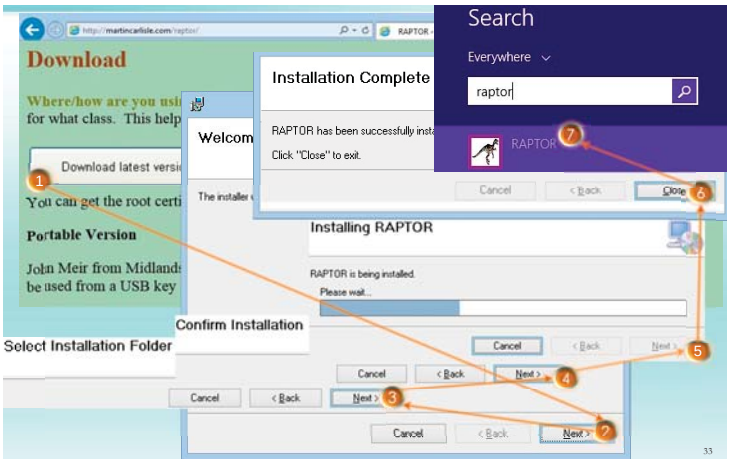
(60-140) Lab Exercises #0

— Getting started with software

Sept. 14–16, 2016

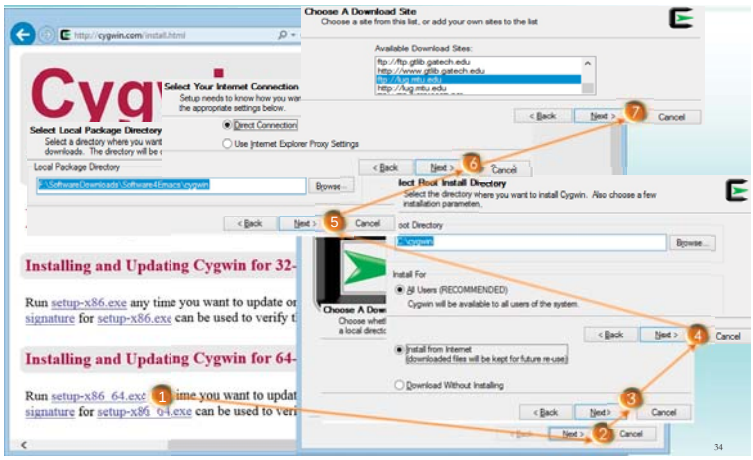


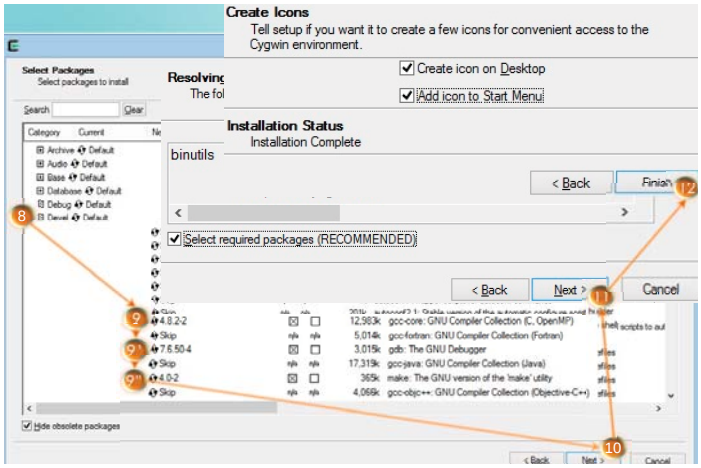
Part. I Software Installation

- RAPTOR Flowchart

1) Download the installer for the latest version from *raptor.martincarlisle.com*
2) Run the installer and click `Next` in the welcome page
3) Click `Next` after selecting an installation folder (default folder is recommended)
4) Click `Next` to confirm installation
5) Click `Next` to start installation
6) Click `Close` when installation is completed
7) Start the application after locating the `RAPTOR` icon

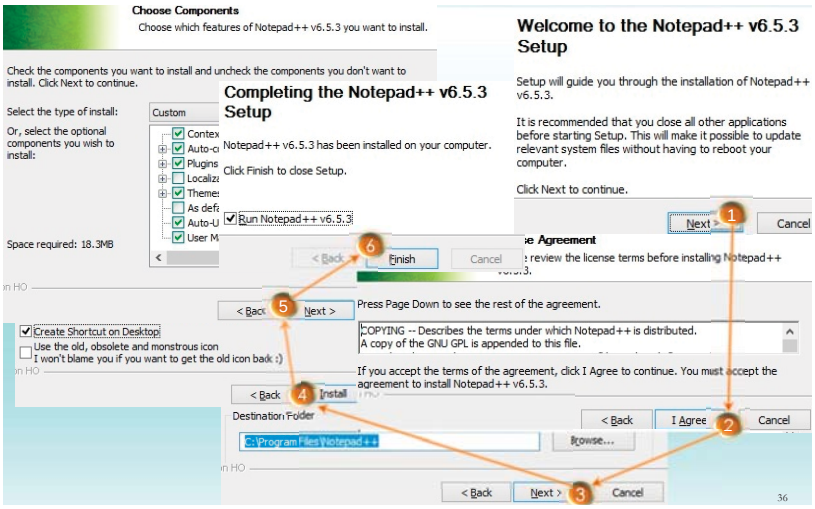
- Gcc with Cygwin





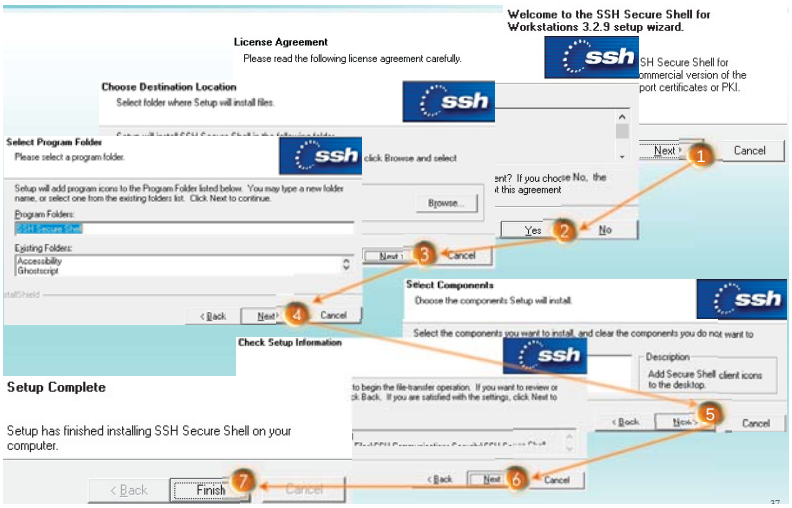
1) Download either the 32- or 64-bit version of the installer from *cygwin.com*
2) Run the installer and click `Next` to continue
3) Click `Next` after selecting "`Install from Internet`"
4) Click `Next` to keep the default installation directory and settings
5) Click `Next` to keep the default local package directory
6) Click `Next` after selecting "`Direct Connection`"
7) Click `Next` after selecting a mirror site for downloading
8) In the "`Select Packages`" step, expand the `Devel` category
9) Select `gcc`, `gdb`, and `make` by clicking individually their circled-arrow icons
10) Click `Next` to installed the selected packages
11) Click `Next` to allow the installation of dependent packages
12) After allowing for the creation of icons, click `Finish` to complete the installation

■ Notepad++



1) The current version of the Notepad++ installer can be downloaded by following the download link at its *homepage*. Click `Next` after starting the installer, which will require a language selection for the installer first, i.e. English
2) Click `I Agree` for the License Agreement
3) Click `Next` to choose the (default) installation location
4) Click `Next` to choose (default) components
5) Click `Install` to start installation
6) Click `Finish` when installation is completed

■ SSH Secure Shell



1) The installer for ssh can be downloaded from *uwindsor.ca/softwaredepot*. Click `Next` after starting the installer
2) Click `Yes` for the License Agreement
3) Click `Next` to choose the (default) destination location
4) Click `Next` to select (default) program folder
5) Click `Next` to select (default) components
6) Click `Next` after checking setup information
7) Click `Finish` when installation is completed

Part. II Cygwin exercises

- The C programming environment is based on an application called Cygwin, which is a set of software tools that offers a UNIX command-line environment, emulated on the overall Windows desktop. Before getting started on using Cygwin and its C tools, you need to first start the Cygwin console called "`Cygwin Terminal`".

  This console window offers transparency of files and folders between two interfaces, i.e., a UNIX command-line interface and the usual Windows icon-based environment. Within the Cygwin window, you can access and manipulate files and folders (view, rename, copy etc.), move from folder to folder, compile and run C programs by typing UNIX-like commands.

  If you are able to navigate using MS-DOS, you should be able to quickly pick up on the navigation of Linux and Unix. In the below chart is a listing of common MS-DOS commands with their Linux and Unix counterpart. Further details on any commands in Cygwin can be obtained by using the '`info`' or the '`man`' command. To exit `info` or `man`, type the letter '`q`' at the "`:`" prompt.

MS-DOS	Linux/Unix	MS-DOS	Linux/Unix	MS-DOS	Linux/Unix
attrib	chmod	dir	ls	copy	cp
del	rm	deltree	rm -R / rmdir	move, rename	mv
type	less <file>	cd	cd / chdir	md	mkdir

1) At the "`$`" prompt in the Cygwin console, type the following command to print the current working directory (term "directory" in UNIX means exactly the same as term folder in Windows).

```
$ pwd
```

   The following result after executing `pwd` means that your current directory (folder) is `H:`.

```
/cygdrive/h
```

2) Type another command to list current directory.

```
$ ls
```

   This command prints the contents of your Home directory (folder). Compare the effect of this command with the contents of your Home using Windows Explorer.

3) Explore the usage of several other commands with `info` or `man`.

Part. III RAPTOR exercises

- RAPTOR is unique from other programming languages. Instead of using code input, it uses symbols to represent actions in a flowchart, allows the design of algorithms in forms of flowcharts, and provides tools to exam the direct execution of flowcharts.

1) Follow YouTube video *Raptor 01 - Introduction*, and reproduce the flowchart in the video with you being the author in the comment.
2) Save the flowchart to a file named "`area.rap`".

Part. IV For those who need to run Windows or Windows programs on a Mac computer

1) The *QuinnRaptor4Mac.pdf* file, which is posted under `Resources`, has instructions to install Raptor flowchart.

2) To install command-line developer's tools:

   i. Open your terminal (spotlight search for "`terminal`")

   ii. Enter `gcc` into the terminal window and press enter

   iii. You will see an alert box that prompts you to install command-line developer tools, click `install`

   iv. Once finished you will have all nessesary GNU compilers, including those for C++

In general, software can be installed on a Mac computer to run Windows and Windows applications. The specific software depends on the type of a Mac computer. Because newer Macs use Intel processors, they can run Windows and Windows applications as quickly as PCs. Several different methods are available for running Windows on Intel Macs.

- To dual-boot between OS X and Windows, use Apple's *Boot Camp*. This approach provides the most compatibility with Windows software and peripherals, but does not allow Windows and Mac OS X applications to run at the same time.
- To run Windows within OS X, use *Parallels Desktop*, *VMware Fusion*, or the (free) *VirtualBox* to create a virtual machine. This method will allow Mac and Windows applications to run concurrently, though the virtual machine does not support as much Windows functionality as a dual-boot configuration.
- To run Windows programs without having to install Windows itself, use a Windows compatibility layer, such as *CrossOver* Mac. This option typically offers good functionality for a limited set of Windows applications.

In comparison, Microsoft Virtual PC for MAC is available at *uwindsor.ca/softwaredepot*. It was not developed for the Intel Macs, and has become deprecated software.