Lecture - 4

C Instructions:

1. Type Declaration Instruction:
   ```
   int x ;
   float y ;
   char z ;
   ```

2. Input / Output Instruction
   ```
   scanf(…);
   printf(…);
   inportb(…);
   outportb(…);
   ```

3. Arithmetic Instruction
   ```
   c = b + d ;
   p = m * n / q ;
   ```

4. Control Instruction
   a. Sequence control instruction
   b. Selection or decision control instruction
   c. Repetition or Loop control instruction
   d. Case control instruction

Data Types in C:

Type	Keyword	Size	Range
Void	void	0 byte	0
Character	char	1 byte	unsigned : 0 to (2^8-1)
			signed : (-2^7) to $+(2^7-1)$
Integer	int	2 bytes (for DOS)	unsigned: 0 to $(2^{16}-1)$
		4 bytes (for Unix)	signed : (-2^{15}) to $+(2^{15}-1)$
Floating point	float	4 bytes	unsigned : 0 to $(2^{32}-1)$
			signed : (-2^{31}) to $+(2^{31}-1)$
Double	double	8 byte	unsigned : 0 to $(2^{64}-1)$
			signed : (-2^{63}) to $+(2^{63}-1)$

Type modifiers: signed, unsigned, long, short.
Size of short is given into the above data types table.
Size of long = 2n bytes, where short = n bytes.
*Exception: Size of long double = 10 bytes

Constants:

integer: 234
long integer: 1234l / 1234L unsigned
integer: 1234u / 1234U unsigned long
integer: 1234ul / 1234UL float constant:
123.4f / 123.4F
double constant: 123.4
long double: 12.34l
hex constant: 0xff / 0XFF
octal constant: 077
character constant (ASCII): ‘a’

ASCII = American standard code of Information & Interchange.

Interpreting characters (scape sequence):

\a → alert (bell)
\b → backspace
\f → form feed
\n → new line
\r → carriage return
\t → horizontal tab
\v → vertical tab
\\ → back slash
\’ → single quote
\” → double quote
\? → question mark
\0 → NULL

Example:

```
#include<stdio.h>
void main()
{
printf(“\tHellow \nWorld”);
}
```

```
    Hellow
World
```