Welcome to Computing Science
Hello!

I'm Dr. Liaqat Ali

Your instructor for CMPT 120 this semester.

Office: TASC 1 - 9409
Meet Your TAs

1. Golnaz Gharachorlu, Graduate Student, Computing Science, SFU

2. Murad Ali, Graduate Student, Computing Science, SFU

3. Chengzhou Tang, Graduate Student, Computing Science, SFU

Contact (for all course related questions): cmpt-120-d1-help@sfu.ca
What is CMPT 120?

CMPT 120 is:

“An elementary introduction to computing science and computer programming, suitable for students with little or no programming background.”

Liaqat Ali, Summer 2018.
Today’s Topics

1. What is Computing Science?
2. Learning a New Language.
3. Algorithm
4. One-Stop Access To Course Information

Liaqat Ali, Summer 2018.
Today’s Topics

What is Computing Science?

Liaqat Ali, Summer 2018.
What is Computing Science?

Before we find answer to this question, let’s watch this video...

What is Computer Science?

1. As you watch and listen, ________________________________

2. In ________________________________________________

1. Add ________________________________________________
Problem solving, using programming languages

1. As a Computer Scientist, you should know ________________________________
   ___________________________________________________________________________

2. You should also ____________________________________________________________

So, computer scientists are all about ________________________________
   ___________________________________________________________________________

Liaqat Ali, Summer 2018.
Today’s Topics

Learning a New Language

Liaqat Ali, Summer 2018.
What Are Programming Languages?

Python, C++, JavaScript, etc. are all names of programming languages.

Just like English, Japanese, Spanish, and so on, they are used to communicate instructions to the computers, and have different grammars, syntax and vocabulary to do it.

Liaqat Ali, Summer 2018, adapted from Angelica Lim, Spring 2018.
Learning a New Language

Learning a new language, like Python, is a 4-step process.

1. **Design an Algorithm**
   - Learn how to design solutions to problems by explaining ideas step-by-step

2. **Write it in Python**
   - Learn how to communicate your solution in a language that a machine understands

3. **Test and Deploy**
   - Make sure it works by testing your application

4. **Change the World**
   - Code is the new electricity. Change the world with what you’ve built.

Liaqat Ali, Summer 2018. Adapted from Angelica Lim, Spring 2018.
We will design our algorithms in English, and translate them into the Python programming language. This will allow us to communicate with computers to solve our problem.

So, from the 4-steps process, we will be using 2 components:

1. **Algorithms - A Way of Thinking**
2. **Programming / Writing Code - A Way of Communicating**
Today’s Topics

Algorithm

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What is Algorithm? Read, Review in Pairs, and Write

Read the **following** about Algorithm:

If **problem solving** is a central part of computer science, then the **solutions** that you create through the problem solving process are also important.

In computer science, we refer to these solutions as **algorithms**. An algorithm is a step by step list of instructions that if followed exactly will solve the problem under consideration.

Our goal in computer science is to take a problem and develop an algorithm that can serve as a general solution. Once we have such a solution, we can use our computer to automate the execution.

So, **programming** is a skill that allows a computer scientist to take an algorithm and **represent** it in a notation (**a program**) that can be **followed by** a computer. These programs are written in **programming languages**, like Python.

Liaqat Ali, Summer 2018.
What is Algorithm?
What is Algorithm?
Check Your Understanding - 2
In a nutshell, algorithms answers “...”.

- Say computer knows how to add, multiply, divide or subtract numbers.
- And, we can write instructions, such as:
  - Let, X is an integer.
  - Let, Y is an integer.
  - Let, SUM is an integer.
  - Add X and Y giving SUM.

1. Write an algorithm __________________________________.
2. Write an algorithm __________________________________.
Optional Readings

• *These readings and videos are optional, introductory, for your interest*

• *Students’ use of laptops in class lowers grades. Canadian study* (Links to an external site.)Links to an external site.

• *Big Picture of Computing Systems as layers: Chapter 1, Computer Science Illuminated, by N. Dale and J. Lewis, Jones and Bartlett publishers, 2007. [This book and in particular this chapter are available at the library on reserves]*

• *Sections 1.1 and 1.2 in "Starting out with Programming Logic and Design", by T. Gaddis, 2016 [This book will be available at the library on reserves.]*

Gaddis-ch1-pp1--20.pdf
Today’s Topics

One-Stop Access To Course Information

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Go to the course website, on http://www2.cs.sfu.ca/CourseCentral/120/liaqata/WebSite/index.htm, for a one-stop access to the following course information.

- Course Outline
- Exam Schedule
- Python Info
- Lab/Tutorial Info
- Learning Outcomes
- Office Hours
- Textbook links
- CourSys/Canvas link
- Grading Scheme
- i-clicker Info
- Assignments
- and more...
Questions?