Important Instructions

1. Ensure that this booklet contains 18 pages, and that you have a double-sided Reference Sheet.
2. Each page of the exam contains a QR code in an upper corner. **Do not write on or near this square.** The page may not be marked if you write on or too closely to this code.
3. All coding is to be completed using **Python 3**.
4. See the Reference Sheet for information about useful Python language features. You may use language features not listed on the Reference Sheet, as long as they were discussed in class and were allowed to be used on one or more assignments.
5. Supply exactly the parts of the design recipe requested in each question.
6. Follow the CS116 style guidelines for your solutions.
7. Unless indicated otherwise, you may use a helper function or **lambda** where you feel it is needed. Helper functions should be defined separately from required functions (before or after is acceptable). For each helper function, you are only required to write the function definition (header and body).
8. If you need more space to complete a question, use the last two pages and indicate in the question where it is continued.
9. Read each question carefully to determine if a specific approach must be taken or if there are specific restrictions for your solution.
10. Good Luck!