



Carleton
UNIVERSITY

Canada's Capital University

Advance Topics in Software Engineering

Online Examination System: User Guide

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Installing Cygwin & GCC on Windows

- 1) Visit <http://www.cygwin.com/>.
- 2) Download the appropriate setup file from Installing Cygwin section depending on your system – 32 or 64 bits. An installation file, setup-x86_64.exe or setup-x86.exe, will be downloaded.
- 3)

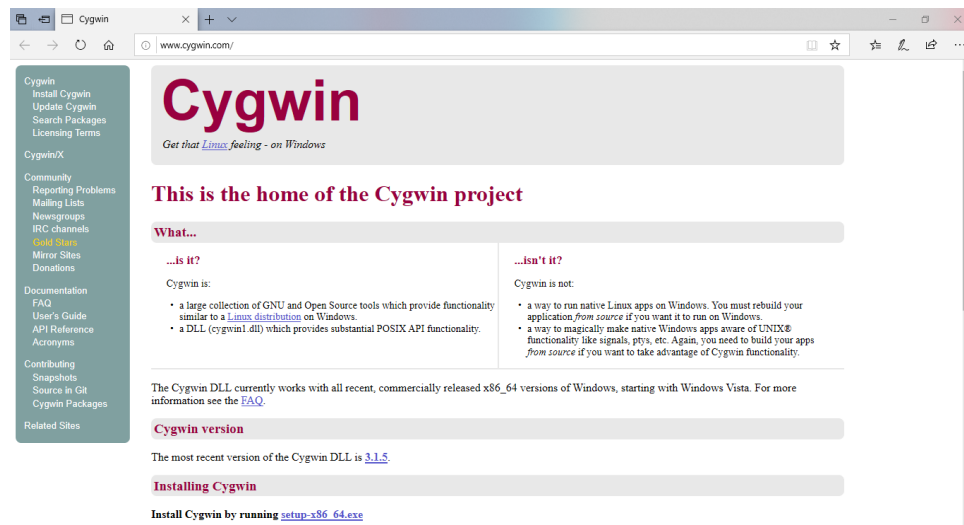


Fig 1: Cygwin Main Page.

- 4) Run the installation file. Click on “Next >”. We will see the following welcome screen.

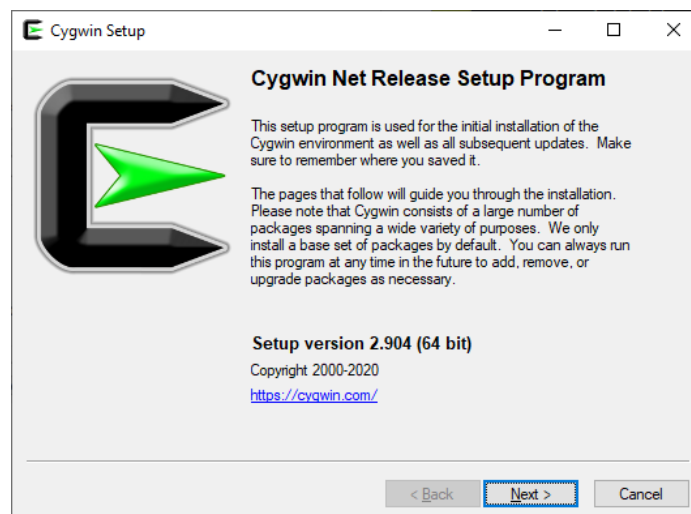


Fig 2: Cygwin Setup.

5) Select 'Install from Internet' option. Click "Next >"

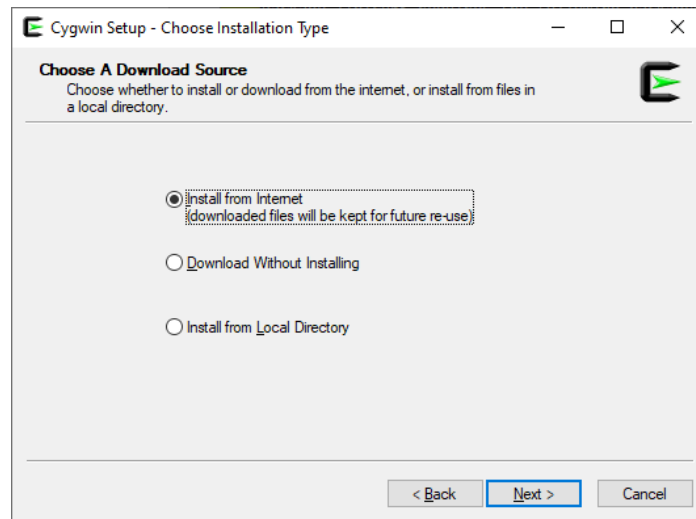


Fig 3: Cygwin Download Source.

6) Select 'All Users' option. Select a path to install Cygwin. Click "Next >"

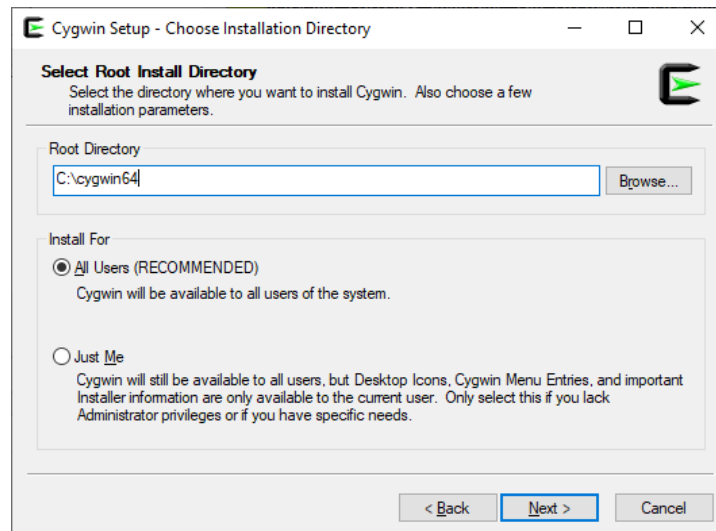


Fig 4: Select Cygwin Installation Root Directory.

7) Select a local package directory. Click “Next >”

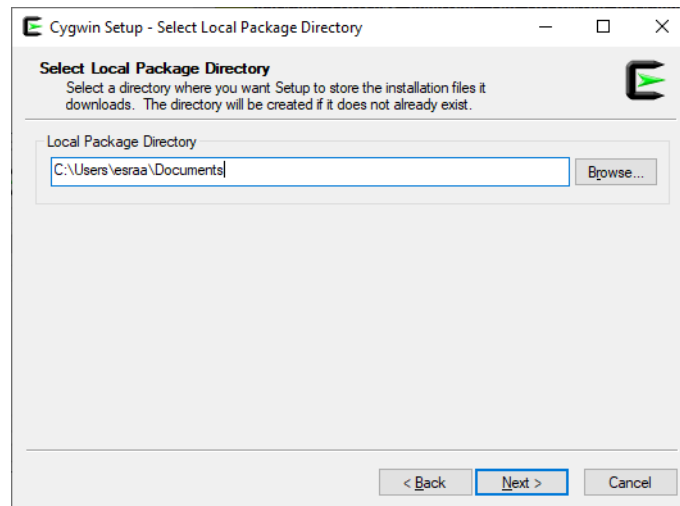


Fig 5: Select Cygwin Local Package Directory.

8) Select ‘Use System Proxy Setting’ option. Click “Next >”

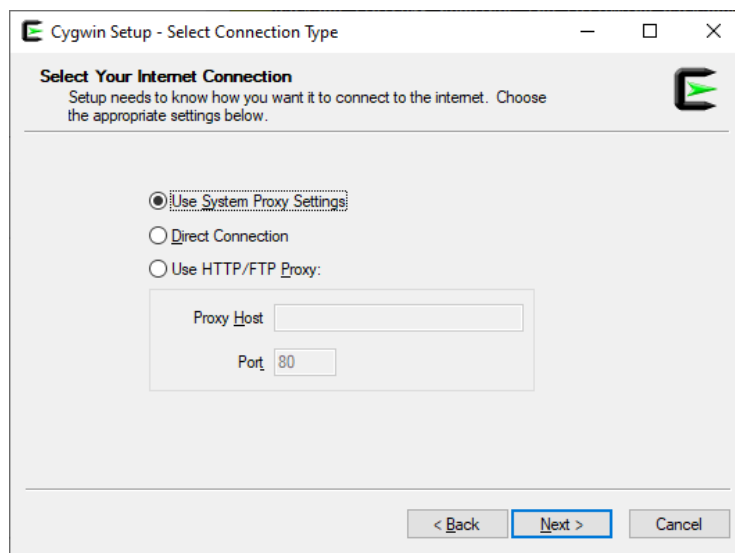


Fig 6: Cygwin Internet Connection Options

9) Select the download site <https://cygwin.mirror.constant.com>. Click “Next >”

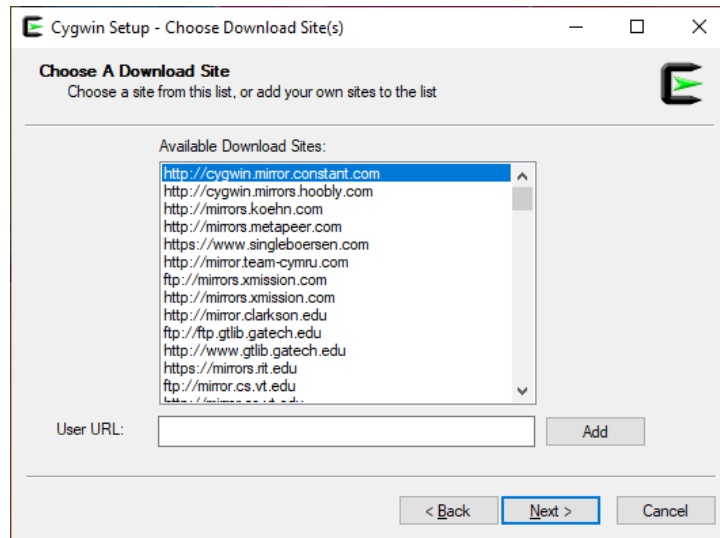


Fig 7: Cygwin Download Site Options

10) Wait until the installation process finishes.

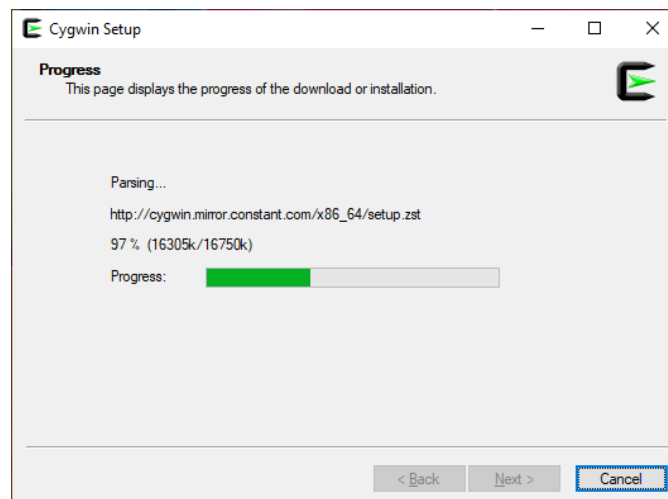


Fig 8: Cygwin Installation Process

11) Click “Next >” to download the default packages.

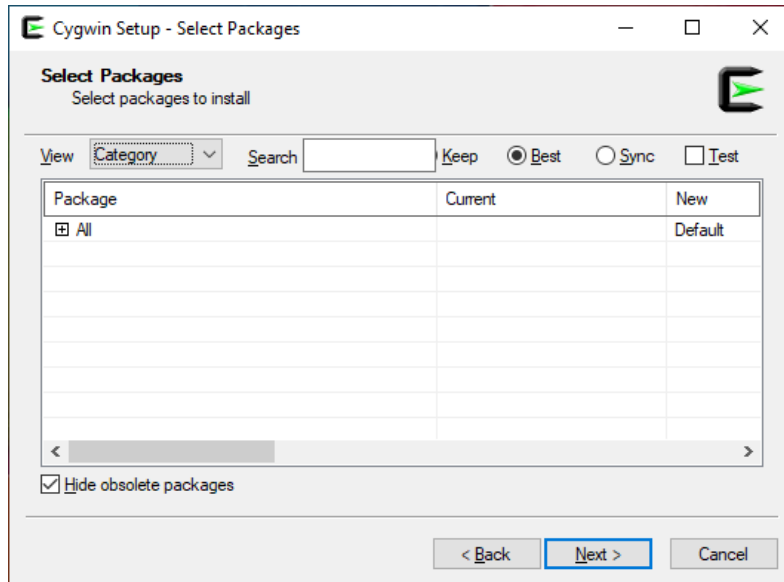


Fig 9: Cygwin List of Packages

12) Click on “Next >” in the ‘Review and Confirm Changes’ page

13) The packages will be downloaded.

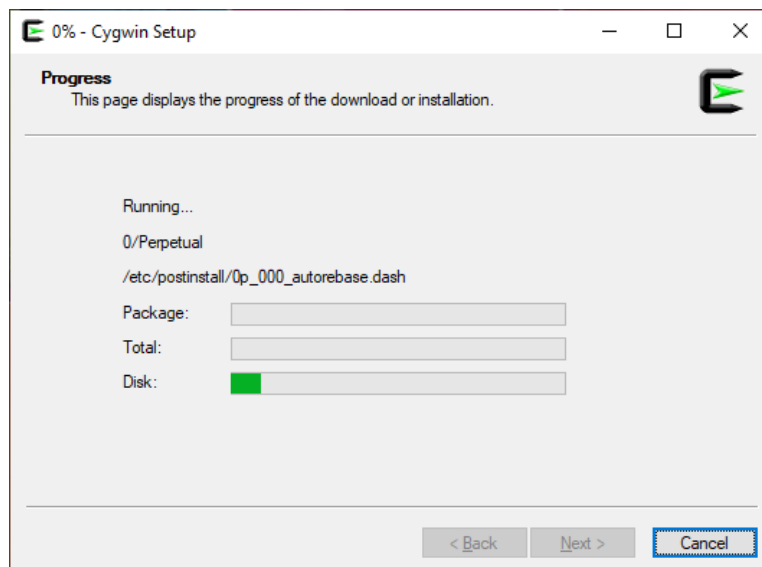


Fig 10: Cygwin Package Downloading Process

14) The installation process is completed. Click on “Finish”

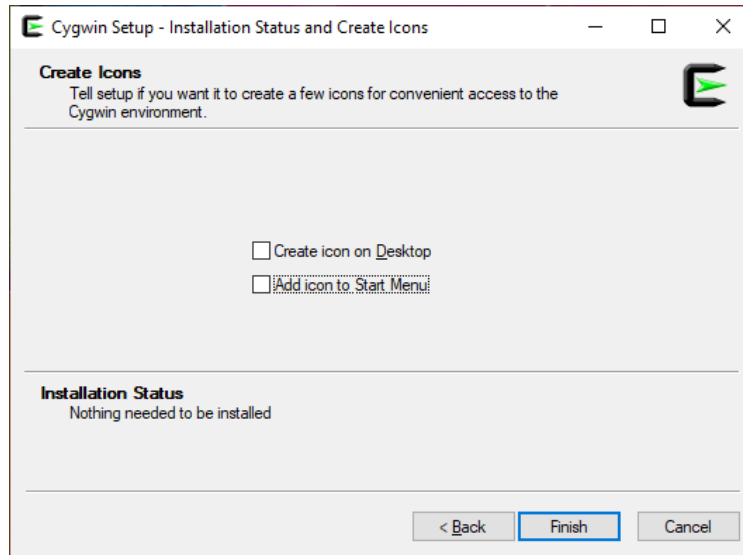


Fig 11: Cygwin Setup Completed.

15) The cygwin64 folder should include the following content.

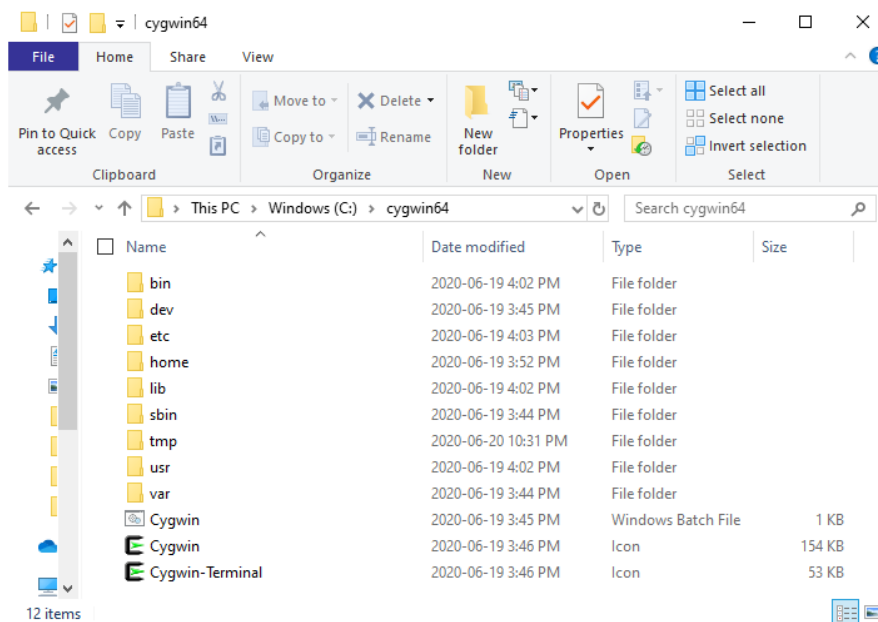


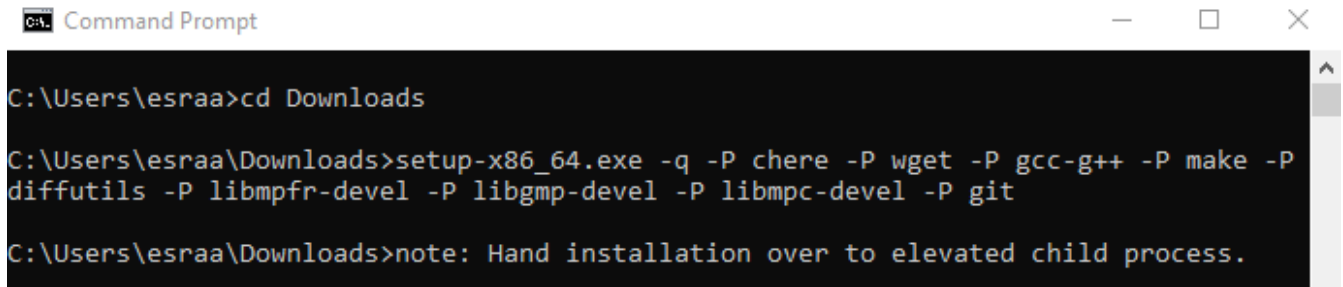
Fig 12: Content of cygwin64 folder

16) Open the windows terminal - cmd. Go to the Cygwin directory, i.e. type `cd C:\cygwin64`

For the 64-bit installation, type: `Setup-x86_64.exe -q -P chere -P wget -P gcc-g++ -P make -P diffutils -P libmpfr-devel -P libgmp-devel -P libmpc-devel -P git` and press enter

For 32-bit installation, type: `Setup-x86.exe -q -P chere -P wget -P gcc-g++ -P make -P diffutils -P libmpfr-devel -P libgmp-devel -P libmpc-devel -P git` and press enter

This will install all the necessary libraries and the latest version of gcc/g++ compiler.



```
C:\Users\esraa>cd Downloads

C:\Users\esraa\Downloads>setup-x86_64.exe -q -P chere -P wget -P gcc-g++ -P make -P
diffutils -P libmpfr-devel -P libgmp-devel -P libmpc-devel -P git

C:\Users\esraa\Downloads>note: Hand installation over to elevated child process.
```

Fig 13: CMD Installing Cygwin Binaries and Libraries

17) A Cygwin terminal will appear to download the corresponding packages.

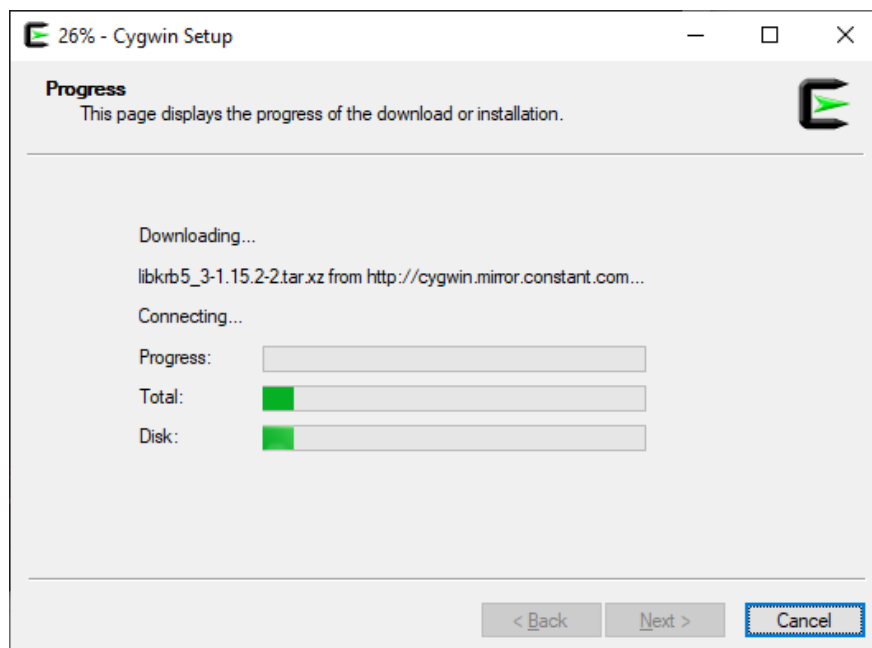
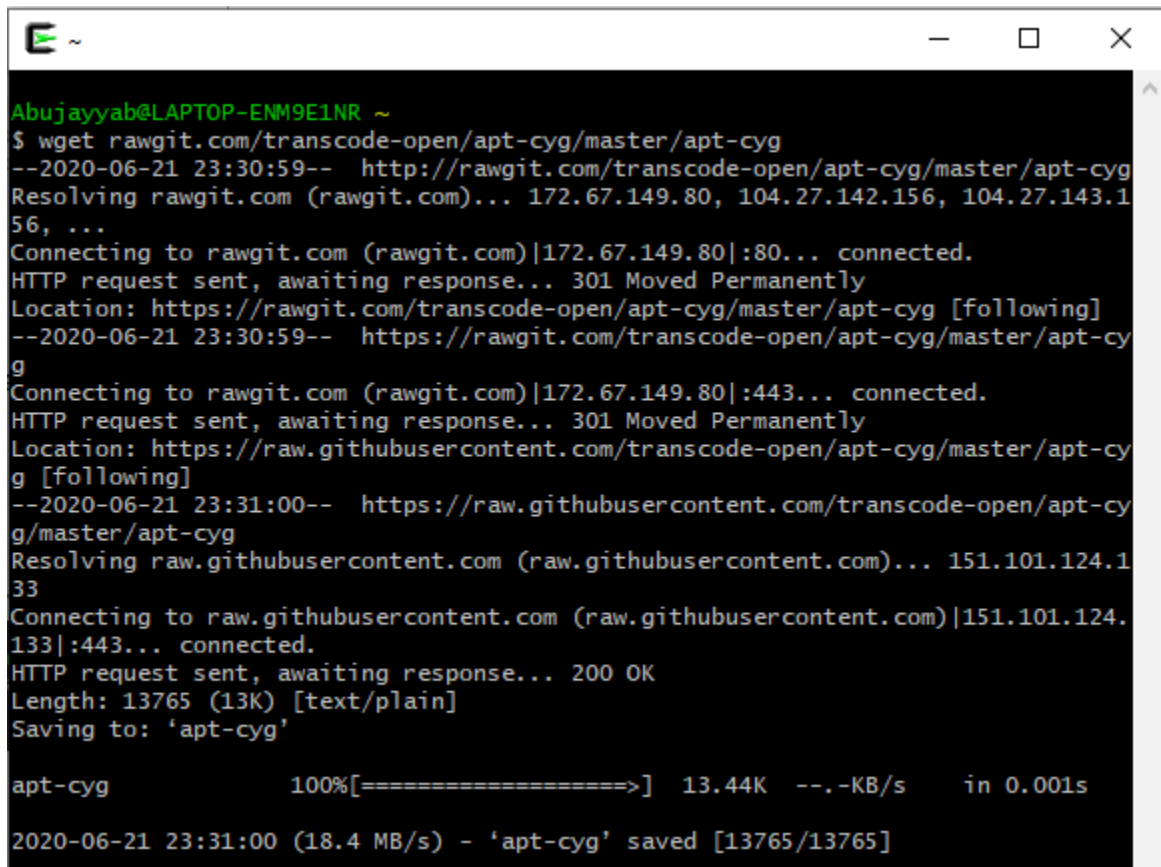


Fig 14: Cygwin Library Installation Process

Once the installation process finishes, the Cygwin installation window will close automatically, the windows cmd terminal can be closed.

18) Open cygwin in administrator mode. This will create the skeleton files.

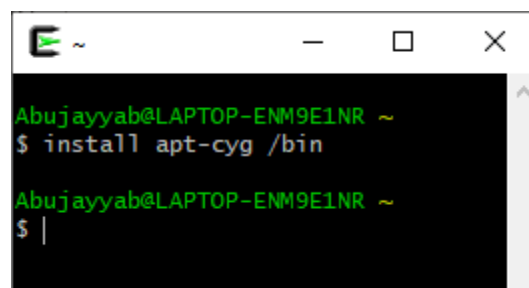
19) To download **apt-cyg** which is used to manage libraries and packages, similar to sudo **apt-get** command in Linux, type the following command in a normal cygwin terminal (i.e. not administrator mode) `wget rawgit.com/transcode-open/apt-cyg/master/apt-cyg` and press enter.



```
Abujayyab@LAPTOP-ENM9E1NR ~  
$ wget rawgit.com/transcode-open/apt-cyg/master/apt-cyg  
--2020-06-21 23:30:59-- http://rawgit.com/transcode-open/apt-cyg/master/apt-cyg  
Resolving rawgit.com (rawgit.com)... 172.67.149.80, 104.27.142.156, 104.27.143.156, ...  
Connecting to rawgit.com (rawgit.com)|172.67.149.80|:80... connected.  
HTTP request sent, awaiting response... 301 Moved Permanently  
Location: https://rawgit.com/transcode-open/apt-cyg/master/apt-cyg [following]  
--2020-06-21 23:30:59-- https://rawgit.com/transcode-open/apt-cyg/master/apt-cyg  
Connecting to rawgit.com (rawgit.com)|172.67.149.80|:443... connected.  
HTTP request sent, awaiting response... 301 Moved Permanently  
Location: https://raw.githubusercontent.com/transcode-open/apt-cyg/master/apt-cyg [following]  
--2020-06-21 23:31:00-- https://raw.githubusercontent.com/transcode-open/apt-cyg/master/apt-cyg  
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 151.101.124.133  
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|151.101.124.133|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 13765 (13K) [text/plain]  
Saving to: 'apt-cyg'  
  
apt-cyg          100%[=====>] 13.44K  --.-KB/s   in 0.001s  
2020-06-21 23:31:00 (18.4 MB/s) - 'apt-cyg' saved [13765/13765]
```

Fig 15: Cygwin Downloading apt-cyg

20) Type the following command `install apt-cyg /bin` and press enter



```
Abujayyab@LAPTOP-ENM9E1NR ~  
$ install apt-cyg /bin  
  
Abujayyab@LAPTOP-ENM9E1NR ~  
$ |
```

Fig 16: Cygwin Installing apt-cyg

21) To install the Boost library, type the following command `apt-cyg install libboost-devel` and press enter

A terminal window titled "E ~" with standard window controls. The terminal output shows the command `apt-cyg install libboost-devel` being executed. It details the download of `libboost-devel-1.66.0-1.tar.xz` from `cygwin.mirror.constant.com`, showing a successful HTTP 200 response and a download speed of 3.94 MB/s. The process concludes with "libboost-devel-1.66.0-1.tar.xz: OK" and "Unpacking...".

```
Abujayyab@LAPTOP-ENM9E1NR ~  
$ apt-cyg install libboost-devel  
Installing libboost-devel  
--2020-06-21 23:36:28-- http://cygwin.mirror.constant.com//x86_64/release/boost  
1/libboost-devel-1.66.0-1.tar.xz  
Resolving cygwin.mirror.constant.com (cygwin.mirror.constant.com)... 108.61.5.83  
Connecting to cygwin.mirror.constant.com (cygwin.mirror.constant.com)|108.61.5.83  
cted.  
HTTP request sent, awaiting response... 200 OK  
Length: 10953344 (10M) [application/octet-stream]  
Saving to: 'libboost-devel-1.66.0-1.tar.xz'  
  
libboost-devel-1.66.0-1 100%[=====>] 10.45M 3.94MB/s  
  
2020-06-21 23:36:31 (3.94 MB/s) - 'libboost-devel-1.66.0-1.tar.xz' saved [109533  
libboost-devel-1.66.0-1.tar.xz: OK  
Unpacking...
```

Fig 17: Cygwin Boost Library Installation

Downloading the Online Examination System

1) Install Git (User can use Git bash or any other software of choice to clone the project).

2) Create a new folder for the project. Right Click inside the folder and open a git bash here. Right Click + "Git Bash here".

3) Type the following command in the git terminal:

```
Git clone https://github.com/harneetkaur3/group_k_online_exam,
```

OR

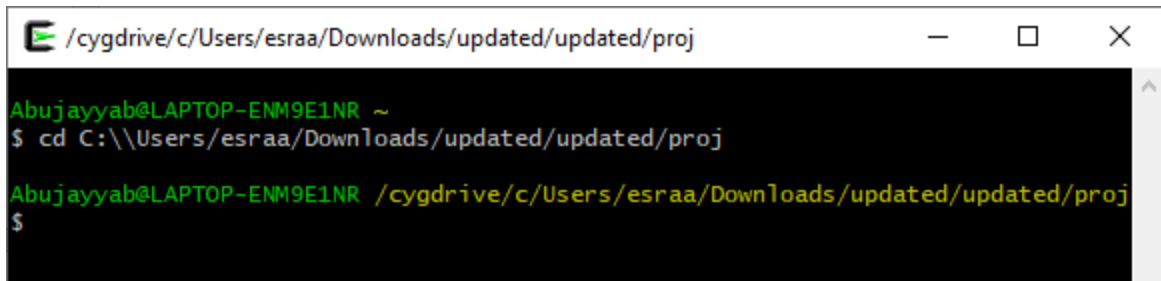
Go to the link https://github.com/harneetkaur3/group_k_online_exam and click on Clone or Download and download the zip folder of the software.

Running the Online Examination System

1) Compiling the project.

a) Unzip the downloaded project folder.

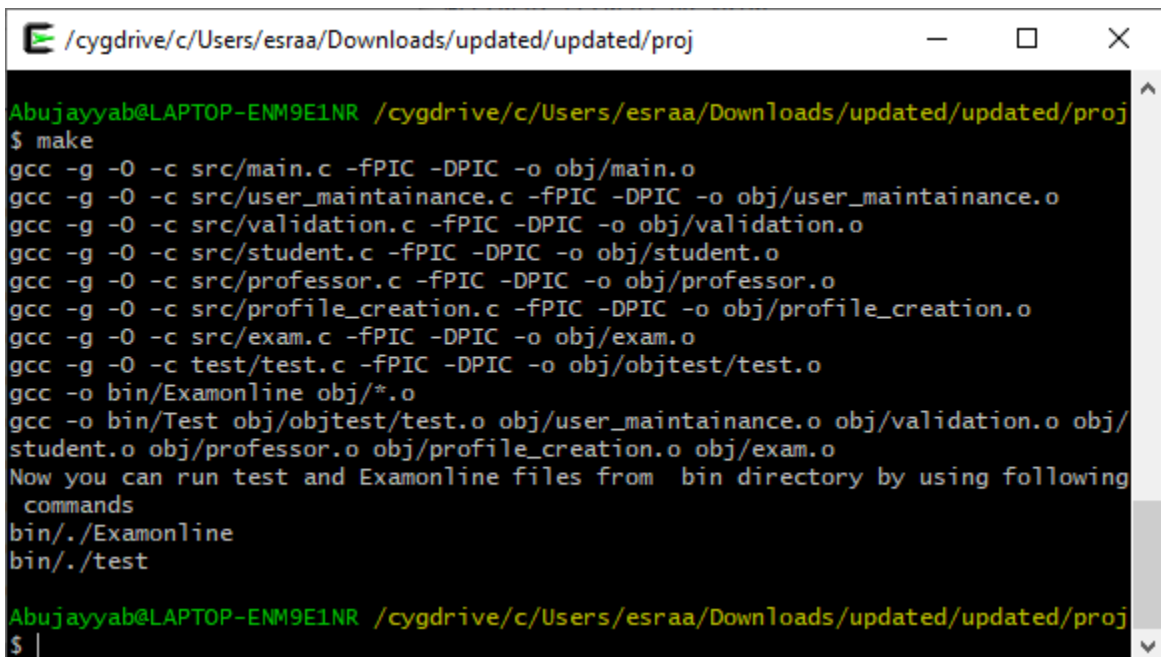
b) Open Cygwin64 terminal, type `cd /path of the downloaded folder/` and press enter.

A screenshot of a Cygwin terminal window. The title bar shows the path `/cygdrive/c/Users/esraa/Downloads/updated/updated/proj`. The terminal text shows the user `Abujayyab@LAPTOP-ENM9E1NR` at the prompt `~`. They enter `$ cd C:\\Users\\esraa\\Downloads\\updated\\updated\\proj`, and the prompt changes to `/cygdrive/c/Users/esraa/Downloads/updated/updated/proj`.

```
/cygdrive/c/Users/esraa/Downloads/updated/updated/proj
Abujayyab@LAPTOP-ENM9E1NR ~
$ cd C:\\Users\\esraa\\Downloads\\updated\\updated\\proj
Abujayyab@LAPTOP-ENM9E1NR /cygdrive/c/Users/esraa/Downloads/updated/updated/proj
$
```

Fig 18: Cygwin Project Directory

c) Type `make` and press enter

A screenshot of a Cygwin terminal window showing the execution of the `make` command. The title bar is the same as in Fig 18. The terminal text shows the user entering `$ make`, followed by a series of `gcc` compilation commands for various source files in the `src` directory, creating object files in the `obj` directory. It then links these into `bin/Examonline` and `bin/Test`. Finally, it provides instructions to run these files from the `bin` directory.

```
/cygdrive/c/Users/esraa/Downloads/updated/updated/proj
Abujayyab@LAPTOP-ENM9E1NR /cygdrive/c/Users/esraa/Downloads/updated/updated/proj
$ make
gcc -g -O -c src/main.c -fPIC -DPIC -o obj/main.o
gcc -g -O -c src/user_maintainance.c -fPIC -DPIC -o obj/user_maintainance.o
gcc -g -O -c src/validation.c -fPIC -DPIC -o obj/validation.o
gcc -g -O -c src/student.c -fPIC -DPIC -o obj/student.o
gcc -g -O -c src/professor.c -fPIC -DPIC -o obj/professor.o
gcc -g -O -c src/profile_creation.c -fPIC -DPIC -o obj/profile_creation.o
gcc -g -O -c src/exam.c -fPIC -DPIC -o obj/exam.o
gcc -g -O -c test/test.c -fPIC -DPIC -o obj/objtest/test.o
gcc -o bin/Examonline obj/*.o
gcc -o bin/Test obj/objtest/test.o obj/user_maintainance.o obj/validation.o obj/
student.o obj/professor.o obj/profile_creation.o obj/exam.o
Now you can run test and Examonline files from bin directory by using following
commands
bin./Examonline
bin./test
Abujayyab@LAPTOP-ENM9E1NR /cygdrive/c/Users/esraa/Downloads/updated/updated/proj
$ |
```

Fig 19: Making of project

2) Type `bin/./Examonline` and press enter.

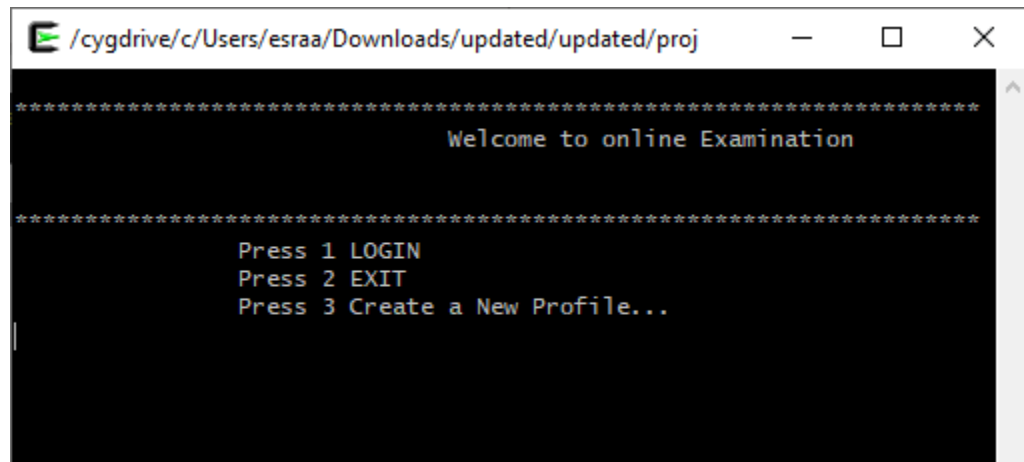


Fig 20: Welcome Screen of the Online Examination System

3) Enter 1, then press enter to go to the login screen

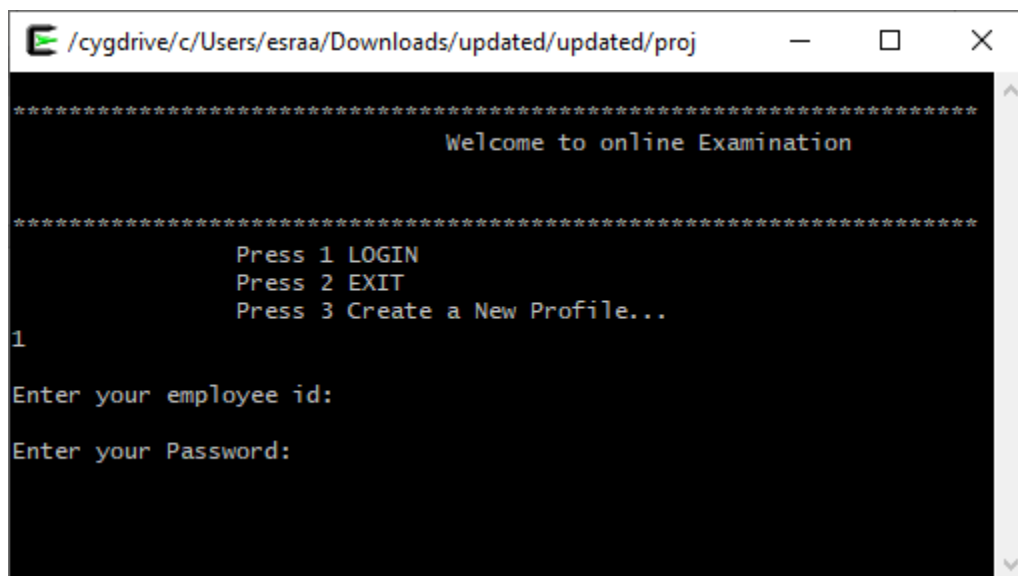
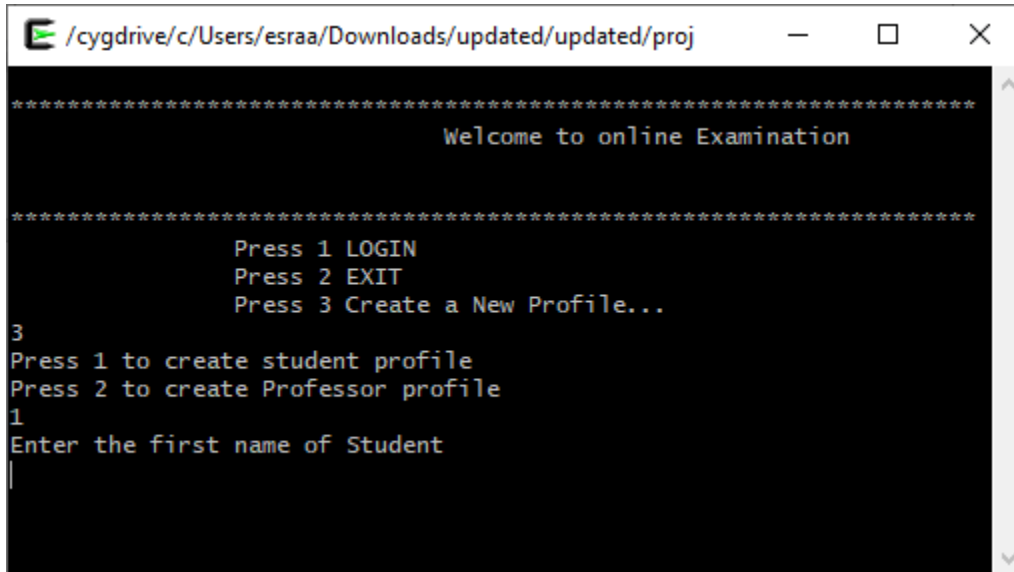


Fig 21: Login Page of the Online Examination System

4) Enter 3, then press enter. Then, enter 1, then press enter to go to the create student profile screen



```
/cygdrive/c/Users/esraa/Downloads/updated/updated/proj

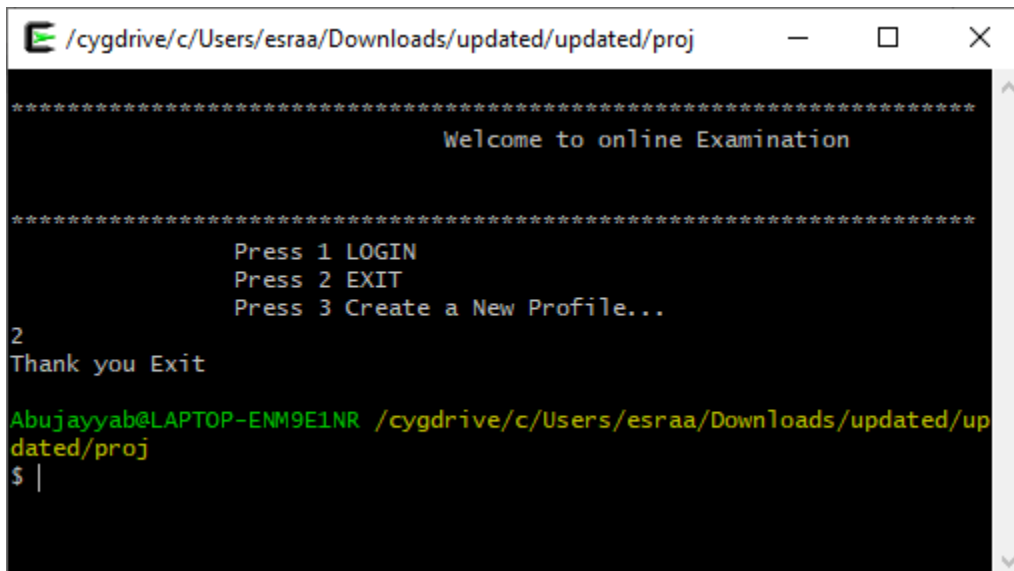
*****
                        Welcome to online Examination
*****

      Press 1 LOGIN
      Press 2 EXIT
      Press 3 Create a New Profile...

3
Press 1 to create student profile
Press 2 to create Professor profile
1
Enter the first name of Student
|
```

Fig 22: Creating Student Profile in the Online Examination System

5) Enter 2, then press enter to exit



```
/cygdrive/c/Users/esraa/Downloads/updated/updated/proj

*****
                        Welcome to online Examination
*****

      Press 1 LOGIN
      Press 2 EXIT
      Press 3 Create a New Profile...

2
Thank you Exit

Abujayyab@LAPTOP-ENM9E1NR /cygdrive/c/Users/esraa/Downloads/updated/up
dated/proj
$ |
```

Fig 23: Exiting from the Online Examination System