Project Proposal

1. Find a team partner. Working in **teams of two is required**; with permission, teams of three may be allowed.

2. Find a topic. This should be something both of you are interested. Also, take note that Haskell and its ecosystem excel in some application domains but are not suitable in others. They excel in building parsers, compilers, domain-specific languages, but need improvement in, e.g., machine learning and data science. Read through the following resource describing Haskell's ecosystem and try to choose an application domain rated "Best in class" or "Mature". Some of you have expressed interest in working on machine-learning-related projects and the domain is rated "Immature". You may still be able to go in this direction, however, read the description carefully and make sure Haskell does work for your project idea.

   You should be applying design principles and connecting to the topics we have covered in class, e.g., higher-order functions and structures, monadic parsing, etc. Avoid writing imperative-style code in Haskell --- you can, but that is not the point of this assignment and this class.

   You should propose a project that you and your partner can complete in about **three weeks**. Browse Stackage and the libraries available there (Stackage is a subset of the packages available in Hackage). Even if your idea is already there, you can still find ways to extend and improve what is already available.

3. Write up your project idea in a 2-3 page document (use latex if you can). Follow this template:

   1. **Goal.** Describe the goal of the project in one paragraph.
   2. **Use cases.** Describe how your program/library will behave under at least 2, better 3 use cases.
   3. **Initial design.** You should have several Haskell modules. Outline how the project breaks into these modules in this section.
   4. **Testing.** Briefly describe how you plan to test your program/library.

   Think through the document carefully, as it is worth 10% of the project grade.

4. Make a team in Submitty and submit the pdf by October 15th.

This document is adapted from notes by Stephanie Weirich.