Programming, Problem Solving, and Algorithms

CPSC 203, 2024 W2
(January – April 2025)
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Lecture 06

Announcements

- Course web page: https://ubc-cs.github.io/cpsc203/
  - Week by week pages are under revision (the 2023W2 version is visible)
- Starting next week: Pre-lecture videos
  - Webpage has checklist to track your own progress
  - Videos also available for weeks 2 & 3 if you want to review
- Assessments:
  - Lab 2 (dictionaries) overdue, Lab 3 (data classes) next week
  - POTW 3 on Sunday, workaround if you do not have the tech stack ready
  - Test 1 this week, Test 2 next week

CPSC 203 weekly schedule

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Lectures	videos	12:30 – 14:00	videos	12:30 – 14:00			
Labs	Noon – 13:30 16:00 – 17:00	14:30 – 17:00 17:00 – 20:00		Due @noon	Look over the lab		
POTW	Five problems, five days						Due @noon
Tests in CBTF (~bi-weekly)	Last day to take the test			Slots available to take the test			CBTF closed

- The three projects are multi-week assessments with their own schedules

Today’s Plan…

1. Announcements!
2. Our Tech Stack: Why, where & what
3. Revisiting knitting
4. Python Data Classes

CPSC203: Our Tech Stack

- https://ubc-cs.github.io/cpsc203/notes/setup/stack.html

Tech Stack

For any computer science (or data science) course, several tools and software packages are needed for this course. These tools are not usually included on your computer, and if they are, some configuration is necessary. This page links out to a guide (depending on your operating system) to install the "Tech Stack" for CPSC 203. A "Tech Stack" is the complete set of tools and technologies needed to accomplish a particular task, in this case, Data Analytics.

As you go through the install guides, remember that perhaps the two most important things you will learn in this course is how to troubleshoot things and achieve familiarity and proficiency with your computer. Be patient, read things carefully, do not be afraid to try things, it's unlikely you will do anything to irreversibly break your computer! Almost everything you do (you're on your own if you decide to take a hammer to your laptop!) can be undone, don't be afraid to ask your peers, TAs, and the instructor on Ed Discussion.

This is an exciting time for you as you begin your Software Development journey!

Install the Software Stack

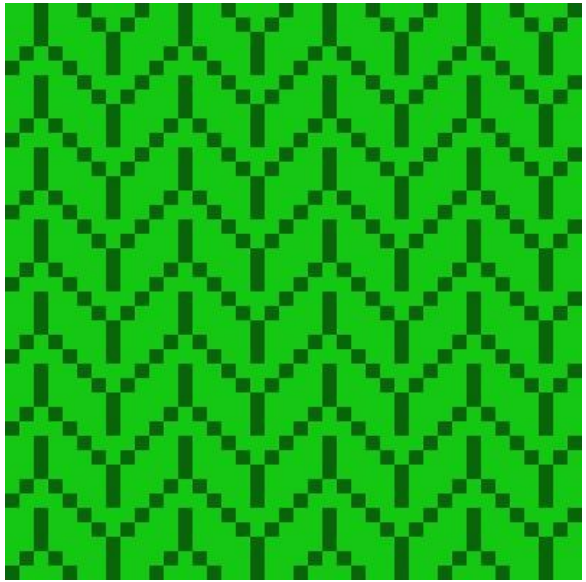
Below are links to the software installation guide used for CPSC 203 for the three operating systems that are currently supported.

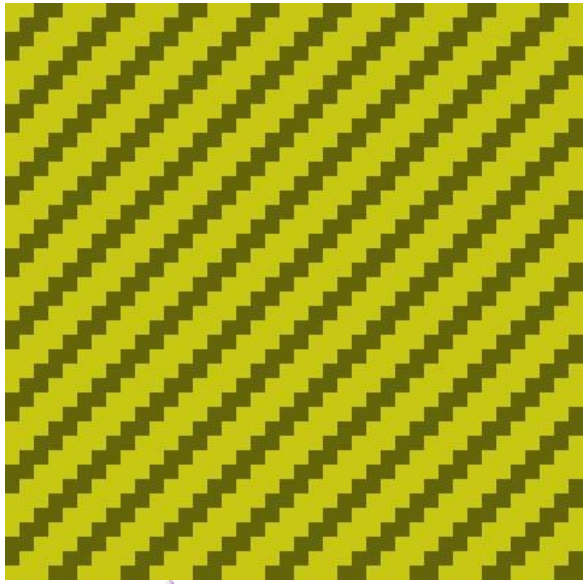
- macOS

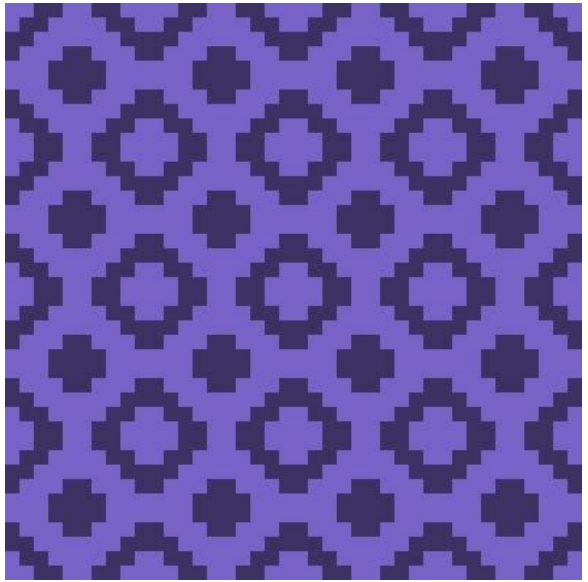
Knitting

Where are we?

Program Design







A handcraft is a collection of blocks. Every block has a position, and a collection of rows. Every row is a collection of stitches. Every stitch is either “knit” or “purl,” and is drawn as a box.

Classes in Python

Mechanism for creating user-defined types.

Used to identify attributes with an object.

Associates functionality with the relevant objects.

Ex:

```
 8   @dataclass
 9   class color:
10       """
11       color: simply gathers color components
12       """
13       red: int = 120
14       green: int = 120
15       blue: int = 120
```

Python Classes

- Compound data type + associated functions
- Contains two kinds of things:
  - “Attributes”: The data fields
  - “Methods”: The functions that work on that data
- An instance of a class is called an “object”
- Access attributes and methods through dot notation