

CSC209: Software Tools and Systems Programming

Assignment Project Exam Help

<https://qz.toronto.ca/courses/204484>

Add WeChat powcoder
Karen Reid Nathan Wiebe

csc209-2021-01@cs.toronto.edu



Welcome Back!

Assignment Project Exam Help

<https://powcoder.com>

First exercise: Let's find out more about you and your
fellow classmates

Add WeChat powcoder

Introductions

In the breakout rooms:

Assignment Project Exam Help

1. Introduce yourself
<https://powcoder.com>
2. Say one interesting thing about yourself
Add WeChat powcoder
3. What worries you the most about this course OR
what are you most excited about

When you come back from the breakout rooms, type
one thing you are worried/excited about in the chat.

Communication

- Piazza

Assignment Project Exam Help

- Use first for non-personal communication
- Informative subject lines help

<https://powcoder.com>

- Email: csc209-2021-01@cs.toronto.edu

Add WeChat powcoder

- Use for personal communication, such as a request for special consideration.

- In-person Office Hours

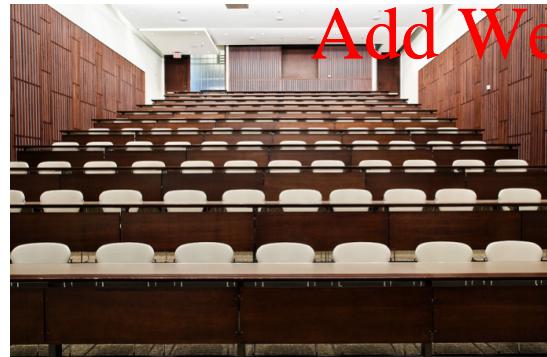
- Use for questions about course material and help with coursework.

Professionalism and Email

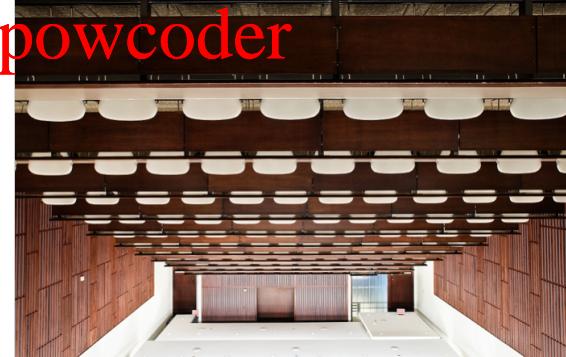
- Assignment Project Exam Help
 - Email is a formal method of communication:
 - Use proper English: <https://powcoder.com>
 - State your question clearly, with enough context.
 - Sign it (Name and utond are the most useful.)
 - In person
 - Major, super-helpful tip on how to ask questions!

Inverted/Blended Classroom

- Preparation before class (videos & exercises)
- Hands-on Activities in Class
 - Need to be ready to do some programming during class
<https://powcoder.com>



Add WeChat powcoder



Course Information

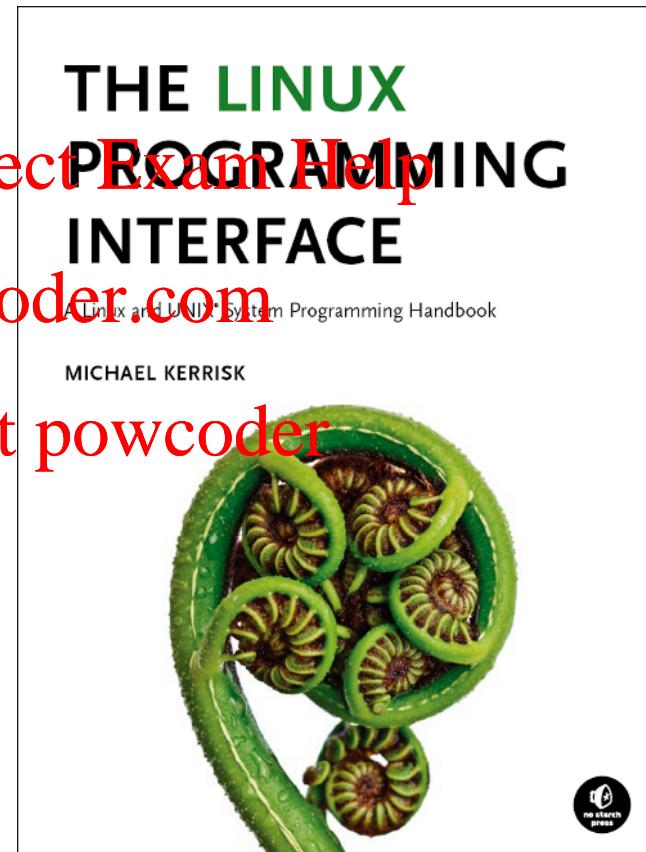
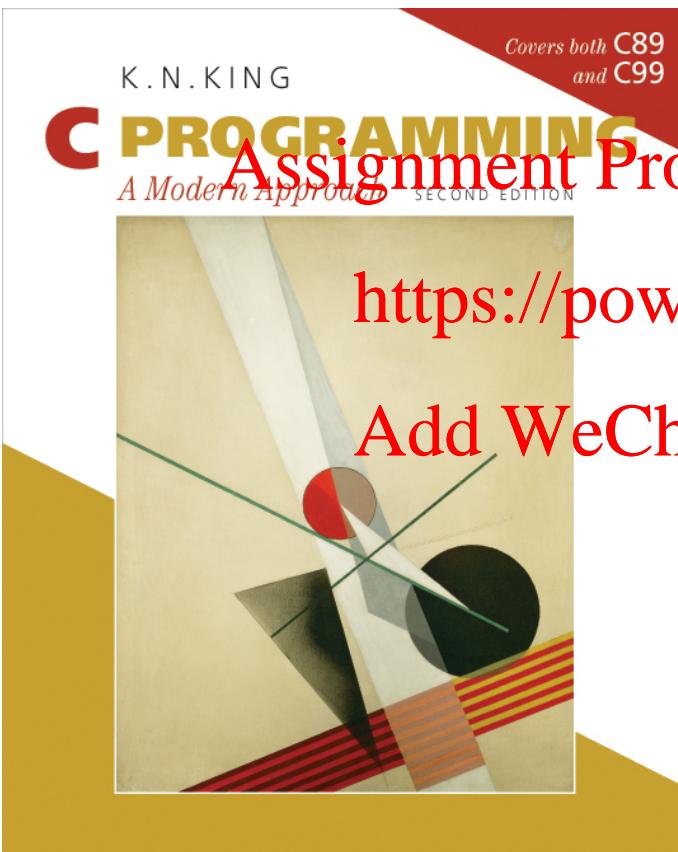
- All important information will be on Quercus
 - **Syllabus** – deadlines, policies
 - **Lectures & Labs** – schedule, notes, worksheets etc.

Add WeChat powcoder
The Quercus site is the official source of announcements.

<https://q.utoronto.ca/courses/204484/>

Make sure you have the prerequisites!

Texts



Marking Scheme and Schedule

Work	Weight	Deadline
Lecture Preparation (PCRS)	5%	Tuesdays before 1:30pm
Lab Exercises	12% (best 9 of 10)	Fridays before 6:30pm
A1 – C basics	7%	Wednesday 3 February before 5:00pm
Test 1	14%	Friday 12 February (no lab this week)
A2 – System Calls	10%	Wednesday 24 February before 5:00pm
Test 2	14%	Tuesday 16 March (no lecture that day)
A3 – Processes	10%	Wednesday 24 March before 5:00pm
A4 – Communication	8%	Friday 9 April before 5:00pm
Test 3	20%	TBA during Final Assessment period

Assignment Project Exam Help

Add WeChat powcoder

<https://powcoder.com>

Assignments

- You will use git to manage and submit your assignments.
Assignment Project Exam Help
- The repositories are set up on MarkUs
<https://powcoder.com>
- Submit your assignment to your repo well before the due date.
(Then submit again and again as you improve your solution.)
Add WeChat powcoder
- All code must work on teach.cs to receive full marks.
Code that does not compile on teach.cs will get 0.
- See course syllabus for late penalties and remark policies.

Weekly Lab Exercises

- Check the Labs page on Quercus for “location”
 - Tuesdays 8pm
 - Fridays 1pm, 2pm, or 3pm
- Starting this week
- Submit your work on MarkUs (git) for credit
 - 1% per lab; best 9 of 10
 - No credit for attendance
- Due by 6:30pm Friday (no lates accepted)

Complete Software Setup now!

Software Installation

- Follow the Software Setup instructions on Quercus
Assignment Project Exam Help
(With help in Piazza)
- Begin learning to use a good code editor (vim, VS Code, emacs, nano, atom, sublime)
<https://powcoder.com>
- Learn to connect remotely to teach.cs and compile, edit, run programs:
 - Learning to use ssh from the command line will really pay off
 - https://www.teach.cs.toronto.edu/using_cdf.html

Plagiarism

- “The work you submit must be your OWN, done without participation by others. It is an academic offence to hand in anything written by someone else without acknowledgement.”
- You are hurting your friend when you **give** him or her a copy of your assignment.
- You are hurting your friend when you **ask** him or her to give you a copy of their assignment.

What is cheating?

- Cheating is
 - copying parts or all of another student's assignment
 - including code from books, web sites, other courses without attribution
 - getting someone else to do substantial parts of your assignment
 - giving someone else your solution
- Cheating is not
 - helping to find a bug in a friend's code (be careful)
 - helping each other understand man pages or example code

What is this Course About?

- Software Tools
 - Efficiently use the Unix Command Line
 - Understand the shell
 - Use Basic Shell Programming
 - Understand and use Make
- Systems Programming
 - C
 - files
 - processes
 - communication

Unix Principles

- Do one basic thing well
Assignment Project Exam Help
 - with some basic variations
- Simple input formats
https://powcoder.com
 - plain text
 - don't require interactive input
 - stdin to stdout/stderr
- Simple output format
 - expected to be input to another tool

Unix Tools Example

Assignment Project Exam Help

- ls, wc, sort, ... <https://powcoder.com>
- standard input/standard output [Add WeChat powcoder](#)
- pipes

Assignment Project Exam Help

Unix *is* user-friendly;
it's just choosy about who its friends are.
<https://powcoder.com>

Add WeChat powcoder

Basic Tools to Learn

- head, tail
- cd
- mkdir
- ls
- cp
- mv
- rm

Assignment Project Exam Help

<https://powcoder.com>

Add WeChat powcoder

- diff
- comm
- cut
- cat
- wc
- grep
- who

Unix manual

Assignment Project Exam Help

- man examples <https://powcoder.com>
- don't memorize - look it up! **Add WeChat powcoder**
- it grows on you

Shells

```
$ gcc -Wall -g -std=gnu99 -o hello hello.c
```

Assignment Project Exam Help

- The \$ is a shell prompt.
- Shells <https://powcoder.com>
 - accept commands (programs) as input
 - finds the executable
 - interprets the arguments
 - starts executing the command
- Shells also have some “built-in” commands.

Add WeChat powcoder

Running a program

```
$ gcc -Wall -g -std=gnu99 -o hello hello.c  
$ hello
```

Assignment Project Exam Help

<https://powcoder.com>

- load a program into memory and hand it off to the OS to run the program.

Add WeChat powcoder

Files and Directories

Assignment Project Exam Help

- “Everything is a file.”
- Unix provides a file interface for all Input/Output.
 - regular files
 - directories
 - devices
 - video
 - keyboard
 - sound
 - network
- File interface = open, read, write, close

<https://powcoder.com>

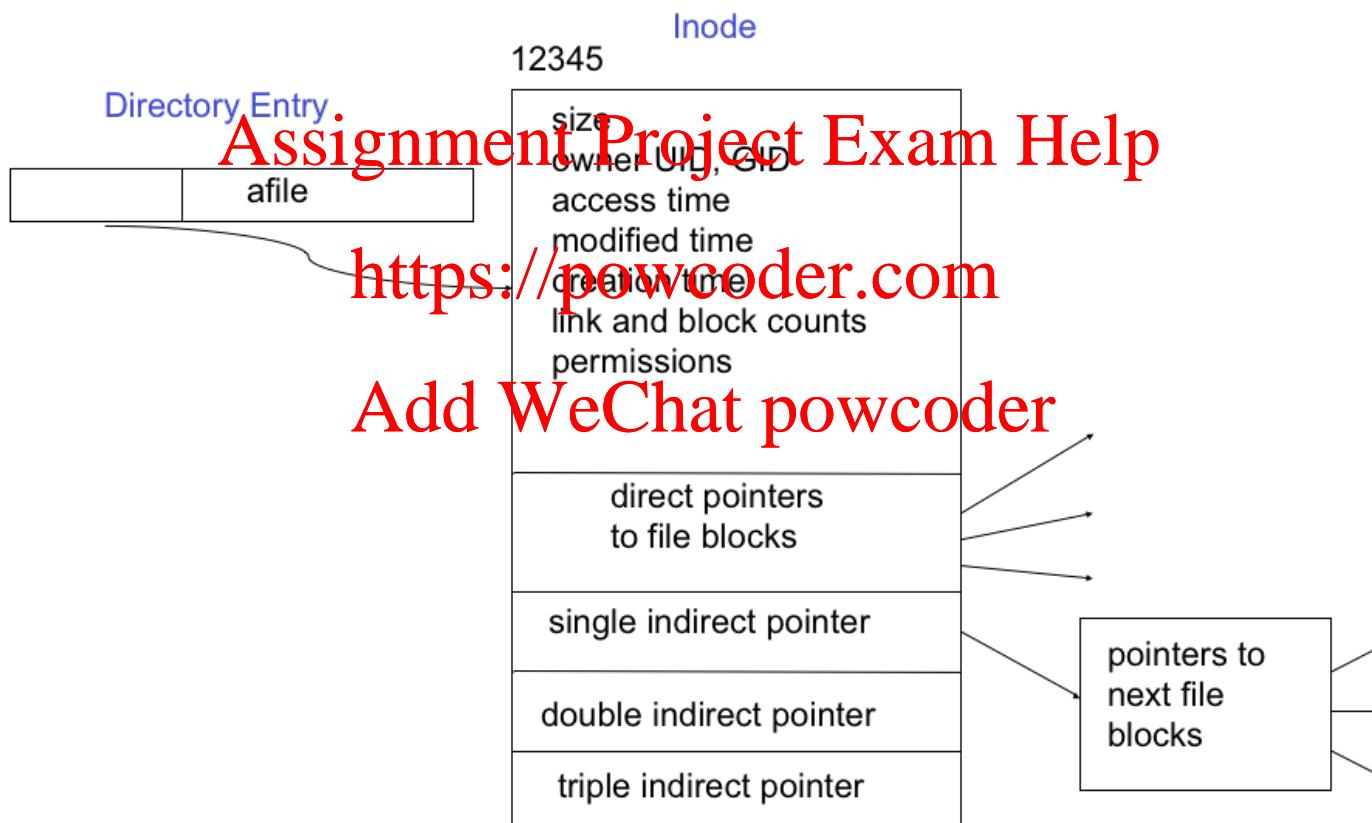
Add WeChat powcoder

File System Hierarchy

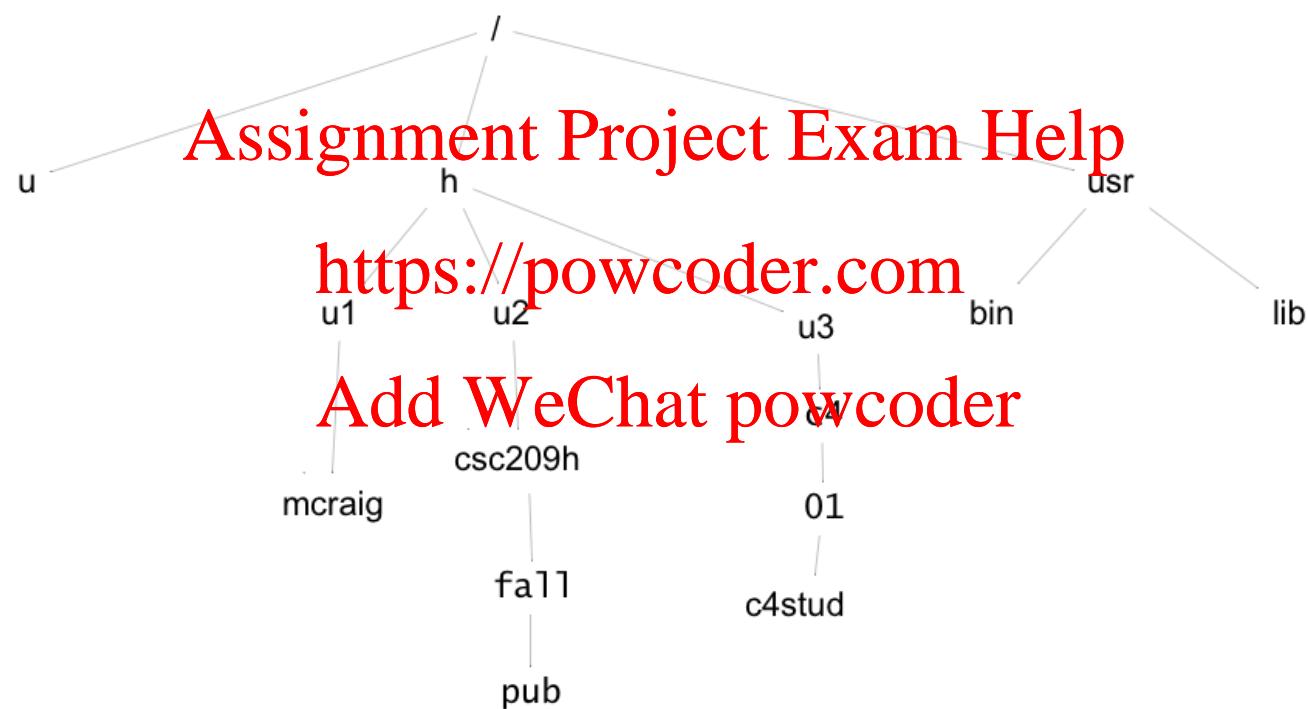
Assignment Project Exam Help

- Everything starts in the “root” directory whose name is “/” <https://powcoder.com>
- A **directory** is a file that contains directory entries.
- A directory entry maps a filename to an **inode**.
- An **inode** is the data structure that contains information about a file, including which disk blocks contain the file data.

Inodes and Directory Entries



File System Hierarchy



Directories and Links

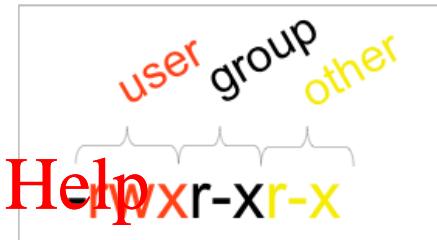
directory file
Assignment Project Exam Help

<https://powcoder.com>

Add WeChat powcoder

```
% ls -l /
drwxr-xr-x    2 root    root     4096 Nov  8 17:56 bin/
drwxr-xr-x    2 root    root     4096 Aug 10 14:46 cdrom/
drwxrwsr-x    2 root    staff    4096 Feb  8 2002 home/
drwxr-xr-x    6 root    root     4096 Sep  2 15:26 lib/
lrwx-----   1 root    root      6 Sep  2 15:32 u -> /cdf/u/
```

Permissions



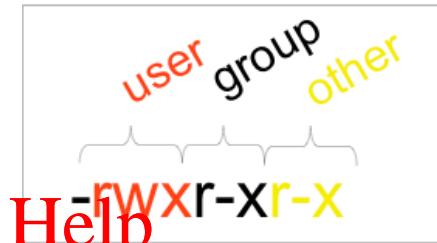
Assignment Project Exam Help

<https://powcoder.com>

Add WeChat powcoder

- File permissions
 - read, write, execute – pretty much what you think
- Directory permissions
 - read – you can run ls on the directory
 - write – you can create and delete files in the directory
 - execute – you can “pass through” the directory when searching subdirectories.

chmod



- chmod 511 filename
Assignment Project Exam Help
 - 3 numbers between 0 and 7, the octal value for that category of user
 - Quiz — what is the command to set the permissions of the file classlist to be world readable but writeable only by the file owner and members of the group
- Another approach
 - chmod u+rwx
 - chmod go-x
 - adds or removes permissions for those categories of users

Globbing

- A little like regular expressions but different syntax
- * matches any number of any character
<https://powcoder.com>
- ? matches any one character
Add WeChat powcoder
- [list of characters]
- [1-5] or [a-z] or [a-xz]