



ME 172

C Programming Language Sessional
Lecture 2

Introduction to C Program

A simple C program

/*A first program in C*/

#include<stdio.h>

//Header files to be included

void main (void)

//main C program

{

printf("Hello! Welcome to C!"); *//printf()* is a library function

}

to display output

Introduction to C Program

About the C Preprocessor

- The *C Preprocessor* is the first part of the compilation process (it happens before the “true” compilation)
- It processes the source code using text substitution rules that are specified by the programmer
- Such rules are specified within the source file, each on a line beginning with a # (known as *directives*)

Introduction to C Program

The #include Directive

- Replaces the directive line with the contents of the file referred to in the directive

For example:

```
#include <filename.h>
```

- The file *filename.h* is known as a *header file*
- The header file will (hopefully) be found in one of the folders specified in the compiler's *include path*

Introduction to C Program

Header Files

- Information about all the library function is found here
- Compiler uses this information to handle the library functions properly.
- All header files end with a extension *.h*
- *#include<stdio.h>*
- *#include<stdlib.h>*
- *Include<math.h>*

Introduction to C Program

Functions

- Building blocks of C
- All C program consists of One or More functions
- General form of C function are

```
return_type    function_name (parameter list)  
{  
  statements;  
}
```

- ❖ Every C program must have a function name *main()*

Introduction to C Program

User Defined Functions

- User can define any function to perform operations
- Typical example is

```
void course_name (void)  
{  
printf("ME 172");  
}
```

Introduction to C Program

Library Functions

- These are the function provided by C compiler
- Collection of these function usually referred to C standard library
- Standard library functions performed *input/output operation, mathematical computation, string manipulation and much more*
- *printf(), scanf()* are the example of library function

Introduction to C Program

Statements

- Statements are actually perform the operation
- All C statements end with a semicolon (;)
- A simple statement is

a= b+c; / a is assigned the value of b + c */*



Introduction to C Compiler

How C compilers Work

Executing a program written in C involves following steps:

- Creating the program (Editor)
- Compiling the program (Compiler)
- Linking the program with functions that are needed from the C library (Linker)
- Executing the program

Comments

- Comments begin with a `/*`
and end with a `*/`
- They can span multiple lines
- New-style (C++ style) comments are single line comments, starting with a `//` and running to the end of the line
- Comments are *strongly recommended!!*

You can't make a comment inside a comment.

Problem

Write a C programming code that will display the name of the Four Tennis Players who have qualified for semi-final in US Open 2011.

Introduction to C Program

➤ C is a Structured Programming

Basic Structure of a C Program

Header File

Example: `#include<stdio.h>`

Define CONSTANTS

Function Prototype Declaration

Main Function Declaration

```
int main()
{
return 0;
}
```

```
void
{
}
```

`int main()`

```
{
```

variable declaration;

/ Every variable used in the function must be declared locally or globally */*

Example: `int a=5; float x = 7.0;`

Library function

`scanf("format", & variable);`

// input function (comment)

Example: `scanf("%d %f",&a,&x);`

User defined functions

`if/for loop/D0-while loop;`

//control/logical statements

`printf("format", variable/expression);`

// output statements

Example: `printf("%d %f",a,x);`

`return 0;`

```
}
```

Introduction to C Program

➤ C is a Structured Programming

Basic Structure of a C Program

Header File

Example: #include<stdio.h>

Define CONSTANTS

Function Prototype Declaration

Main Function Declaration

```
int main()
{
return 0;
}
```

```
void
{
}
```

int main()

{

variable declaration;

Example: int a=5; float x = 7.0;

Library function

scanf("format", & variable);

Example: scanf("%d %f", &a, &x);

User defined functions

if/for loop/DO-while loop;

printf("format", variable/expression);

Example: printf("%d %f", a, x);

return 0;

}

/* Every variable used in the function must be declared locally or globally */

// input function (comment)

//control/logical statements

// output statements



Thanks