SIMON FRASER UNIVERSITY
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CMPT 120: Introduction to Computing Science and Programming 1

Procedural programming in Python

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5/16/2018

One-Stop Access To Course Information

- **Course website**: **One-stop access** to all course information.

   http://www2.cs.sfu.ca/CourseCentral/120/liaqata/WebSite/index.html

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

- **Canvas**: Discussions forum - https://canvas.sfu.ca/courses/39187

- **CourSys**: Assignments submission, grades - www.coursys.sfu.ca

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Additional Resources / Online References

- Online references are **as important as the texts**. (Links on course website.)

- These resources are **very important to your success**.

  - They aren't meant to be read from beginning to end like the readings in the textbook.

- You should **use them to get an overall picture of the topic** and as references as you do the assignments.

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How to Learn in This Course?

A   **Attend** Lectures & Labs

R   **Read** / review Textbook/Slides/Notes

R   **Reflect** and ask Questions

O   **Organize** – your learning activities on weekly basis,

and finally...

W   **Write** Code, Write Code, and Write Code.

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Course Topics

1. **General introduction**
2. **Algorithms, flow charts and pseudocode**
3. **Procedural programming in Python**
4. **Data types and control structures**
5. **Fundamental algorithms**
6. **Binary encodings**
7. **Basics of computability and complexity**
8. **Basics of Recursion**
9. **Subject to time availability:**
   - **Basics of Data File management**

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Today's Topics

1. **What is a program?**

2. **Arithmetic operators**

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What is a Program?

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Common Instruction Types Used in Programs

- **Input instructions:** To get data from **keyboard**, a **file**, or some other **device**.
  - ▫ For example:
- **Output:** To display data on **screen**, or **save** in a file, **etc.**
  - ▫ For example:
- **Math instructions:** To perform basic **arithmetic operations**.
  - ▫ For example, addition, multiplication etc.
- **Conditional:** Check for certain conditions and run the appropriate code**.**
  - ▫ For example:
- **Repetition:** Perform some action **repeatedly**, usually with some variation.
  - ▫ For example:

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Believe it or not…

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Write a Program for Following Marks Flowchart

Description	
95-100	A+
90-94	A
85-89	A-
80-84	B+
75-79	B
70-74	B-
65-69	C+
60-64	C
55-59	°C-
50-54	D
<50	F

```
m = 0
f = 0
t = 0
m = input()
f = input()
t = float(m) + float(f)
if (t<50):
    print("fail")
else:
    print("pass")
```

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Arithmetic Operators

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Arithmetic Operators: Examples

- **Addition operator:** **+**

- **Subtraction operator:** **-**

- **Multiplication operator:** *****

- **Division operator:** **/**

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More Operators

- **Exponentiation operator**: $**$

- **Floor division operator:** Division that results into round-down whole number. $//$

- **Modulus (remainder) operator:** Remainder of the division (57/10). $%$

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Questions?