Organize your questions and the solutions (including the source code listing, input/output for programming-writing questions) to *all five* questions, into a document of a word processor. Google Doc is recommended, because it allows you and your teammate to co-edit a document. Put the following files (with your student ID numbers as the file name prefix).

1103790_110379_hw5.pdf,
1103790_1103799_hw5_q2.py,li
1103790_1103799_hw5_q3.py,
1103790_1103799_hw5_q4.py,
1103790_1103799_hw5_q5.py,

into a folder named as 1103790_1103799_hw5, compress this folder into 1103790_1103799_hw5.zip, and then upload this file to portal's homework section

1. Use the tool at https://plantuml.com/activity-diagram-beta
   to draw the flow chart for exercise # 4 in ch 2 (p.182), with different rank definitions (see below). The tool web page contains a needed example in English language mode. Look for the example "Several Tests (vertical mode)" in the section of "Conditional." Modify the code to get your desired result. Note: the code syntax is different from python's.
   The ranks are defined as the following: assume your score is x,
   A: $80 \le x$
   B: $70 \le x < 80$
   C: $60 \le x < 70$
   D: $x < 60$
2. Write the corresponding python program, according to the flow chart in the previous question.
3. Exercise #27(a) in ch2 (p.187). Ask the user to input the real number (floats) coefficients a, b, c and use the following conditions to find a proper solution:
   ① a = b = c = 0 to yield the case of "any number can be the solution."
   ② a = 0, b ≠ 0 to yield the degenerate case (becoming a linear equation b x + c = 0)
   ③ a ≠ 0, ??? (your math knowledge) to yield the case of having two different real roots
   ④ a ≠ 0, ??? (your math knowledge) to yield the case of having one real root
   ⑤ a ≠ 0, ??? (your math knowledge) to yield the case of having no real roots
4. "Rock paper scissors" game: Let's define 0 as rock, 1 as paper, 2 as scissors. Make the computer be able to generate a random hand by adding the following two lines in the beginning of your program:

   ```
   Import random
   x = random.randint(0,2)
   ```

   This will generate a random integer 0, 1, or 2 to stand for the computer's hand. Prompt the user to enter his/her hand. Then, print out the computer's hand and the contest result ("You win", "You lose", or "Tie").
5. Exercise #13 in ch2 (p.184).