

INTRODUCTION TO PROGRAMMING

C AND JULIA

LECTURE 02: HELLO WORLD

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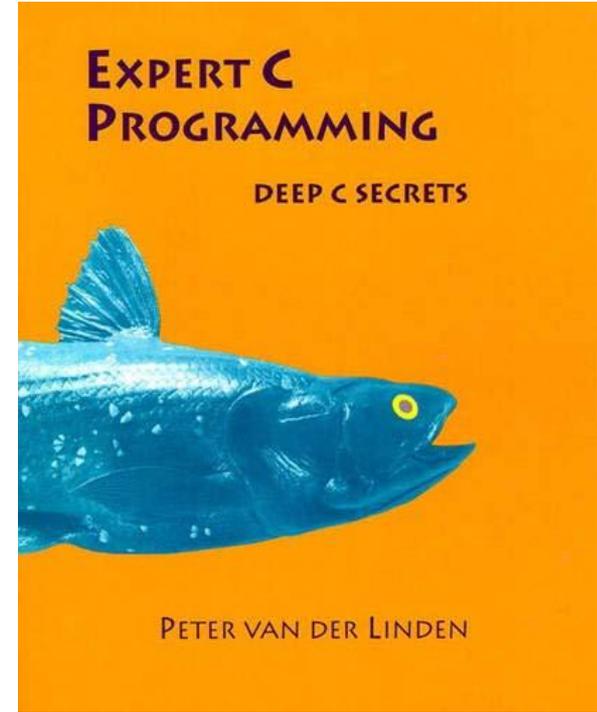
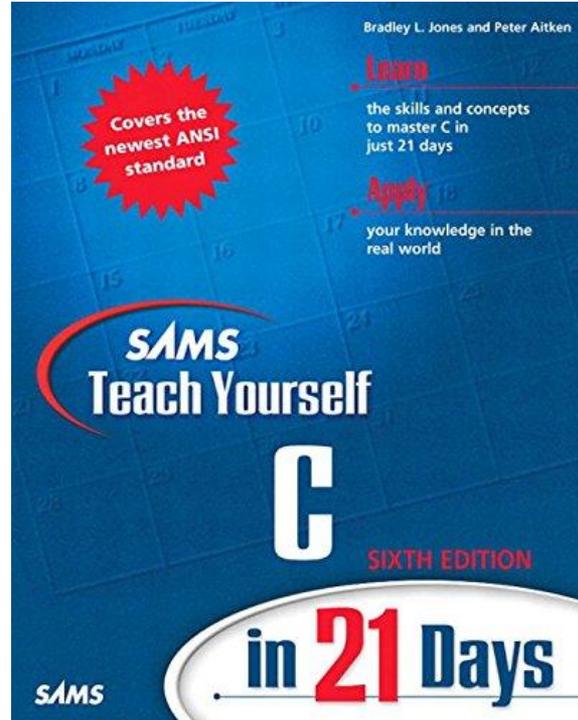
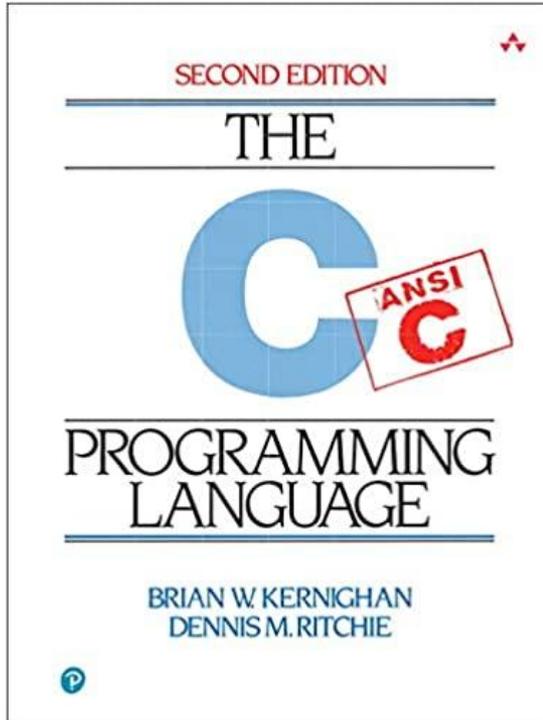
ram.krish@saiuniversity.edu.in



23-Sept-2022

REFERENCES

Recommended Reading



CONVENTIONAL CORE OF C

Conventional Core of C

1. Variables	6. Arrays
2. Arithmetic Expressions	7. Functions
3. for statement	8. Arguments - Call by value
4. Symbolic Constants	9. Character Arrays
5. Character input and output	10. External Variables & Scope

FIRST PROGRAM
PRINTING **Hello World**

hello.c

```
#include <stdio.h>

int main()
{
    printf("hello world\n");
    return 0;
}
```

Compilation in terminal

```
$ gcc hello.c -o hello.bin
```

```
$ ./hello.bin
```

```
hello world
```

Note:

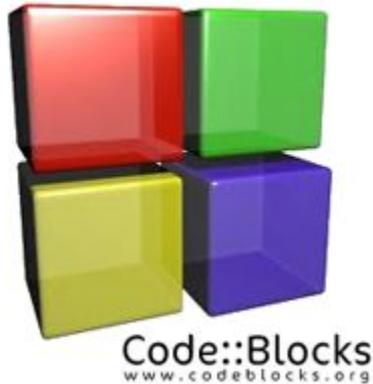
If we do not specify explicitly the output binary file with **-o** tag, then the default binary executable is named as **a.out**

RUN THE PROGRAM
IN
CODE BLOCKS

Recommended IDE (*Integrated Development Environment*)

<https://www.codeblocks.org/>

<https://www.codeblocks.org/downloads/>



[Code::Blocks / Downloads](#)

Downloads

There are different ways to download and install Code::Blocks on your computer:

- [Download the binary release](#)

This is the easy way for installing Code::Blocks. Download the setup file, run it on your computer and Code::Blocks will be installed, ready for you to work with it. Can't get any easier than that!

- [Download a nightly build](#)

There are also more recent so-called nightly builds available in the [forums](#). Please note that we consider nightly builds to be stable, usually, unless stated otherwise.

- Other distributions usually follow provided by the community (big "Thank you!" for that!). If you want to provide some, make sure to announce in the forums such that we can put it on the official C::B homepage.

TOOL FOR C PROGRAMMING

Recommended IDE (Integrated Development Environment)

<http://www.codeblocks.org/downloads/binaries/>

Binary releases

Please select a setup package depending on your platform:

- [Windows XP / Vista / 7 / 8.x / 10](#)
- [Linux 32 and 64-bit](#)
- [Mac OS X](#)



Microsoft Windows

File	Download from
codeblocks-20.03-setup.exe	FossHUB or Sourceforge.net
codeblocks-20.03-setup-nonadmin.exe	FossHUB or Sourceforge.net
codeblocks-20.03-nosetup.zip	FossHUB or Sourceforge.net
codeblocks-20.03mingw-setup.exe	FossHUB or Sourceforge.net
codeblocks-20.03mingw-nosetup.zip	FossHUB or Sourceforge.net
codeblocks-20.03-32bit-setup.exe	FossHUB or Sourceforge.net
codeblocks-20.03-32bit-setup-nonadmin.exe	FossHUB or Sourceforge.net
codeblocks-20.03-32bit-nosetup.zip	FossHUB or Sourceforge.net
codeblocks-20.03mingw-32bit-setup.exe	FossHUB or Sourceforge.net
codeblocks-20.03mingw-32bit-nosetup.zip	FossHUB or Sourceforge.net



Mac OS X

File	Download from
CodeBlocks-13.12-mac.zip	FossHUB or Sourceforge.net

NOTES:

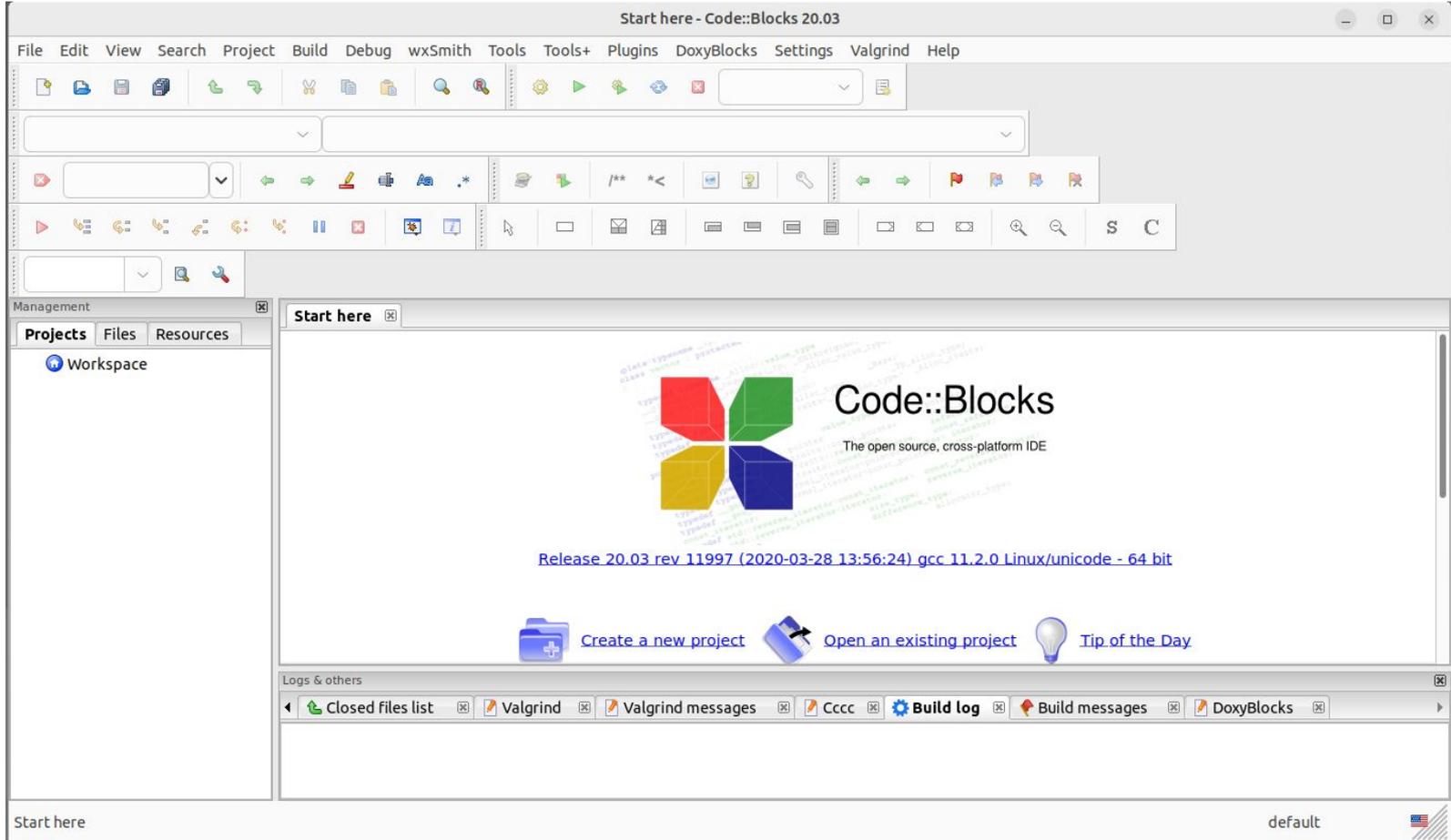
- Code::Blocks 20.03 for Mac is currently not available due to issues caused by Apple hardening their install packages and lack of Mac developers. We could use an extra Mac developer to work on these issues.
- The provided download contains an Application Bundle (for the i386 architecture) built for Mac OS X 10.6 (and later), bundling most Code::Blocks plugins.



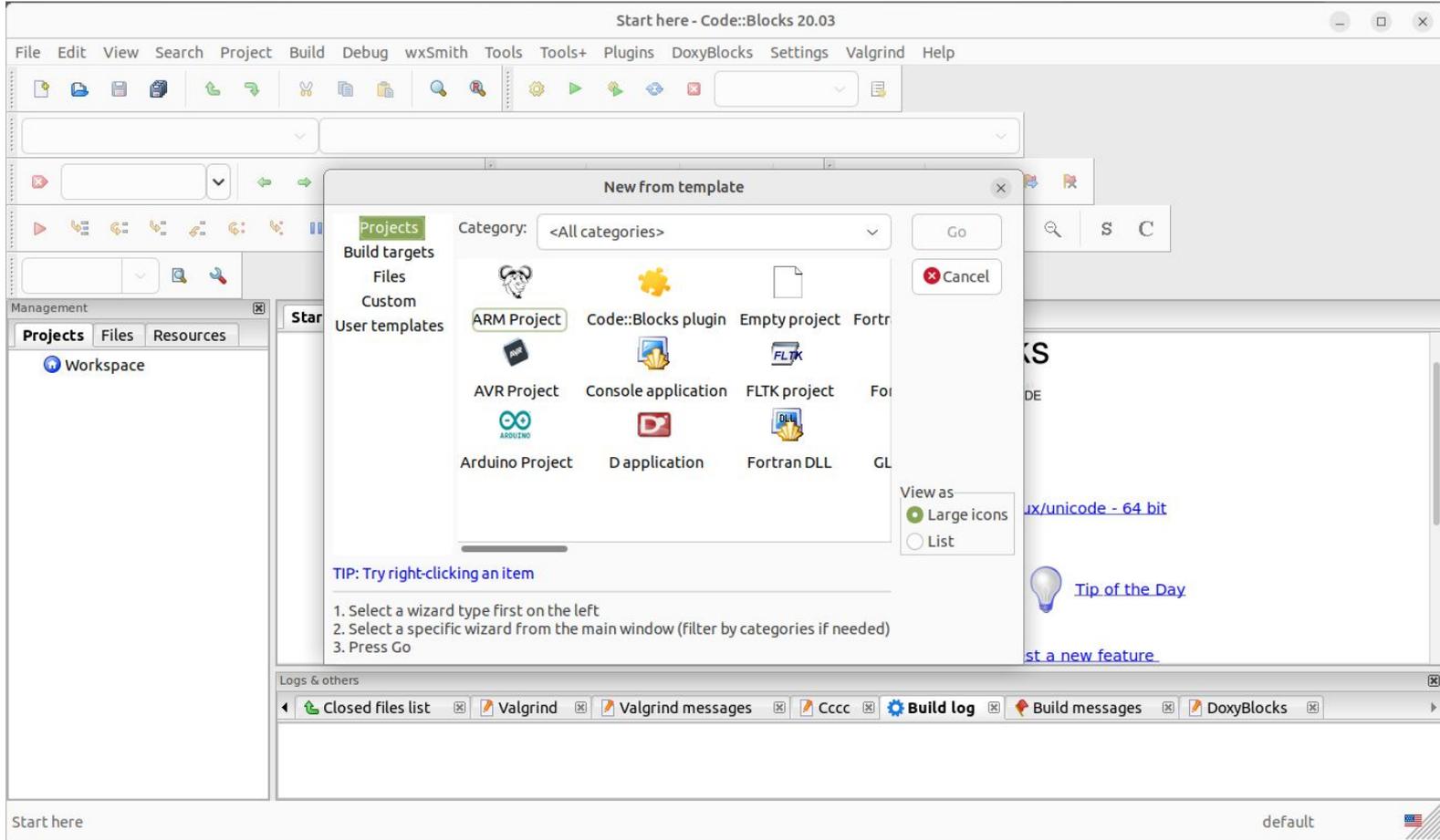
Linux 32 and 64-bit

Distro	File	Download from
	codeblocks_20.03_amd64_oldstable.tar.xz	FossHUB or Sourceforge.net
	codeblocks_20.03_i386_oldstable.tar.xz	FossHUB or Sourceforge.net
	codeblocks_20.03_amd64_stable.tar.xz	FossHUB or Sourceforge.net
	codeblocks_20.03_i386_stable.tar.xz	FossHUB or Sourceforge.net
	codeblocks-20.03-1.el6.rmp.s.tar	FossHUB or Sourceforge.net
	codeblocks-20.03-1.el7.rmp.s.tar	FossHUB or Sourceforge.net
	For Ubuntu, use this PPA	

FIRST PROGRAM



FIRST PROGRAM



The screenshot shows the Code::Blocks 20.03 IDE interface. The main window title is "Start here - Code::Blocks 20.03". The menu bar includes File, Edit, View, Search, Project, Build, Debug, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Valgrind, and Help. The toolbar contains various icons for file operations and development actions. A "New from template" dialog box is open in the center, displaying a grid of project templates. The "Projects" category is selected on the left sidebar of the dialog. The "Category" dropdown is set to "<All categories>". The "Views" section at the bottom right of the dialog has "Large icons" selected. Below the grid, a "TIP: Try right-clicking an item" is displayed with a numbered list: 1. Select a wizard type first on the left; 2. Select a specific wizard from the main window (filter by categories if needed); 3. Press Go. The background IDE shows a "Management" sidebar with "Projects", "Files", and "Resources" tabs, and a "Workspace" area. The bottom status bar shows "Start here" and "default". The "Logs & others" panel at the bottom contains tabs for "Closed files list", "Valgrind", "Valgrind messages", "Cccc", "Build log", "Build messages", and "DoxyBlocks".

Start here - Code::Blocks 20.03

File Edit View Search Project Build Debug wxSmith Tools Tools+ Plugins DoxyBlocks Settings Valgrind Help

Management

Projects Files Resources

Workspace

Start here

default

Logs & others

Closed files list Valgrind Valgrind messages Cccc Build log Build messages DoxyBlocks

View as

- Large icons
- List

TIP: Try right-clicking an item

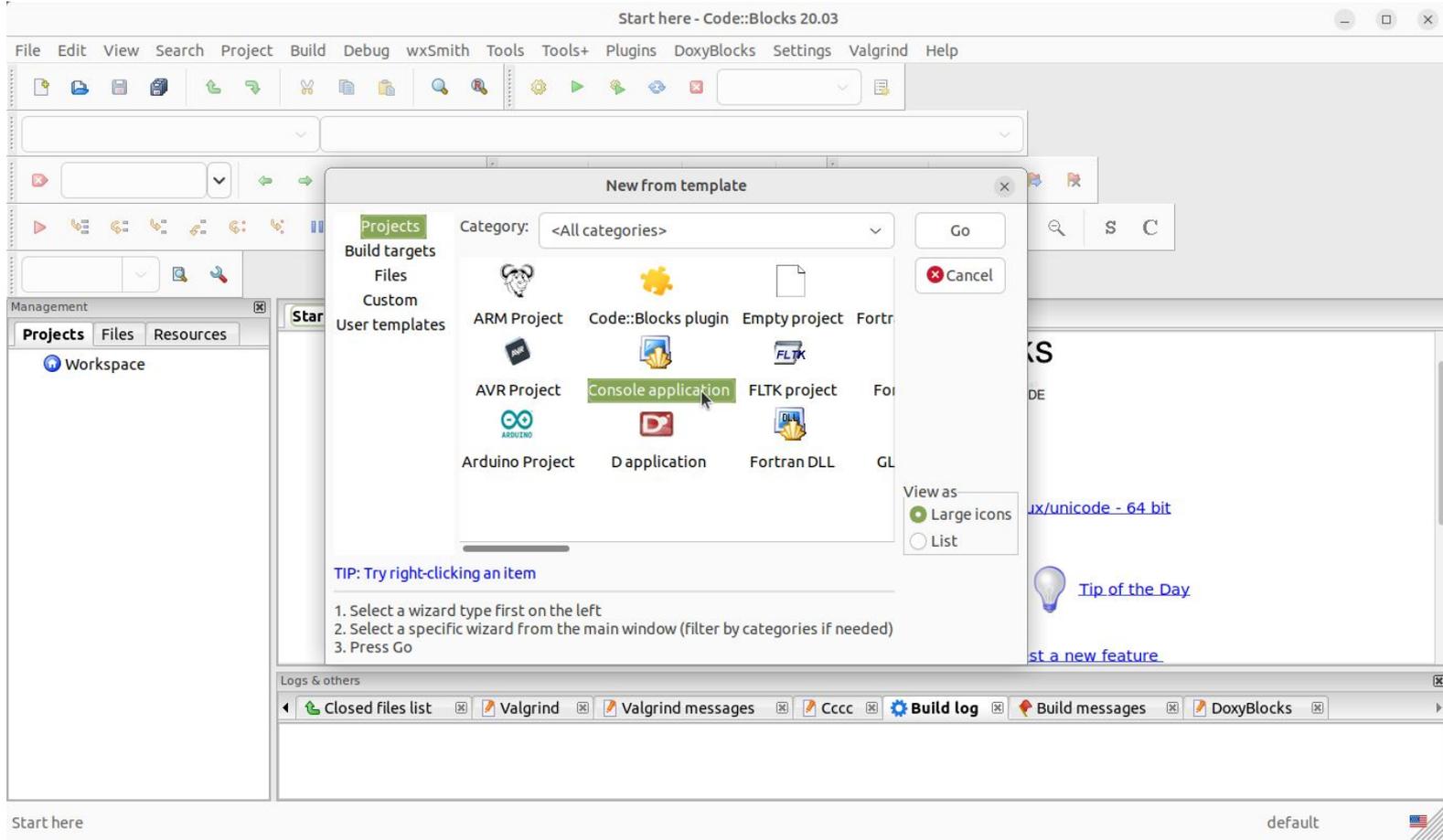
1. Select a wizard type first on the left
2. Select a specific wizard from the main window (filter by categories if needed)
3. Press Go

ARM Project Code::Blocks plugin Empty project Fortran project

AVR Project Console application FLTK project Fortran DLL

Arduino Project D application Fortran DLL GL

FIRST PROGRAM



The screenshot shows the Code::Blocks IDE interface. The main window title is "Start here - Code::Blocks 20.03". The menu bar includes File, Edit, View, Search, Project, Build, Debug, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Valgrind, and Help. The toolbar contains various icons for file operations and development. The "New from template" dialog box is open, displaying a grid of project templates. The "Console application" template is highlighted with a green border. The dialog also shows a "Category" dropdown set to "<All categories>", a "Go" button, and a "Cancel" button. A "View as" dropdown is set to "Large icons".

New from template

Category: <All categories>

Go Cancel

Projects

Build targets

Files

Custom

User templates

ARM Project Code::Blocks plugin Empty project Fortran project

AVR Project **Console application** FLTK project Fortran DLL

Arduino Project D application Fortran DLL GL

View as

Large icons

List

TIP: Try right-clicking an item

1. Select a wizard type first on the left
2. Select a specific wizard from the main window (filter by categories if needed)
3. Press Go

Workspace

Management

Projects Files Resources

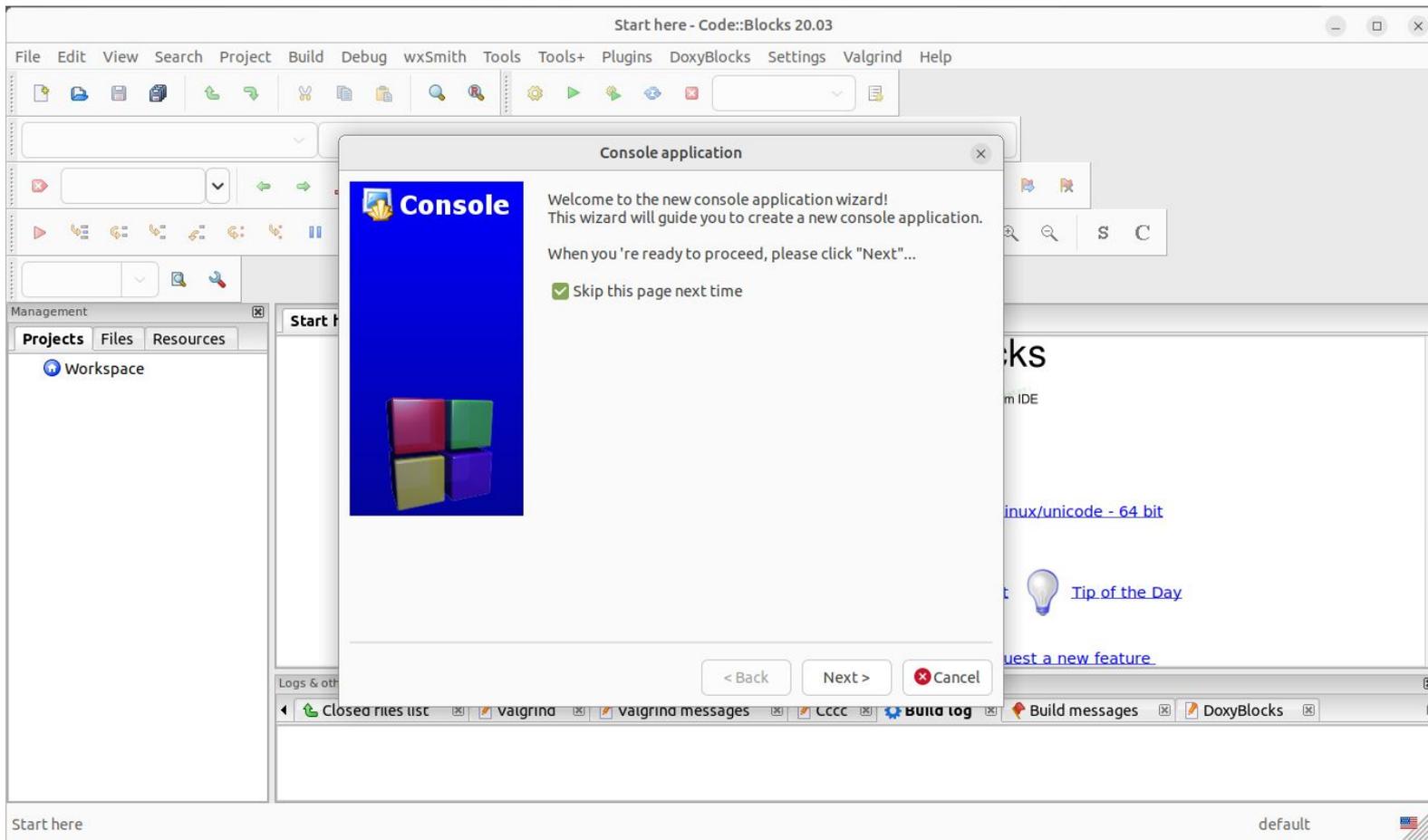
Workspace

Logs & others

Closed files list Valgrind Valgrind messages Cccc Build log Build messages DoxyBlocks

Start here default

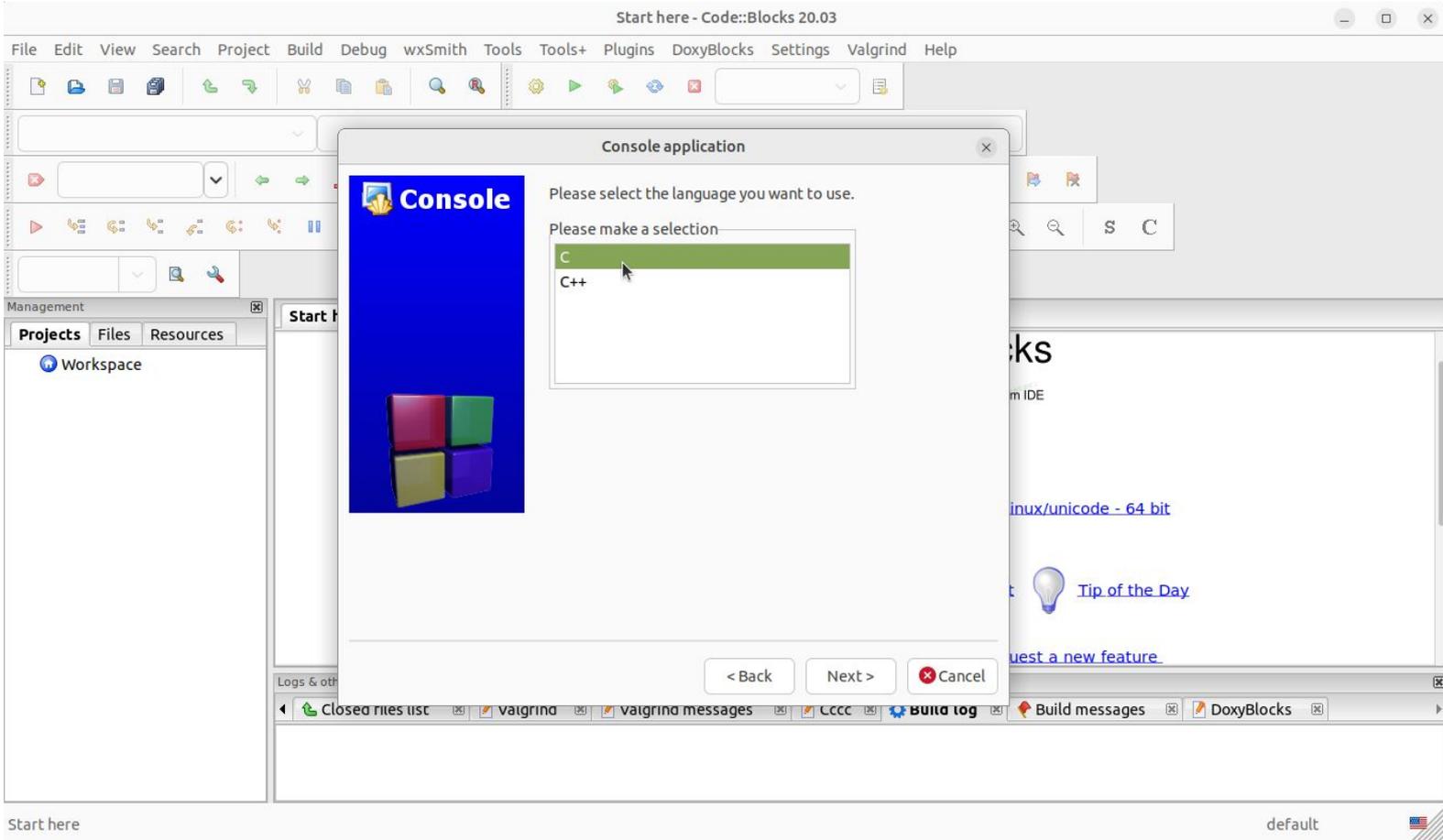
FIRST PROGRAM



The screenshot shows the Code::Blocks IDE interface. A dialog box titled "Console application" is open in the center. The dialog has a blue header with a hand icon and the word "Console". The main text reads: "Welcome to the new console application wizard! This wizard will guide you to create a new console application. When you're ready to proceed, please click 'Next'...". Below this text is a checked checkbox labeled "Skip this page next time". At the bottom of the dialog are three buttons: "< Back", "Next >", and "Cancel".

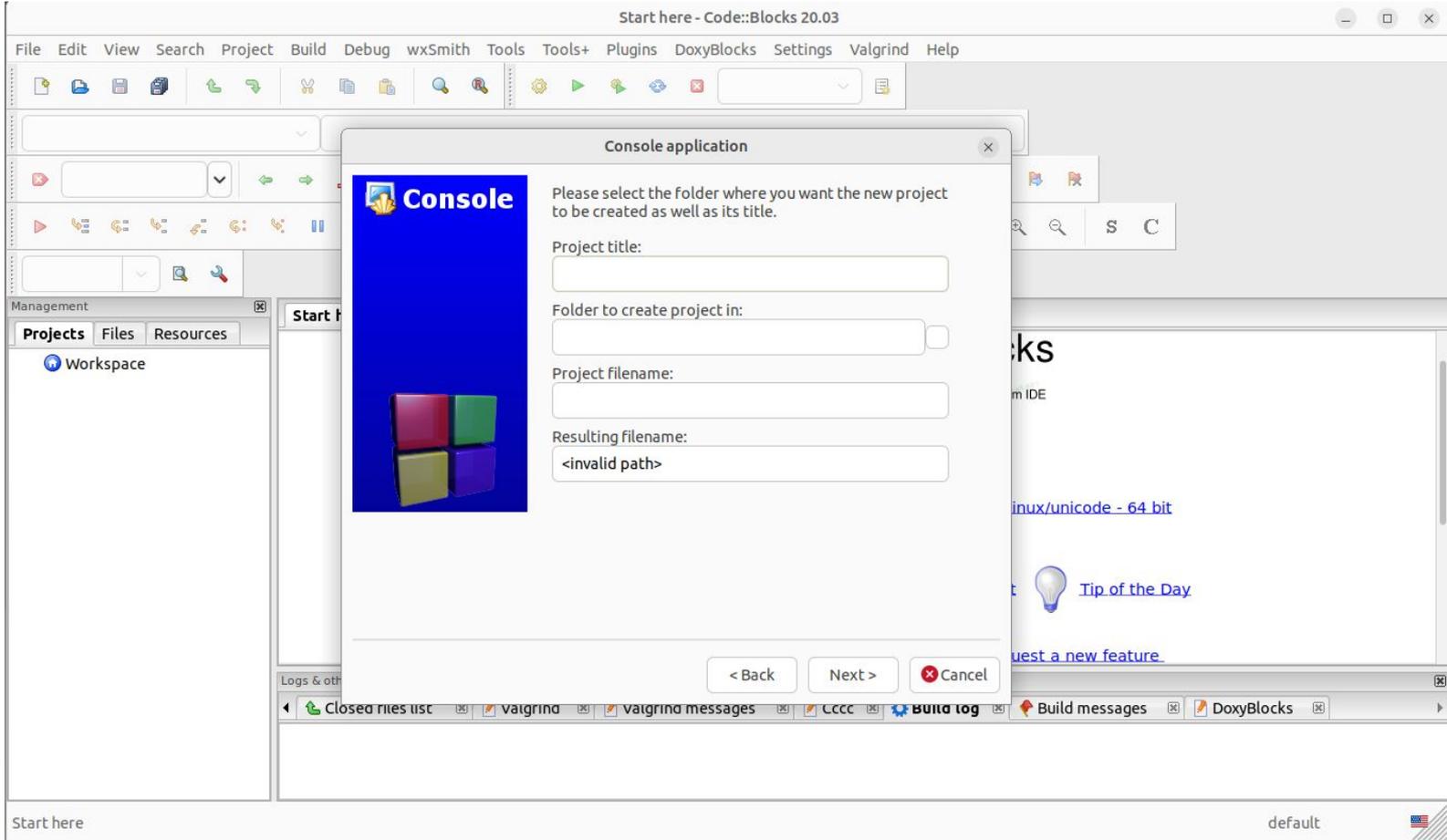
The IDE background shows a menu bar with "File", "Edit", "View", "Search", "Project", "Build", "Debug", "wxSmith", "Tools", "Tools+", "Plugins", "DoxyBlocks", "Settings", "Valgrind", and "Help". A toolbar with various icons is visible below the menu. On the left, there is a "Management" panel with tabs for "Projects", "Files", and "Resources", and a "Workspace" section. The bottom status bar displays "Start here" on the left, "default" on the right, and a small American flag icon.

FIRST PROGRAM



The screenshot shows the Code::Blocks 20.03 IDE. The main window title is "Start here - Code::Blocks 20.03". The menu bar includes File, Edit, View, Search, Project, Build, Debug, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Valgrind, and Help. The toolbar contains various icons for file operations and development. The Project Manager on the left shows a "Workspace" under the "Projects" tab. A "Console application" wizard dialog is open in the center, with the title "Console application". The dialog contains a blue sidebar with a "Console" icon and a 3D cube graphic. The main text area says "Please select the language you want to use. Please make a selection—". Below this is a list box with "C" selected (highlighted in green) and "C++" below it. At the bottom of the dialog are buttons for "< Back", "Next >", and "Cancel". The background IDE shows a "Start here" page with links for "Linux/unicode - 64 bit", "Tip of the Day", and "Request a new feature". The status bar at the bottom shows "Start here" on the left, "default" on the right, and a US flag icon.

FIRST PROGRAM



The screenshot shows the Code::Blocks 20.03 IDE interface. A 'Console application' wizard dialog box is open, prompting the user to select a folder and provide a project title. The dialog box contains the following text and fields:

Console application

Please select the folder where you want the new project to be created as well as its title.

Project title:

Folder to create project in:

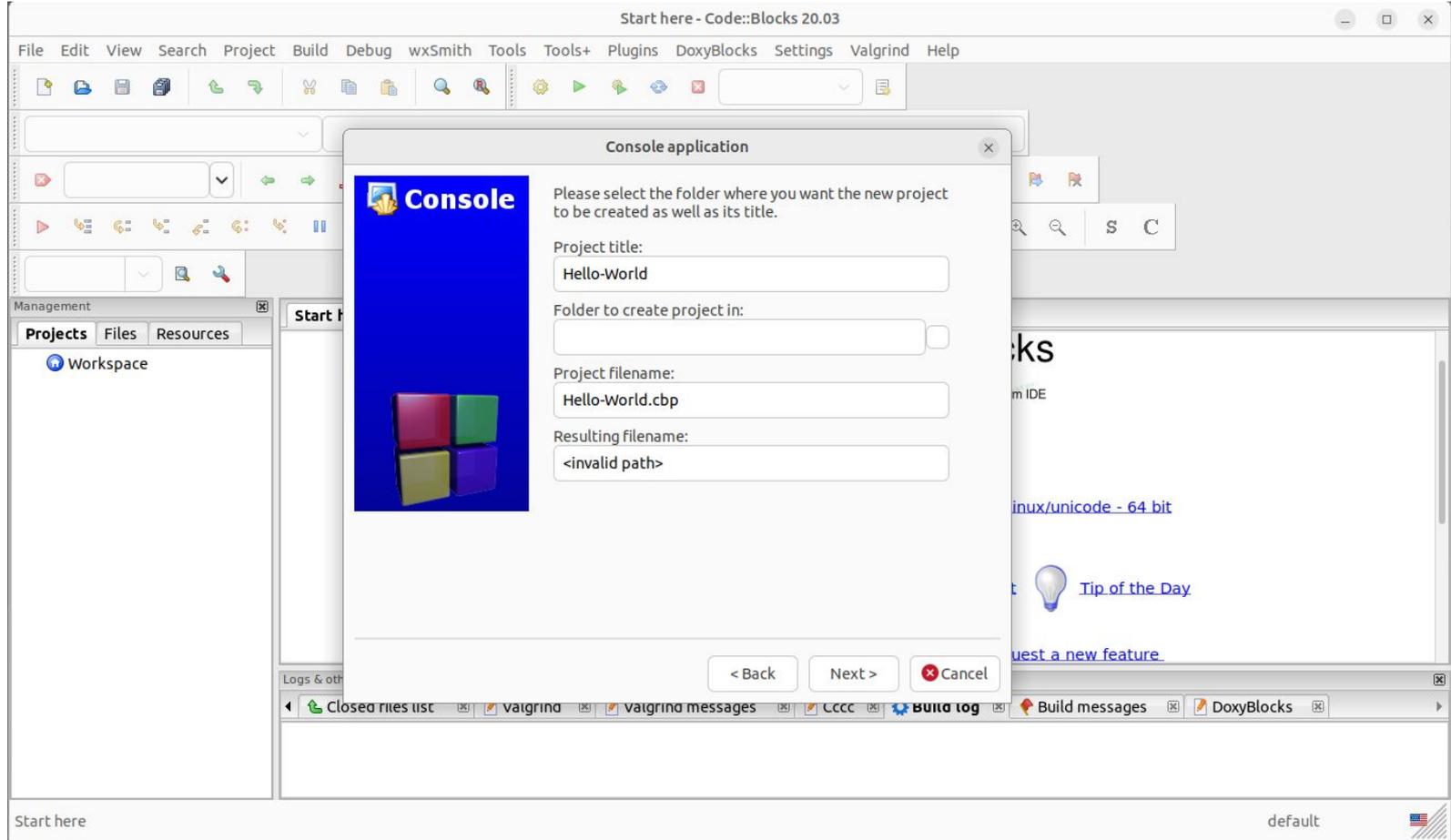
Project filename:

Resulting filename:

Navigation buttons: < Back, Next >, Cancel

The IDE background shows the 'Management' panel with 'Projects', 'Files', and 'Resources' tabs. The 'Projects' tab is active, showing a 'Workspace' project. The 'Start here' window is visible in the background, displaying the IDE's splash screen with the text 'Start here - Code::Blocks 20.03' and various navigation icons.

FIRST PROGRAM



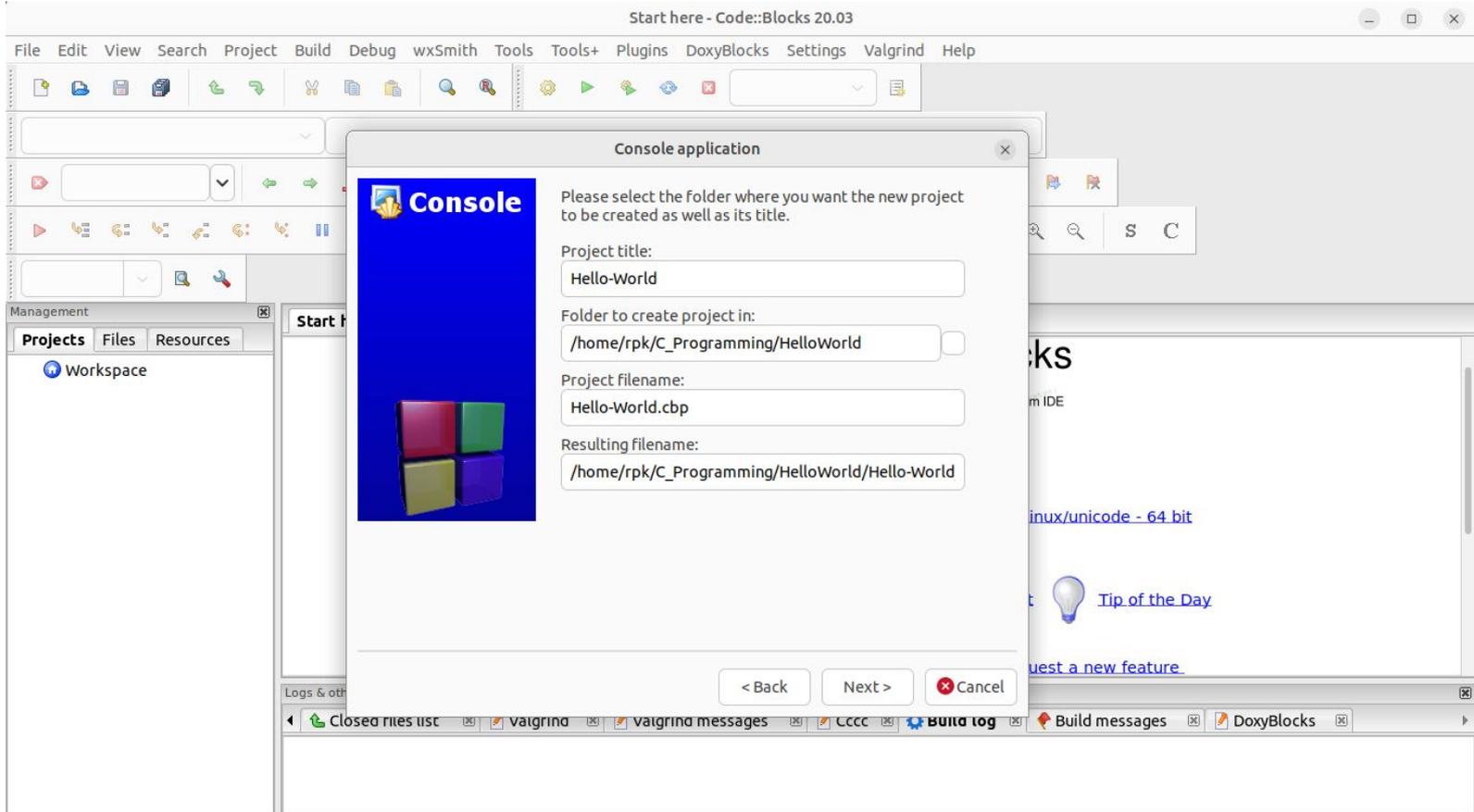
The screenshot shows the Code::Blocks IDE interface. A dialog box titled "Console application" is open, prompting the user to create a new project. The dialog contains the following fields and options:

- Project title:** Hello-World
- Folder to create project in:** (empty field)
- Project filename:** Hello-World.cbp
- Resulting filename:** <invalid path>

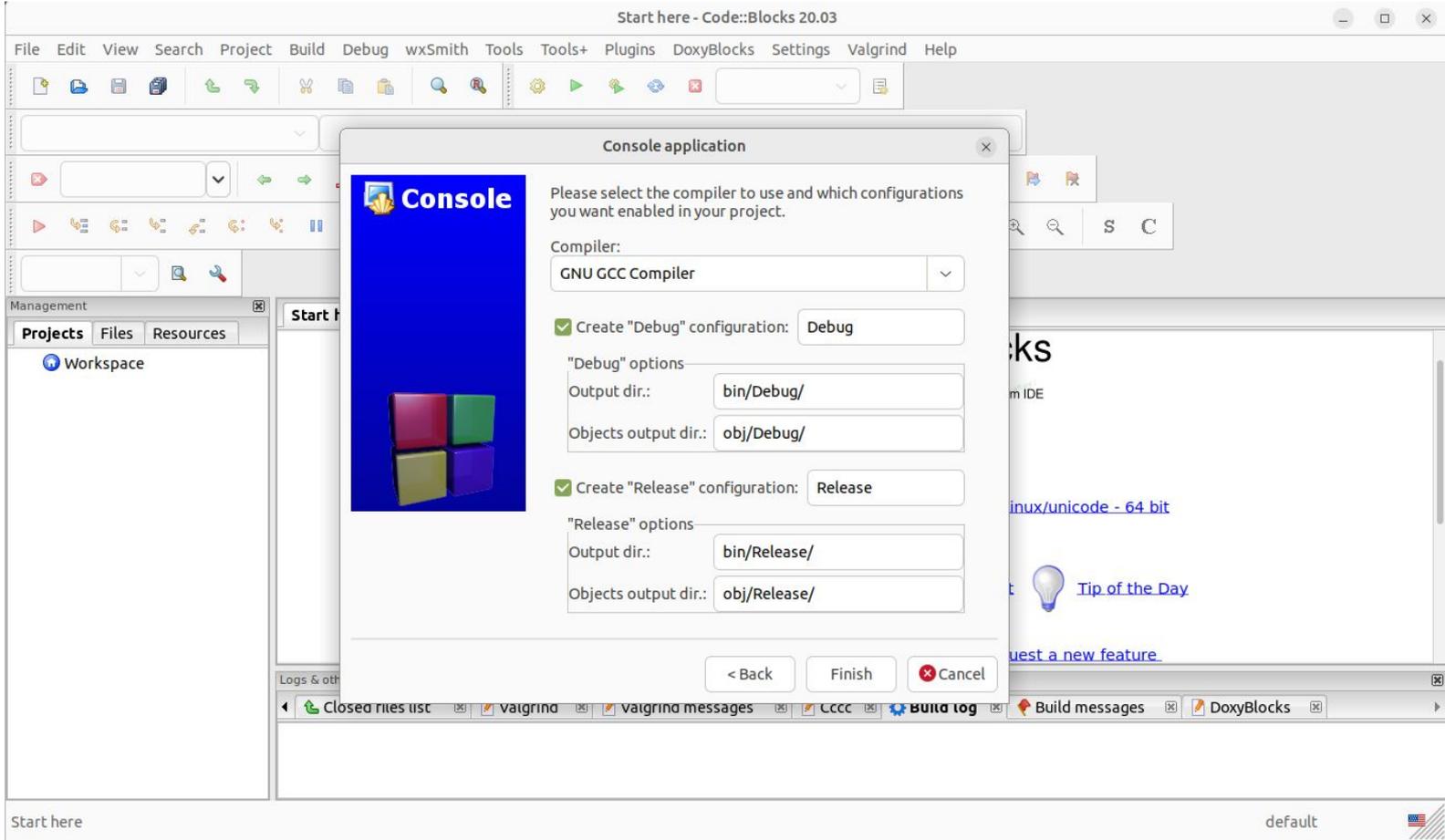
At the bottom of the dialog are three buttons: "< Back", "Next >", and "Cancel". The background IDE window shows a menu bar with options like File, Edit, View, Search, Project, Build, Debug, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Valgrind, and Help. The main workspace area displays a "Start here" page with a search bar and a "Tip of the Day" section.



FIRST PROGRAM



FIRST PROGRAM



The screenshot shows the Code::Blocks IDE interface. A dialog box titled "Console application" is open, prompting the user to select a compiler and configurations. The "Compiler" dropdown is set to "GNU GCC Compiler". There are two checked options: "Create 'Debug' configuration:" and "Create 'Release' configuration:". For the "Debug" configuration, the "Output dir." is "bin/Debug/" and the "Objects output dir." is "obj/Debug/". For the "Release" configuration, the "Output dir." is "bin/Release/" and the "Objects output dir." is "obj/Release/". The dialog has "Back", "Finish", and "Cancel" buttons at the bottom.

Start here - Code::Blocks 20.03

File Edit View Search Project Build Debug wxSmith Tools Tools+ Plugins DoxyBlocks Settings Valgrind Help

Console application

Please select the compiler to use and which configurations you want enabled in your project.

Compiler: GNU GCC Compiler

Create "Debug" configuration: Debug

"Debug" options

Output dir.: bin/Debug/

Objects output dir.: obj/Debug/

Create "Release" configuration: Release

"Release" options

Output dir.: bin/Release/

Objects output dir.: obj/Release/

< Back Finish Cancel

Management

Projects Files Resources

Workspace

Logs & other messages

Close all files list vaigrind vaigrind messages CCCC Build log Build messages DoxyBlocks

Start here default

FIRST PROGRAM



The screenshot displays the Code::Blocks IDE interface for a project named "[Hello-World] - Code::Blocks 20.03". The menu bar includes File, Edit, View, Search, Project, Build, Debug, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Valgrind, and Help. The toolbar contains icons for file operations, project management, and execution, with a "Debug" dropdown menu. A secondary toolbar below it offers more execution and search options. The left sidebar, titled "Management", shows a tree view with "Workspace" expanded to reveal the "Hello-World" project and its "Sources" folder. The main workspace is currently empty. At the bottom, the "Logs & others" panel shows tabs for "Closed files list", "Valgrind", "Valgrind messages", "Cccc", "Build log", "Build messages", and "DoxyBlocks". The status bar at the very bottom reads "Welcome to Code::Blocks!" on the left, "default" in the center, and a US flag icon on the right.

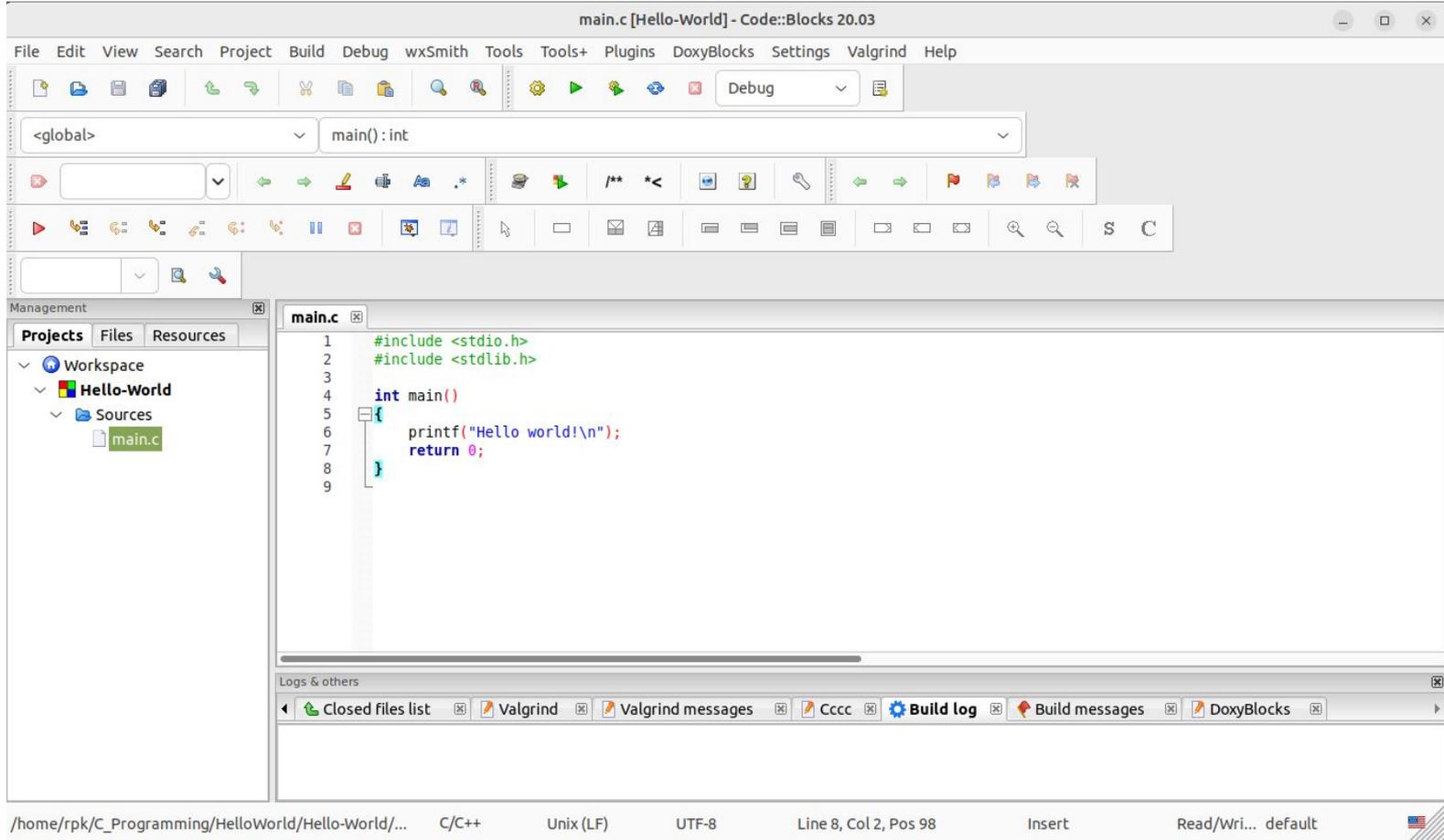
FIRST PROGRAM



The screenshot shows the Code::Blocks IDE interface. The title bar reads "[Hello-World] - Code::Blocks 20.03". The menu bar includes File, Edit, View, Search, Project, Build, Debug, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Valgrind, and Help. The toolbar contains various icons for file operations, editing, and debugging. A "Debug" dropdown menu is visible. The left sidebar shows a "Management" pane with tabs for "Projects", "Files", and "Resources". Under "Projects", there is a tree view showing "Workspace" expanded to "Hello-World", which is further expanded to "Sources" containing the file "main.c". The main editor area is currently empty. At the bottom, a "Logs & others" pane shows several tabs: "Closed files list", "Valgrind", "Valgrind messages", "Cccc", "Build log", "Build messages", and "DoxyBlocks".



FIRST PROGRAM

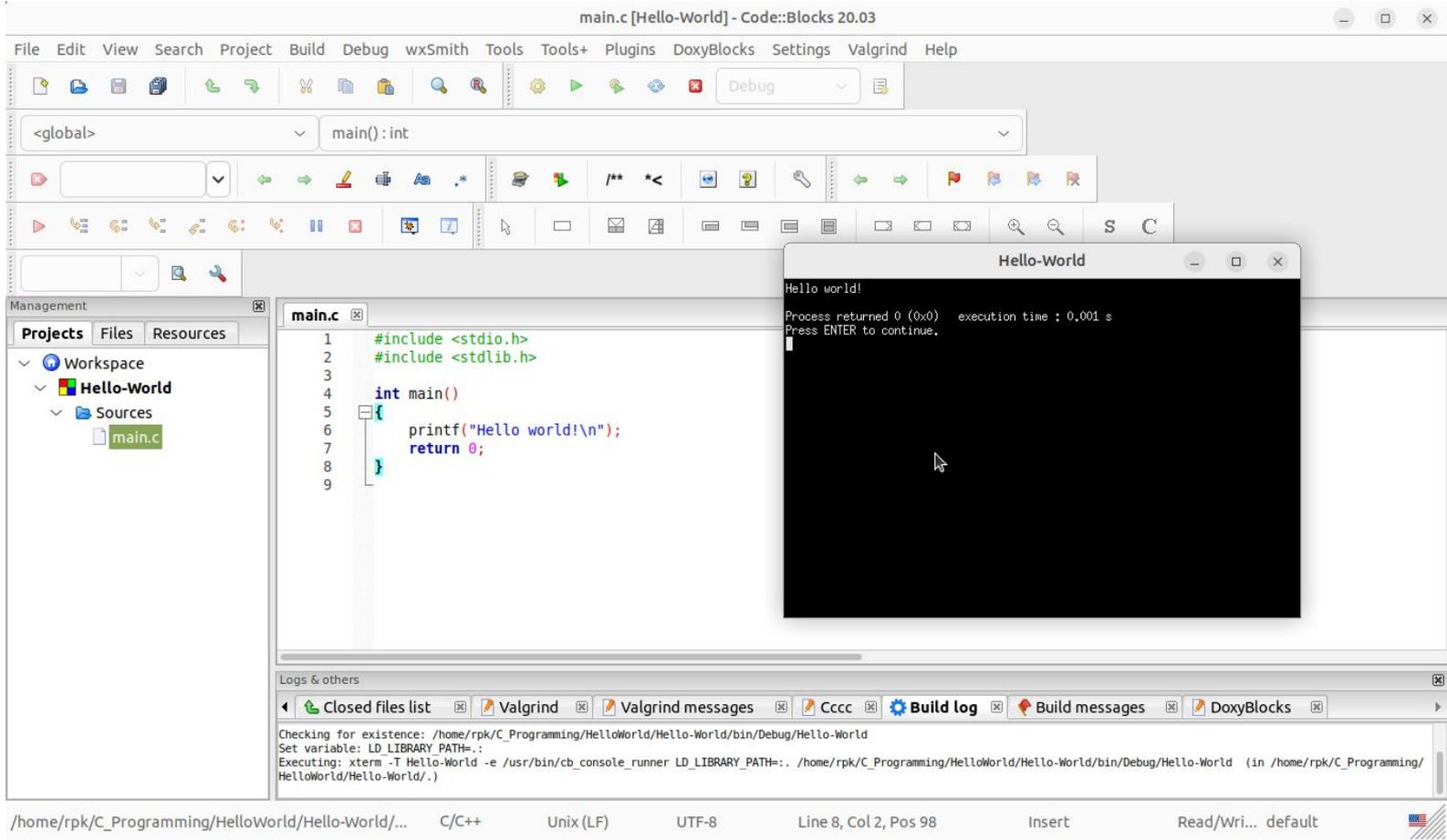


The screenshot shows a code editor window titled "main.c [Hello-World] - Code::Blocks 20.03". The interface includes a menu bar (File, Edit, View, Search, Project, Build, Debug, wxSmith, Tools, Tools+, Plugins, DoxyBlocks, Settings, Valgrind, Help), a toolbar with icons for file operations and development, and a status bar at the bottom. The main editing area displays the following C code:

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     printf("Hello world!\n");
7     return 0;
8 }
```

The left sidebar shows a project tree with "Workspace" containing "Hello-World" and "Sources" containing "main.c". The bottom status bar indicates the file path is "/home/rpk/C_Programming/HelloWorld/Hello-World/...", the language is "C/C++", the encoding is "Unix (LF)", the file encoding is "UTF-8", and the cursor is at "Line 8, Col 2, Pos 98".

FIRST PROGRAM



The screenshot shows a code editor window titled "main.c [Hello-World] - Code::Blocks 20.03". The editor displays the following C code:

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     printf("Hello world!\n");
7     return 0;
8 }
9
```

Below the code editor, a terminal window titled "Hello-World" shows the output of the program:

```
Hello world!
Process returned 0 (0x0)   execution time : 0.001 s
Press ENTER to continue.
```

The status bar at the bottom of the editor shows the file path: `/home/rpk/C_Programming/HelloWorld/Hello-World/...`, the language: `C/C++`, the encoding: `Unix (LF)`, the character set: `UTF-8`, the cursor position: `Line 8, Col 2, Pos 98`, the mode: `Insert`, and the keyboard layout: `Read/Wri... default`.

THANK YOU