Create our first project

1. Log into ST using the myST tab:

IDE	swen-3	40 - Proje	ect/Core/In	c/stm32l4x	<_hal_con	f.h - STM	32Cube	IDE			
File	Edit	Source	Refactor	Navigate	Search	Project	Run	Window	Help 🤰	myST	
	• 🗐	0 8	- 🔨 -	D 🛛	@ i 💣	- 🚳 -	c -	G - *	\$ - C	Login	Alt+L
IDE (Jser aut	hentication						×			
(Aut	hentication	completed w	ith success							
								ОК			

2. Create a new STM32 project using the menu path:

File>I	New>STM32 Projec	ct								
Ś	STM32CubeIDE	File	Edit	Source	Refactor	Navigate	Search	Project	Run	
		Ne Op D Re	w en File Open I cent Fil	 Projects fr les	rom File Sys	೫N ► tem	C/C	cefile Proje ++ Project 132 Project	ect with t ct	E

3. Pick our specific microcontroller (NUCLEO-L476RG) from the Board Selector tab. Select the resulting board and then select Next.

Target Selection



STM32 target or STM32Cube example selection is require

4. Give your project a name e.g. SWEN_340_Project. This is a C project, Executable, STM32Cube type project. Select **Finish**.

📧 STM32 Proje	d –		×
Setup STM32 pr	oject	U	DE
Project			
Project Name:	SWEN-342_project		
🔽 Use default	location		
Location:	C:/Users/bruce/OneDrive/Documents/RIT/Spring-2023,	Brows	se
Targeted Bin Executation Targeted Pri	nary Type ole 🔿 Static Library oiect Type		
STM32C	ube O Empty		
?	< <u>B</u> ack <u>N</u> ext > <u>F</u> inish	Cance	1

5. Select No on the Board Project Options dialog. After selecting No the IDE creates your project.

📧 Boa	rd Project Options:		×
?	Initialize all peripherals with their default Mode ?		
		Yes	No

- 6. You have a brand-new empty project. Build the project to confirm that it builds with zero errors and zero warnings.
- 7. In the course repo you will find a bunch of files in the project_start_files directory.

8. Copy Core and Drivers directories into the project. When prompted, select Copy files and folders.



When you get a warning dialog like this, select Overwrite All.

Question			×
Overwri	te SWEN_342_proje	ct/Core?	

- 9. DO NOT SKIP THIS STEP! Delete the stm32l4xx_hal_msp.c and stm32l4xx_it.c files from the Src directory.
- 10. Build the project. Project > Build Project (hammer icon) (or right click on the project and select from the drop down menu).
- 11. Select Run or Debug from the icons or the project right-click menu. You may need to select the Run Configurations for the first time (pick what you see below). You may also get an additional Edit launch configuration properties dialog concerning your debug or run configuration. If you do get this dialog select OK (the defaults are fine).



At this point, you have created an executable binary that can run on a board.

- Plug the board into your laptop using a USB cable.
- The board may appear as a file system. You can ignore that.
- You may have to update your ST-Link drivers when you attempt your first download.
- To build, Project>Build this is the normal thing you will do The first time through, CubeIDE may ask you if you want to change perspectives. Eclipse (the tool upon which CubeIDE is built) has the notion of perspectives...IDE layouts tailored to different tasks. Writing code and debugging code may use different perspectives. Select 'Switch' and Remember my decision.
- To run/debug, Run>Run As or Run>Debug As (or click Bug Icon).

You can single step your way through the code. You can set breakpoints, examine variables, etc. The goal of this tutorial is to make sure you have a properly functioning development environment, a working board, are able to do simple debugging operations.

Update ST-Link firmware on your microcontroller

When you download software to the board, your IDE may require an ST-LINK update to your NUCLEO board. This is OK. It should happen only once.



Clicking Yes, the STLink Upgrade utility will ask to open the ST-LINK device in update mode. Open in update mode, do not Change Type, click Upgrade.

Close the ST-LINK Upgrade utility.

If you were building the app for debug, go back and restart those instructions.