S0.2: Quiz 1 Preparation

CSci 2041:

Advanced Programming Principles

University of Minnesota,
Prof. Van Wyk,
Spring 2022

Logistics

- Wednesday, February 16
- It is an in-person quiz
- 9:05am, in our classroom (Anderson 310)
- 25 minutes allowed (for last 25 minutes of lecture)
- Bring you UCard and have your student ID# ready
- You may use 1 single-sided 8 1/2" by 11" sheet of handwritten notes.
  No other materials are allowed.
- Recall: lowest score out of the 5 is dropped
- Remaining time on Wednesday used for S1.3 and S1.4 material

Course material covered by the quiz

Slides

- S1.2: OCaml Basics

Other material

- Sample functions written in class: `getting_started.ml`, `lists_tuples.ml`
- Techniques used in Hwk 01, Lab 02, 03, 04

Reading in textbook

- Chapter 1
- Chapter 2
- Chapter 3.1

Description of course content covered by the quiz

Functional programming language features

- functions (recursive and non) over simple types such as integers and strings
- computations over lists and tuples, pattern matching of these values
- lambda-expressions, curried functions

Concepts

- parametric polymorphism,
- characteristics of strong static type systems

Description of course content covered by the quiz

Programming techniques and patterns from in-class functions and Hwk 01

- arithmetic computations
- functions searching a range of values, *e.g.*`is_square`
- list processing functions:
  - operating on all values (*e.g.* increment all),
  - selecting certain values (*e.g.* find all evens),
  - selecting a single value (*e.g.* find longest string),
  - combining values in a list (*e.g.* sum all integers)

Format

- Short answer questions - 2 or 3 sentence answers
- Write small functions, syntax needs only be close to OCaml
- Read small functions, explain behavior

Material not covered by the quiz

Slides:

- S0.1: Course Introduction
- S1.1: Whirlwind Tour
- S1.3: Higher Order Functions
- S1.4: Expressions, Values, Evaluation

Reading in textbook

- Any section not listed above as being covered