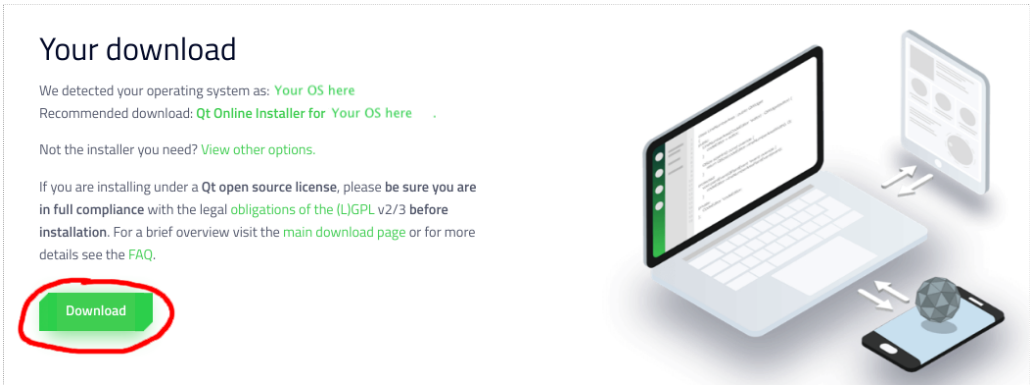
Install Qt Creator on Windows

1) Download the Qt installer

Download the Qt installer from its official download site at https://www.qt.io/download-qt-installer. The site should detect that your computer is running Windows and recommend "Qt Online Installer for Windows". Click the green **"Download"** button to download the installer.

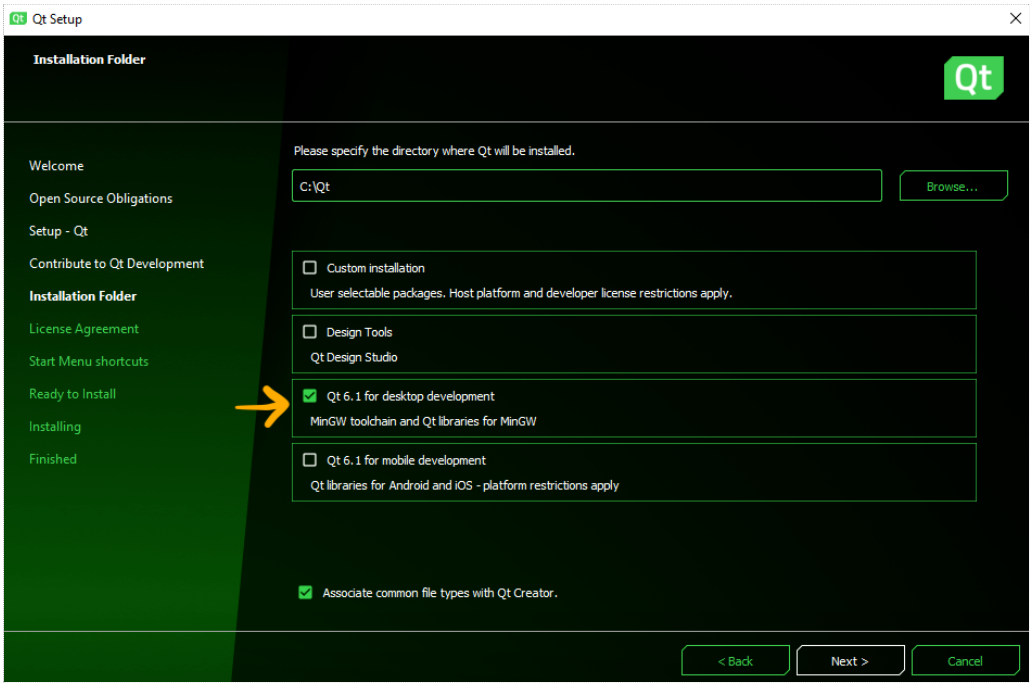


2) Run the Qt installer

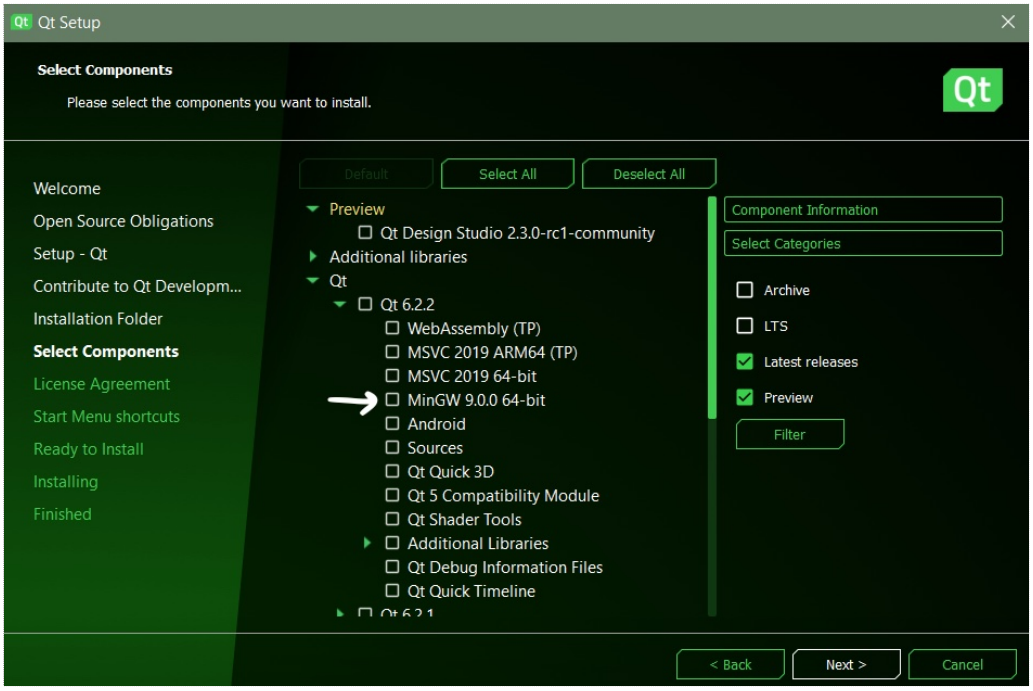
The downloaded installer is named something like **`qt-unified-windows-version.exe`**. Double-click to run it.

The Qt installer will walk you through a set of steps. For most steps, you can use the default settings and simply click **"Next"** or **"Agree"** to move on, with the following exceptions:

- At the **`Welcome`** step, sign up (or sign in) for your own Qt Account. Go ahead and put in your @stanford.edu email and verify your account via email. When setting up your account, you do not have to put in your phone number or city.
- At the **`Installation Folder`** step (see screenshot below):
  - Select the option **Qt 6.x for desktop development MinGW toolchain and Qt libraries for MinGW**. Do not change the name or location of the directory where Qt will be installed.



If you don't see **Qt 6.x for desktop development** as an option, click **Custom installation** and then proceed to the next window via "Next." **When you're asked to "Select components" please only click `MinGW 9.0.0 64-bit` under Qt -> Qt6.2.2**. Once again, you'll click **`Qt`** and then under **`Qt 6.2.2`** you'll check the box for **`MinGW 9.0.0 64-bit`**.



3) Install CS106-specific package

After installing Qt, you must **install the CS106-specific package** and do a **complete build and run cycle** to confirm all is working properly.

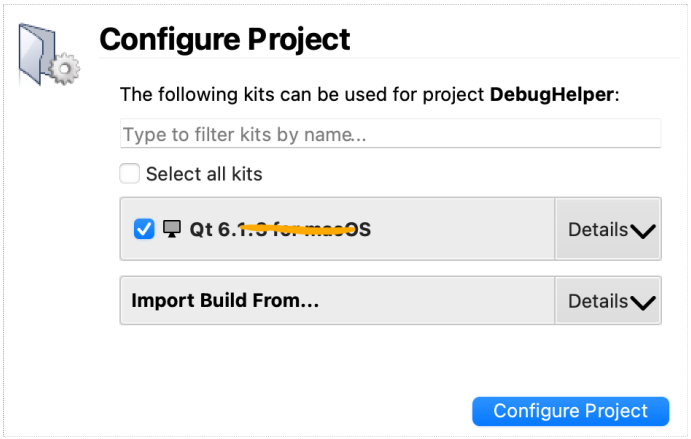
Download CS106 package and extract

- Download this archive file: CS106.zip
- Un-zip the download contents (on a Windows computer, click "Extract all") to a location of your choice. You should have a folder named **`CS106`** with several files and folders inside.

Open and configure CS106 project

A Qt Creator project includes a file named with a **`.pro`** extension. Double-clicking the **`.pro`** file opens the project in Qt Creator. When opening a project for the first time, Qt Creator will ask you to configure the project build kit.

- Find the **`CS106.pro`** file and open it now.
    - If your Windows File Explorer options are set to hide filename extensions, the file **`CS106.pro`** will display the name **`CS106`**. You can change whether extensions are displayed in File Explorer by choosing menu item File->Options, select the "View" tab and under “Advanced settings”, uncheck "Hide extensions for known file types". Click "Apply" button.
- The "Configure Project" panel will show the list of available build kits (see screenshot below). The default kit should already be selected; it will match the desktop kit you selected when installing Qt Creator (version **Qt 6.x.x**).
- Accept the default by clicking the "Configure Project" button.



If your Qt Creator shows no kits are available, review the Qt install instructions. You can repeat the steps to re-install Qt if you missed selecting the correct option.

Build the program

C++ code must be *compiled* or *built* before it is run; this means converting the source code into executable binary code.

- Click the Build icon in the lower-left of the Qt Creator window.

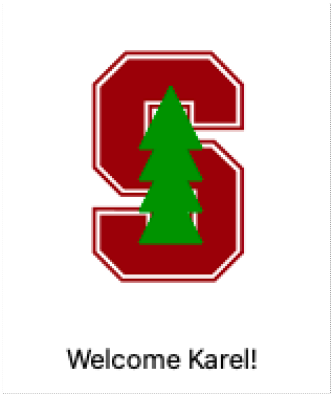
- Watch the build progress meter 

in the lower-right. The first time you build a project, it can take a minute or more to compile the library code. When the bar turns green, it indicates the program successfully built.

Run the program

Now that the program is built, you are ready to run it.

- Click the Play/Run icon in lower-left of window.
- As shown in the screenshot below, the welcome program prints a message to the console window and draws the Stanford logo on graphics window.



✔ Congratulations, **your installation is good to go**! You may now discard the CS106 project, you will not need it again.

4) Configure settings (optional)

For a better experience, we suggest changing some of the default settings, see our recommended configuration settings.

Install Qt Creator on Mac

1) Prerequisite: system software update

Before installation, ensure your macOS operating system is current. Select menu -> "System Preferences" -> "Software Update" and check whether any system updates are available. If so, install them first and only then proceed with the rest of this installation guide. **In order to install Qt, your MacOS version must be >= 10.15. If this is not possible for you, please reach out to the course staff ASAP.**

2) Install Xcode tools

Apple's developer tools are bundled as a part of **Xcode**. Installing Xcode provides the C++ compiler that is used by Qt Creator.

To choose the correct Xcode installation, you need to know your macOS version. Select menu -> "About This Mac" and read the macOS version number.

If your macoS version is Catalina >= 10.15: you can install the latest Xcode directly from the App Store in one step:

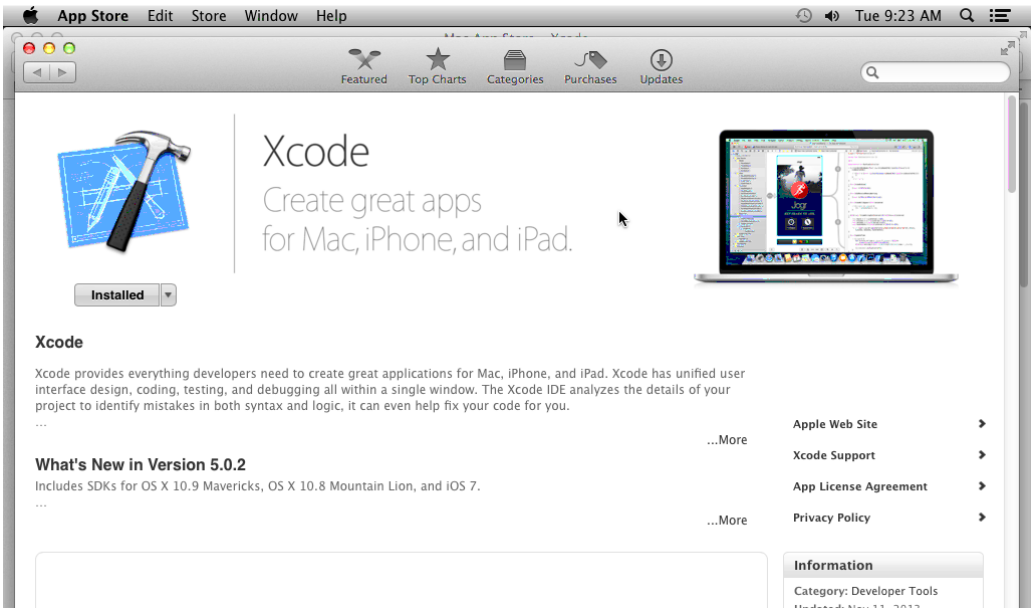
- Select menu - > "App Store…" and search for **Xcode**. Download and install the app.

If your macOS version is 10.14 or older, you need to install an older version of Xcode from Apple Developer by following these steps:

- Visit https://developer.apple.com/downloads/ and sign in with your Apple ID.
- Search for **Xcode** and select the version that is compatible with your macOS version:
  - For macOS 10.14, use Xcode version 11.3
  - For macOS 10.13, use Xcode version 10.1
  - Do not chose any version labeled "beta" or "preview"
  - If the Apple developer site disallows you from accessing downloads, create a new Apple ID and try again. (This can happen if your Apple ID was created when your age was too young for some features?)
- Download the appropriate version, open the archive, launch the Xcode installer, and follow through the installer steps.
- After the installer finishes, **drag the Xcode application into your Applications folder**.

3) Run Xcode once

After downloading Xcode, you have to **launch the Xcode application one time** to install its components. You can open Xcode using Spotlight (the magnifying glass at the top right of your screen) and typing in "Xcode". Click "Agree" to accept the License Agreement and enter your password if prompted. Watch the progress bar "Installing components…". When it finishes, quit Xcode. You will not need to launch Xcode again for this course.



4) Download the Qt installer

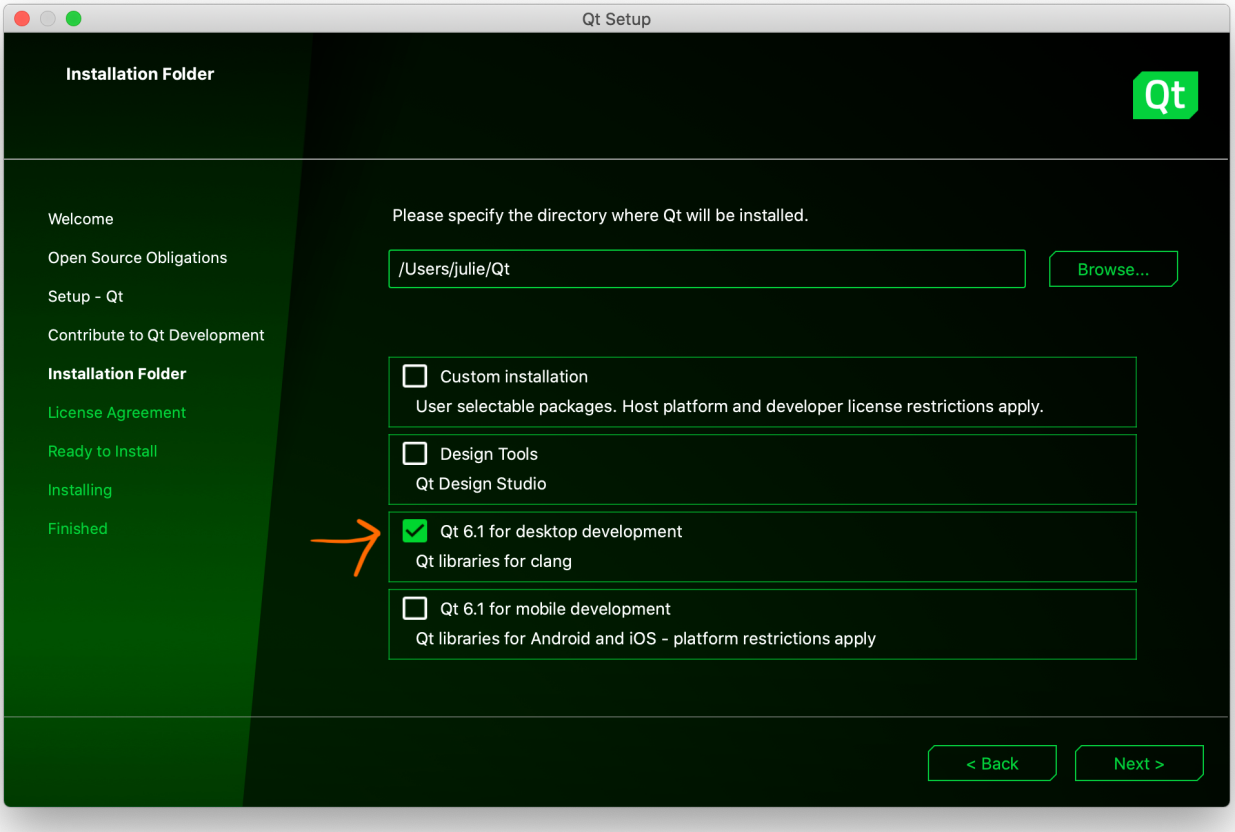
Download the Qt installer from this link and click the big green Download button. Note that this will download **`qt-unified-MacOS-x64-4.3.0-1-online.dmg`** to your **`Downloads`** folder.

5) Run the Qt installer

Double-click the **`.dmg`** file that was downloaded and run the Qt installer!

The Qt installer will walk you through a set of steps. For most steps, you can use the default settings and simply click **"Next"** or **"Agree"** to move on, with the following exceptions:

- At the **`Welcome`** step, sign up (or sign in) for your own Qt Account. Go ahead and put in your @stanford.edu email and verify your account via email. When setting up your account, you do not have to put in your phone number or city.
- At the **`Installation Folder`** step (see screenshot below):
  - Select the option **Qt 6.x for desktop development Qt libraries for clang**. Do not change the name or location of the directory where Qt will be installed.



Note: If you get a warning that XCode is not installed, you may have to open XCode, go to its Preferences menu, go to the locations submenu, and ensure that the correct location of your installed XCode Command Line Tools is selected.

6) Install CS106-specific package

After installing Qt, you must **install the CS106-specific package** and do a **complete build and run cycle** to confirm all is working properly.

Download CS106 package and extract

- Download this archive file: CS106.zip
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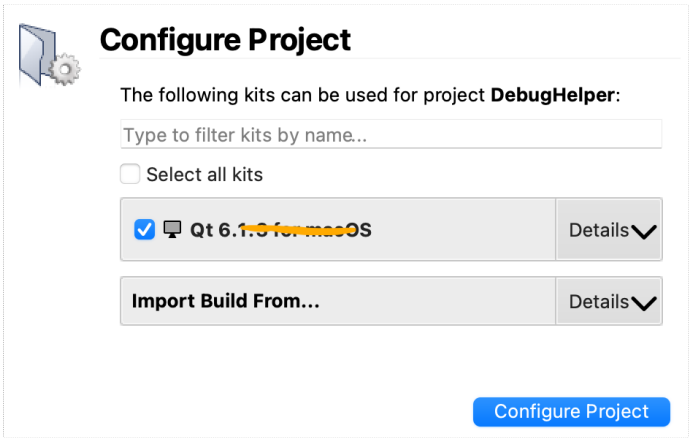
- Find the **`CS106.pro`** file and open it now.
- The "Configure Project" panel will show the list of available build kits (see screenshot below). The default kit should already be selected; it will match the desktop kit you selected when installing Qt Creator (version **Qt 6.x.x**).
- Accept the default by clicking the "Configure Project" button.



If your Qt Creator shows no kits are available, review the Qt install instructions. You can repeat the steps to re-install Qt if you missed selecting the correct option.

Build the program

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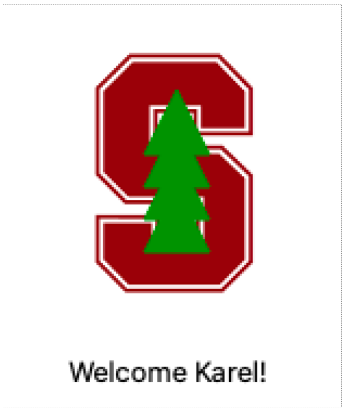


✔ Congratulations, **your installation is good to go**! You may now discard the CS106 project, you will not need it again.

7) Configure settings (optional)

For a better experience, we suggest changing some of the default settings, see our recommended configuration settings.

Install Qt Creator on Linux

Below are basic instructions for installing Qt on Linux that may work for your system, however, we are unable to provide further Linux support. If you are unable to get Qt Creator working on your Linux system, please consider using another computer or working on a campus cluster computer.

1) Install prerequisites

If you're running Ubuntu, Debian, Mint, or any other Debian derivative, you can install the needed preqreuisites using the **apt** package manager. Issue the following commands below in your shell.

This command ensures your package manager is up-to-date:

```
sudo apt-get update && sudo apt-get upgrade
```

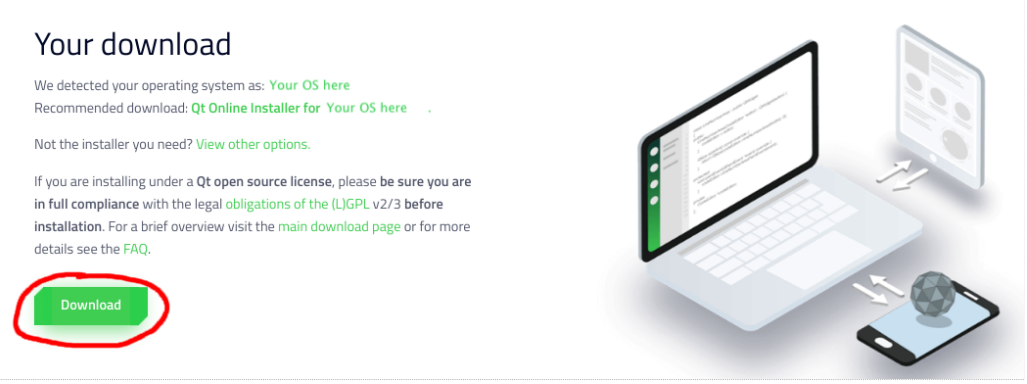
This command installs the tools and libraries needed for Qt (be sure to copy/paste the entire line, it is long!)

```
sudo apt-get -y install build-essential openssl libssl-dev libssl1.0 libgl1-mesa-dev libqt5x11extras5
```

If you're running some other variant of Linux, figure out a way to install the tools **make**, **g++**, and **gdb**. (For example, on Fedora / Red Hat systems, you may be able to use the **yum** package manager.)

2) Download the Qt installer

Download the Qt installer from its official download site at https://www.qt.io/download-qt-installer. The site should detect that your computer is running linux and recommend "Qt Online Installer for linux". Click the green **"Download"** button to download the installer.



3) Run the Qt installer

The downloaded installer is named something like **qt-unified-linux-x64-version-online.run** and is likely located in your **~/Downloads** directory. Use **chmod +x qt*.run** to make the file executable, then run it by typing **./qt*.run**.

The Qt installer will walk you through a set of steps. For most steps, you can use the default settings and simply click **"Next"** or **"Agree"** to move on, with the following exceptions:

- At the **Welcome** step, sign up (or sign in) for your own Qt Account. Go ahead and put in your @stanford.edu email and verify your account via email. When setting up your account, you do not have to put in your phone number or city.
- At the **Installation Folder** step (see screenshot below):
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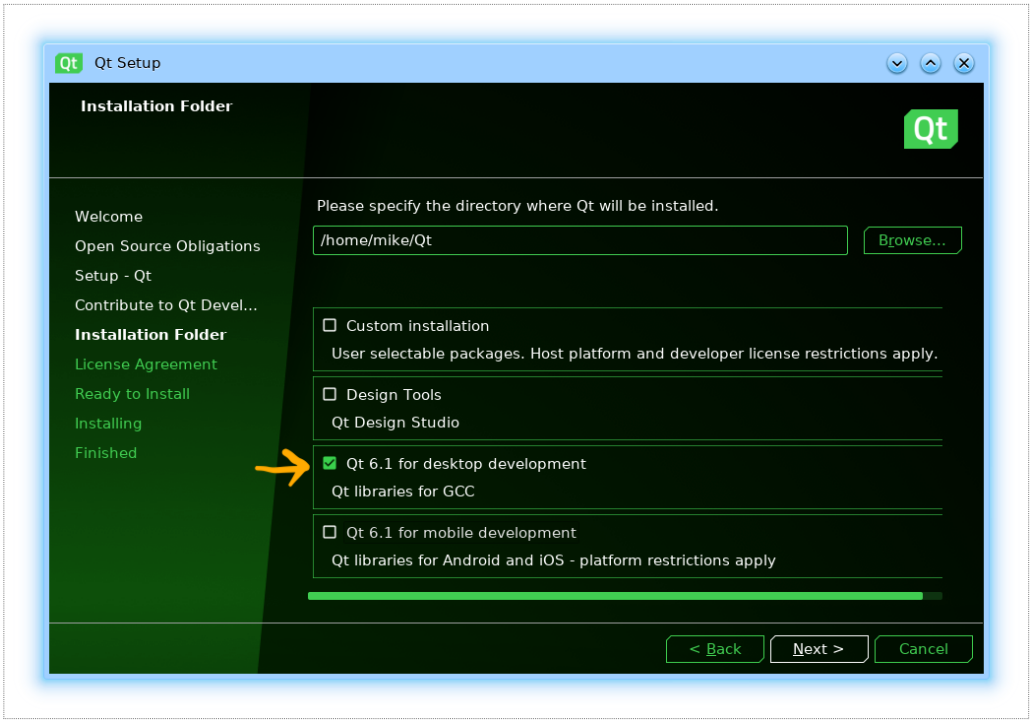

Note: if your installer does not offer the option shown above, **stop here**. Your system is going to require a non-standard install. Contact the staff with your system information and we'll see if we can help. Depending on how esoteric your situation, this may not be successful. We recommend a backup plan to use a different computer or work on a campus cluster computer.

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After installing Qt, you must **install the CS106-specific package** and do a **complete build and run cycle** to confirm all is working properly.

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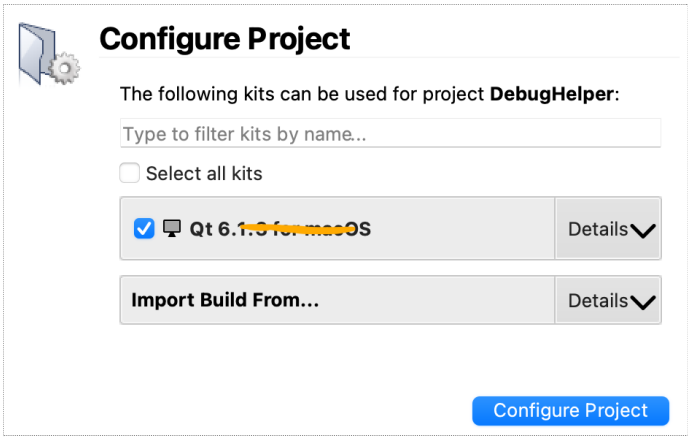

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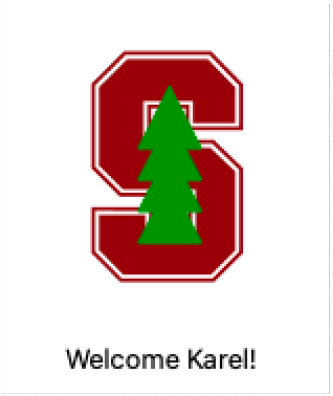

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