CS 108: Introduction to Computing

Description

This course introduces computing as a problem-solving discipline with a particular emphasis on programming. The course technologies are based on the Python programming language, and a modern IDE. The material is considered in the context of the reformed Christian perspective.

Objectives

Students who complete this course will demonstrate that they can:

- Design data types/structures and algorithms that solve problems.
- Implement solutions to problems using:
    - primitive data types, expressions and arrays/lists;
    - the basic control structures: sequence, selection and repetition
    - subprograms (methods/functions)
    - classes
    - file input/output for persistent data storage
    - exception handling
    - event-driven Graphical User Interfaces (GUIs)
- Find and fix syntactic and logical problems in programs.
- Use an Integrated Development Environment (IDE) to develop a program.

Topics

1. Introduction
2. Variables & Expressions
3. Types
4. Selection
5. Repetition
6. Functions
7. Strings
8. Lists & Dictionaries
9. Classes
10. Modules & Files
11. Graphical User Interfaces
12. Animation
13. Inheritance & Polymorphism
14. Recursion

Requirements

The course requires completion of eight weeks of material, covering roughly two the topic units per week. Each unit has a required reading, lab exercise and quiz; each two-unit pair requires a homework assignment; there is a final programming project.

Text

The textbook is ZyBooks's online *Programming in Python 3 with zyLabs*.