

CPSC 231

Introduction to Computer Science for
Computer Science Majors I

Tutorial 3 – Concepts for A1

DANNY FISHER

dgfisher@ucalgary.ca

September 23, 2014

Agenda

- **script** command more details
- Submitting using d2l
- Formula for weighted average
- Examples to help with assignment 1

script

- Makes record of a terminal session.
- **script [filename]**
 - **Ex:** 'script scriptfile' will record a script in a file called 'scriptfile'
 - Default filename: **typescript**
- Using backspace will create garbage characters in a script file
- If you make an error just hit enter a few times to make a blank line

Submitting Using D2L

The screenshot shows a web browser window displaying the D2L course page for CPSC 231 L02 - (Fall 2014) - Introduction to Computer Science for Computer Science Majors I at the University of Calgary. The browser address bar shows the URL <https://d2l.ucalgary.ca/d2l/home/53985>. The page header includes the course title and the University of Calgary logo. A red navigation bar contains the following menu items: COURSE HOME, CONTENT, CALENDAR, COMMUNICATION, ASSESSMENTS, MY TOOLS, and EDIT COURSE. The ASSESSMENTS menu is expanded, showing a list of options: Dropbox, Grades, Quizzes, Rubrics, Self Assessments, and Surveys. Below the navigation bar, there is a 'News' section with a dropdown arrow and a message that says 'There is no news to display.' Below the news section is an 'Important Links' section with a right-pointing arrow. The user's name, Danny Fisher, is visible in the top right corner of the page.

Submitting Using D2L

Browser address bar: https://d2l.ucalgary.ca/d2l/lms/dropbox/admin/folders_manage.d2l?ou=53985

Course: CPSC 231 L02 - (Fall 20...)

User: Danny Fisher

UNIVERSITY OF CALGARY

COURSE HOME | CONTENT | CALENDAR | COMMUNICATION | ASSESSMENTS | MY TOOLS | EDIT COURSE

Dropbox Folders

More Actions

20 per page

Folder	Total Files	Unread Files	Flagged Files	Due Date
No Category				
Test Dropbox	0	0	0	Oct 15, 2014 12:00 AM
Full Assignments				
Assignment 1	0	0	0	Sep 26, 2014 4:00 PM
View Assignment 1 submissions				
Assignment 2	0	0	0	Oct 20, 2014 4:00 PM
	0	0	0	Nov 7, 2014

Address bar at bottom: d2l.ucalgary.ca/d2l/lms/dropbox/admin/mark/folder_submissions_users.d...

Submitting Using D2L

The screenshot shows a web browser window with the URL https://d2l.ualgary.ca/d2l/lms/dropbox/user/folder_submit_files.d2l?db=3610&grpId=0&isprv=0&bp=0&ou=15921. The browser's address bar also shows several open tabs: 'Apps', 'Uni', 'Classic Buttermilk Pa...', 'Instance Overview -', 'Complete Home To...', and 'www.anxietybc.com'. The page header includes a navigation menu with 'Home' and 'CPCSC 329 L01 (Winter 2...)', and a user profile for 'Danny Fisher'. A 'Download All Files' button is located at the top of the content area.

Submit Files

Note:
You have already submitted to this folder. By submitting again, you will overwrite your previous submissions.

Files to submit *
(0) file(s) to submit

After uploading, you must click **Submit** to complete the submission.

[Add a File](#) [Record Audio](#) [Record Video](#)

Comments

Rich text editor toolbar with icons for undo, redo, bold, italic, link, unlink, list, and paragraph. The paragraph dropdown menu is open, showing 'Paragr'. A '...' menu icon is also visible.

Rich text editor content area.

Rich text editor footer with icons for text color, code, link, unlink, and list.

[Overwrite](#) [Cancel](#)

Submitting Using D2L

The screenshot shows a web browser window with the URL https://d2l.ucalgary.ca/d2l/lms/dropbox/user/folder_submit_files.d2l?db=3610&grpId=0&isprv=0&bp=0&ou=15921. The browser's address bar also shows tabs for 'Apps', 'Uni', 'Classic Buttermilk Pe...', 'Instance Overview', 'Complete Home Toc', and 'www.anxietybc.com'. The page header includes navigation links for 'Home' and 'CPSC 329 L01 (Winter 2014)', along with user information for 'Danny Fisher'. A 'Download All Files' button is visible at the top of the content area.

The main content area is titled 'Submit Files' and includes a 'Note' section stating 'You have already submitted'. Below this, it shows 'Files to submit * (0) file(s) to submit' and a section for 'After uploading, you must' with buttons for 'Add a File' and 'Record A...'. A 'Comments' section is partially visible at the bottom.

An 'Add a File' dialog box is open in the foreground, titled 'Add a File - CPSC 329 L01 (Winter 2014) - Expl Info Security & Privacy - University of Calgary'. The dialog has a close button (X) in the top right corner. On the left side of the dialog, there is a list of file sources: 'My Computer', 'My Locker', 'Group Locker', and 'ePortfolio'. On the right side, there is a dashed box containing the text 'Drop file here, or click below!' and an 'Upload' button with a green arrow icon. At the bottom of the dialog, there are 'Add' and 'Cancel' buttons.

Submitting Using D2L

The screenshot shows a web browser window with the URL <https://d2l.ucalgary.ca/d>. The page is titled "Submit Files" and contains a "Note" section, a "Files to submit" section with "(0) file(s) to submit", and a "Comments" section. An "Open File" dialog box is overlaid on the page, showing a file named "A1.py" selected. The dialog box has a "Cancel" button and an "Open" button.

Open File

Places: Search, Recently Used, dfish, Desktop, File System, test

Name	Size	Modified
A1.py	8 bytes	15:15

Buttons: Cancel, Open

Submitting Using D2L

The screenshot shows a web browser window displaying a D2L submission page. The browser's address bar shows the URL: https://d2l.ucalgary.ca/d2l/lms/dropbox/user/folder_submit_files.d2l?db=3610&grpid=0&isprv=0&bp=0&ou=15921. The page title is "Submit Files - Assignment 1 - CPSC 329 L01 (Winter 2014) - Expl Info Security & Privacy - University of Calgary".

The main content area of the page is titled "Submit Files" and includes a "Note:" section stating "You have already submitted...". Below this, it says "Files to submit * (0) file(s) to submit". There are buttons for "Add a File" and "Record A...".

A modal dialog box titled "Add a File - CPSC 329 L01 (Winter 2014) - Expl Info Security & Privacy - University of Calgary" is open. It features a list of sources on the left: "My Computer", "My Locker", "Group Locker", and "ePortfolio". On the right, a file named "A1.py (8 Bytes)" is selected. At the bottom of the dialog are "Add" and "Cancel" buttons. A footer bar at the bottom of the dialog reads "Upload files from your computer." with a small icon on the right.

Submitting Using D2L

Applications Menu [Week-2-1.pptx - LibreOffic... CPSC 231 - Slides Submit Files - Assignment ... dfish - File Manager Sun, Sep 21 03:12 AM

Submit Files - Assignment 1 - CPSC 329 L01 (Winter 2014) - Expl Info Security & Privacy - University of Calgary - Google Chrome

Submit Files - Assignme x

https://d2l.ucalgary.ca/d2l/lms/dropbox/user/folder_submit_files.d2l?db=3610&grpId=0&isprv=0&bp=0&ou=15921

Apps Uni Classic Buttermilk Pa Instance Overview - Complete Home To www.anxietybc.com

Home > CPSC 329 L01 (Winter 2... Danny Fisher

Download All Files

Submit Files

Note:
You have already submitted to this folder. By submitting again, you will overwrite your previous submissions.

Files to submit *
(1) file(s) to submit

After uploading, you must click Submit to complete the submission.

A1.py (8 Bytes) ✖

Comments

Rich text editor toolbar: Bulleted list, Image, Link, Paragraph, More options, ABC, Code, Find, Undo, Redo, Spell check.

Overwrite Cancel

https://d2l.ucalgary.ca/d2l/common/viewFile.d2lfile/Temp/MjY0amdjOGVoZ3R4ZW5ydmx0YzQybGpkanQ3dXdoZ3I4ODgwMDEzMzU4OTYzLnB5O0ExLnB5/A1.py?ou=15921

Calculating Weighted Average

- ▮ 6 mini assignments (1% each for 6% total)
- ▮ 5 assignments (4%, 5%, 6%, 7%, 7% for a total of 29%)
- ▮ 2 exams (25% midterm, 40% final for a total of 65%)

Calculating Weighted Average

- Suppose a student got 3.0 for all assignments, 2.7 for midterm and 2.0 for final
- $(3.0 * 0.06) + (3.0 * 0.29) + (2.7 * 0.25) + (2.0 * 0.40) = 2.525$
- Don't forget to round to two decimal places, so 2.525 would be rounded to 2.53

Formatting

▫ `print("%5.2f %-5d " %(1.599, 23))`

▫ `%5.2f` indicates that the **floating** point number passed in will be printed with a **left aligned width** of at least **5** characters (including the `'.'`) and have **2 places of precision**

▫ If a number shorter than 5 digits is passed in (23.25) then leading spaces will be added to create a left aligned width of at least 5 characters

Formatting

- `print("%5.2f %-5d " %(1.599, 23))`
- `%-5d` indicates that the **integer** passed in will be printed with a **right aligned width** of at least **5** characters
- If an integer of less than 5 digits is passed in trailing spaces will be added to create a right aligned width of 5 spaces
-

Variables

- Variables are essentially **named containers** used to **store data** which can come in various types
- Data can come in the form of **integers, floats,** and **strings**
- **Integers** are non decimal numbers (1, 3, 20, ...)
- **Floats** are decimals numbers (1.0, 3.0, 9.42, ...)
- **Strings** are any sequence of characters (cat, dog, fgd) they do not have to be actual words

Naming Variables

- Make sure the name is **meaningful**
- In **Python** the name must **begin** with a **letter**
- Names are case sensitive but **avoid distinguishing** two variables **by case**
- Names should be all **lower case** when dealing with a **single word** name (width = 2)
- With multiple word names **distinguish** words by **capitalizing** (ballWidth = 2)

Naming Variables

- Names **cannot** be Python **keywords**

```
and      else      import   raise
assert   except    in       return
break    exec      is       try
class    finally  lambda   while
continue for       not      with
def      from     or       yield
del      global   pass
elif     if       print
```

Constants

- **Constants** are variables whose values don't change
- **Unnamed constants**, often called magic numbers, are numerical values that appear in programs (num = num + 12, here 12 is an unnamed constant)
- **Named constants** are values that are referred to by a name (PI = 3.14)
- **Avoid** using **unnamed constants** unless it is for simple values such as 2 in circumference = 2 * PI * r

Operators

- Python has basic operators such as `*`, `+`, and `-`
- **Division** is slightly more complex, when dividing two numbers such as `9/4` you will get a float result
- **Integer division** using two back slashes gives you an integer result, `9//4 = 2`
- **Modulo** gives you the remainder of an integer division, `9%4 = 1`

Common Syntax Errors

- Remember to match quotes of the same type, “ wont match with ’
- Remember to declare a variable before using is, before typing `print(num)` make sure `num` has been declared

Escape Codes

- **lt** is the sequence for a tab
- **ln** is the sequence for a newline
- To print characters such as `'\'` and `'“'` we need to provide the escape character `'\'`
 - `Print(“\”)` will print `“`
 - `Print(“\\”)` will print `\`

Order of Operation

- $\text{Num} = 2 + 2 * 3 / 2$
 - `print(num)` will print 5
- $\text{Num} = ((2 + 2) * 3) / 2$
 - `print(num)` will print 6

Types

- `Num = 12 + 12`
 - `print(num)` will print 24
- `Num = '12' + '12'` (String concatenation)
 - `print(num)` will print '1212'
- To convert between types use `int()`, `float()`, and `str()`
 - `int('12') + int('12') = 24`
 - `float(12) + float(12) = 24.0`
 - `str(12) + str(12) = '1212'`

User Input

- To get user input use the `input()` function
- `input()` returns a string so don't forget to convert the input you have obtained from the user
- `num = input("enter your age: ")` means `num` will contain a string, use `int()` to convert