Course No: EE 1222
Course Titles: Sessional on Computer Programming and Fundamentals

Lecture: Introduction to C programming

Md. Sajjad Hossain
Lecturer, Department of EEE

What is C?

- C is a general-purpose programming language created by Dennis Ritchie at the Bell Laboratories in 1972.
- It is a very popular language, despite being old. The main reason for its popularity is because it is a fundamental language in the field of computer science.
- C is strongly associated with UNIX, as it was developed to write the UNIX operating system.

Why Learn C?

- It is one of the most popular programming languages in the world
- If you know C, you will have no problem learning other popular programming languages such as Java, Python, C++, C#, etc, as the syntax is similar
- If you know C, you will understand how computer memory works
- C is very fast, compared to other programming languages, like Java and Python
- C is very versatile; it can be used in both applications and technologies

Install C

If you want to run C on your own computer, you need two things:

- A text editor, like Notepad, to write C code
- A compiler, like GCC, to translate the C code into a language that the computer will understand

Install IDE

An IDE (Integrated Development Environment) is used to edit AND compile the code. Popular IDE's include Code::Blocks, Eclipse, and Visual Studio. These are all free, and they can be used to both edit and debug C code.

Note: Web-based IDE's can work as well, but functionality is limited.

We will use Code::Blocks in our tutorial, which we believe is a good place to start.

You can find the latest version of Codeblocks at http://www.codeblocks.org/. Download the mingw-setup.exe file, which will install the text editor with a compiler.

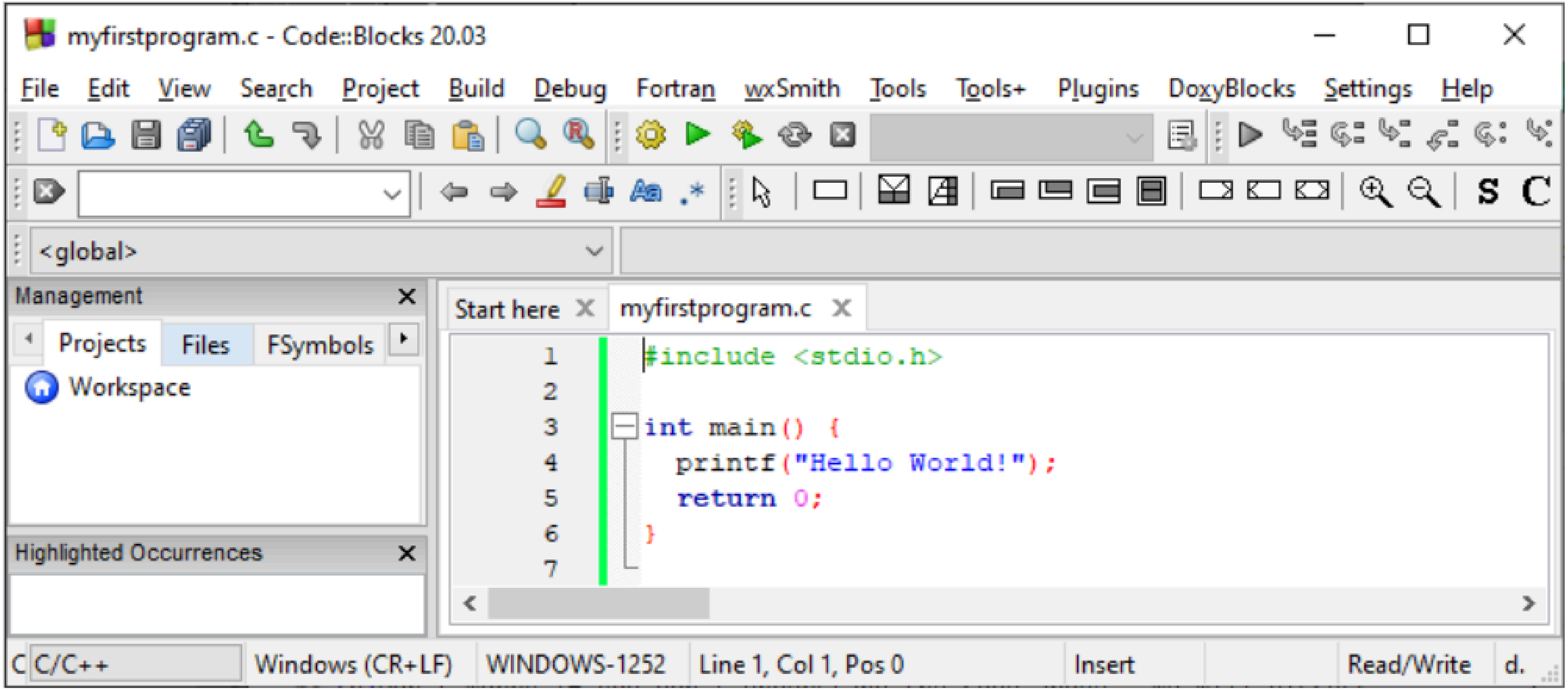
Let's create our first C file.
Open Codeblocks and go to File > New > Empty File.
Write the following C code and save the file
as myfirstprogram.c (File > Save File as):

n.c

```
io.h>


lo World!");
```

Get Started With C



Then, go to **Build > Build and Run** to run (execute) the program

```
Hello World!
Process returned 0 (0x0) execution time : 0.011 s
Press any key to continue.
```

C Syntax

```
n.c

io.h>


lo World!");
```

C Syntax

```
n.c

io.h>


lo World!");
```

Line 1: #include <stdio.h> is a header file library that lets us work with input and output functions, such as printf() (used in line 4). Header files add functionality to C programs.

Line 2: A blank line. C ignores white space. But we use it to make the code more readable.

Line 3: Another thing that always appear in a C program is main(). This is called a function. Any code inside its curly brackets {} will be executed.

Line 4: printf() is a function used to output/print text to the screen. In our example, it will output "Hello World!".

Line 5: return 0 ends the main() function.

Line 6: Do not forget to add the closing curly bracket } to actually end the main

C Statements

```
n.c

io.h>


lo World!");
```

A computer program is a list of "instructions" to be "executed" by a computer.
In a programming language, these programming instructions are called statements.
The following statement "instructs" the compiler to print the text "Hello World" to the screen:

It is important that you end the statement with a semicolon ;
If you forget the semicolon (;), an error will occur and the program will not run:

C Output

n.c

```
io.h>


lo World!");
```

To output values or print text in C, you can use the printf() function:

When you are working with text, it must be wrapped inside double quotations marks "".

C New Lines

```c
#include <stdio.h>

int main() {
  printf("Hello World!\n");
  printf("I am learning C.");
  return 0;
}
```

```
Hello World!
I am learning C.
```

```c
#include <stdio.h>

int main() {
  printf("Hello World!\nI am learning C.\nAnd it is awesome!");
  return 0;
}
```

```
Hello World!
I am learning C.
And it is awesome!
```

C Comments

- Comments can be used to explain code, and to make it more readable. It can also be used to prevent execution when testing alternative code.
- Comments can be singled-lined or multi-lined.

Single Line Comment

```c
printf("Hello World!"); // This is a comment
```

Multiple Line Comment

```c
/* The code below will print the words Hello World!
to the screen, and it is amazing */
printf("Hello World!");
```

Thank you