CS4221 Foundations of Computer Science 1

Assignment Instructions

For your final project you will need to write some Racket code that uses conditionals and/or recursion that can be mapped onto a list. **There will be a question about your project in the final exam!**

Specifically, for the project you will need to produce the following:

- A clear statement of what the problem is;
- Sample data to test your function(s) on;
    - If this data contains malformed input that your function can work around, you will get higher credit (see, for example, the material where we used **filter identity**);
- Well-documented functions that you'll use;
- A main function which will be mapped onto the data. You should utilise a conditional statement; however, this function should implement recursion to earn full credit.
- Clear instructions on how to execute your code;
- Details on how you used ChatGPT (or some other LLM) in your project. This can include code generation (use sparsely, if at all!), testing, brain-storming, etc.;
- An approximately five (at least four and no longer than ten) minute video describing your project and how you addressed each of the above-mentioned issues. This can be uploaded to YouTube, Vimeo, or some similar site. A template for this will be made available closer to the deadline.

It is up to you what the function does. Examples from previous classes have included applications as varied as:

- Calculate BMI based on measurements;
- Countdown to the end of the semester(!) from a particular date;
- Return the best five marks of six for a student;
- Convert decimal to binary;
- Banking transactions;
- Scheduling (e.g. student-lab scheduling);
- A set of mathematical functions that mimics a calculator;
- Searching for products based on item ID.

Grading Scheme

- A clear description of the problem (5%)
- Quality of code (30%)
    - You will be graded on aspects such as:
        - Efficiency
        - Correctness (no logical errors/malformed code)
        - Comments/Documentation
        - Reuse
        - Structure
        - Readability/style (proper indentation, etc.)
- Inclusion of test data (5%)
- Inclusion of test data with malformed data that needs to be removed (10%)
- Correct use of conditional (10%)
- Correct use of recursion (15%)
- Description of how you used ChatGPT (10%)
- Video presentation (15%)

What to submit

- A file containing all your code. This file should be called **YourName Code.rkt; f**or example, **Conor Ryan Code.rkt.** At the top of the code, you should include the description of what the code does;
- A file (PDF or Word) describing how you used ChatGPT to improve your project;
- A file (PDF or Word) containing screenshots/copies of the prompts and responses from your interactions with the ChatGPT. You should include all your conversations about the project with ChatGPT, even ones where it gave unhelpful answers. That will help you demonstrate how you trained it to behave as you needed it to.