Exam 1 Review

29 September 2021
Logistics
75 points / 75 minutes

Aim to budget your time as about one point per minute.
You actually have 120 minutes (the full lab period), so time shouldn’t be an issue.
The exam will be on paper, with the computers put away.

Help me out: Write neatly and make your final answer obvious.
During the exam you can refer to one 8½×11-inch piece of paper, double-sided, with any notes you want written or typed on it.

Preparing this sheet of notes is an excellent way to study, encouraging you to consider what's important that you'll want to refer to.
During the exam, I’ll decline to answer almost all questions.

However, if there’s something on the exam that you think is a mistake or is unclear, feel free to ask, and I might give a correction or clarification to everyone.
All five sections of CMPU 101 are taking their exams on Friday, at different times.

You are on your honor not to discuss the contents of the exam with anyone until everyone has taken the exam.

We'll let you know when everyone's taken it.
Topics
You are generally responsible for the material in

Chapters 1–8 of *A Data-Centric Introduction to Computing*,
Lectures 1–8,
Labs 1–4, and
Assignments 1–3.
You should expect approximately six questions, along the lines of the following.
Pyret expressions

Given a series of Pyret expressions, indicate either what each expression evaluates to or whether it results in an error.

Expressions may involve:

- values of type Number, String, Boolean (no Image values)
- functions that take and return those types of values
- operations/operators over those types of values
- parenthesized expressions
- named values of the form \texttt{name = expression}
- \texttt{if-else} and \texttt{if-else if-else} expressions
Fixing a function

Given a function, identify and fix its problems.

Identifying the problems may involve carefully reading the function header, docstring, examples, and body.

If the body and/or tests don’t match the behavior described in the docstring, fix whatever is wrong so they do.
Incomplete function: missing examples

Given a function that doesn’t have any examples, fill in the `where` clause, ensuring that you choose examples that fully test the function.
Incomplete function: missing body

This time you’re given the `where` clause for a function, but the rest of the function is missing!

Write a function header, docstring, and body that match the examples.
Reading and understanding code

Given a function,

indicate which tests pass or fail

Briefly describe (in words, not code) what you’d need to change to make sure all the tests pass.
Table processing

A big, multipart question. Given a table and a function that takes a row from the table:

1. Fill in the expected return values in the **where** clause.
2. Write the docstring for the function.
3. Write an expression to access the value in a particular row and column of the table.
4. Write an expression that involves some form of table processing to compute/locate a particular value within the table.
5. Given a table expression show the resulting table.
6. Write a predicate function that takes a row of the table and determines whether that row satisfies (returns **true**) the given criteria.
Practice problems:

https://code.pyret.org/editor#share=1hR0R4K-EQBkj7lVYnFcZJitAG_1wJZkj&v=1904b2c

Solutions:

https://code.pyret.org/editor#share=1PedT6WMvV4Q-0TkSKfWAwRA3G5uLIA&v=1904b2c