Hand in your answers to the following questions in class on or before the due date. Note that for questions 1–3, you can type out your answers and attach this sheet (if you’d rather type them than hand write them below).

1. Write a MyPL program below that repeatedly prompts a user for a number until they enter “-1”, and then prints out the sum of the numbers they entered (excluding -1).

2. Write a MyPL program that implements a recursive function (other than \texttt{fib}). Your main function should print out the results of repeated calls to the recursive function.

3. Write MyPL code to implement a basic “stack” using a linked list of \texttt{int} values. You should include functions for \texttt{push}, \texttt{pop}, and \texttt{peek}. \texttt{Push} should add an \texttt{int} to the top of the stack, \texttt{pop} should remove an \texttt{int} from the top of the stack, and \texttt{peek} should return the \texttt{int} at the top of the stack.
4. Write down at least three questions you have regarding MyPL. For example, your questions might concern specific syntax issues, how certain constructs work, types and type checking issues, or constraints/restrictions that the language has.

5. Pick two high-level languages you are interested in (other than Java and C++) and describe at least one of their more popular implementations in terms of whether they are compiled, transpiled, or interpreted. Give details of how these work for the language. For example, if an interpreter is used state whether bytecode is generated, whether just-in-time compilation is used, and so on. Note you can pick languages you haven’t studied, but that seem interesting to you or that you would like to learn more about. As examples, a popular implementation of JavaScript is V8, and a popular implementation of Python is CPython. Some languages only have one implementation.

6. Many traditional program languages (including Java, C++, and C#) that historically required explicit type declarations have added support for implicit type declarations. Describe the constructs used in Java and C++ for implicit type declarations and give two examples of each. (Note you may have to do some research for this question if you aren’t already familiar with the constructs.)

7. Java and C++ are considered “statically typed” whereas Python and JavaScript are considered “dynamically typed”. Briefly explain what this means and also how it is related to the notion of explicit vs implicit type declarations (if at all). (Note you may have to do some research for this question if you aren’t already familiar with these concepts.)