
#include <stdio.h>

int main()
{
    printf("I like C programming");
    return 0;
}
```

How to Run

- Save a source code with extension “c” or “cpp”. (Ex: **first.c**)
- Compile it and link it
 - Output: first.exe
- Run the program.
- Output of the program:
 - I like C programming