C PROGRAMMING

LECTURE 1

BASICS OF C PROGRAMMING

INTRODUCTION:

1. C is a low-level language

--- Suitable language for systems programming.

2. C is a small language

---relies on a “library” of standard functions.

3. C is a permissive language

---it assumes that you know what you’re doing, so it allows you a wider degree of latitude than many languages. It doesn’t mandate the detailed error-checking found in other language.

- First program

```
#include <stdio.h>

main()

{

   printf(“ Hello World!!”);

}
```

- Preprocessing: the program is given to a preprocessor, which obeys commands that begin with #(directives).
- Compiling: modified program→compiler→object code.
- Linking: add library functions to yield a complete executable program.

KEYWORDS:

auto double int struct break else long switch

Case enum register typedef char extern return union

Const float short unsigned continue for signed void

Default goto sizeof volatile do if static while

DATATYPES:

C has following data types and their respective ranges:

Type	Storage size	Value range
char	1 byte	-128 to 127 or 0 to 255
unsigned char	1 byte	0 to 255
signed char	1 byte	-128 to 127
int	2 or 4 bytes	-32,768 to 32,767 or -2,147,483,648 to 2,147,483,647
unsigned int	2 or 4 bytes	0 to 65,535 or 0 to 4,294,967,295
short	2 bytes	-32,768 to 32,767
unsigned short	2 bytes	0 to 65,535
long	4 bytes	-2,147,483,648 to 2,147,483,647
unsigned long	4 bytes	0 to 4,294,967,295

EXPRESSIONS:

- Arithmetic operator: +, -, *, /, %, ++, --.....
- Relational operator: <, >, <=, >=, !=
- Logical operator: &&, ||
- The binary arithmetic operators (*, /, %, + and -) are all left associative
  i – j – k = (i – j) – k i * j / k = (i * j) / k
- The unary arithmetic operators(+ and -) are both right associative
  - + i = - (+i)

CONDITIONAL EXPRESSIONS:

- expr1? expr2:expr3;
- if expr1 is true then expr2 else expr3