

# COMPSCI 3MI3 : Assignment 10

Fall 2021

Nicholas Moore

Assignments submitted as L<sup>A</sup>T<sub>E</sub>X generated pdfs are eligible for 1 bonus mark, so long as the source file is provided.

1. (8 points) **Pattern Matching Lists**

In topic 11, we present a pattern matching mechanism for records. We also present list semantics. Propose an extension to the matching rules in topic 11 that allows our pattern matching mechanism to match over lists as well as records.

2. **Additional List Operations** In topic 11, we discussed lists, and defined a few operations over them. Propose new terms for the following list operations. You must propose syntax, small step operational semantics, and typing rules. References for each operation may be found at <https://hackage.haskell.org/package/base-4.16.0.0/docs/Prelude.html>

- (a) (4 points) List indexing
- (b) (4 points) Length
- (c) (4 points) Concatenation
- (d) (6 points) Filtering

HINT: Follow the style of the existing semantics!