CS111 Lab exercise: Drawing patterns

Warm Up Exercises:
1. Set an integer variable called size to 7. Use that as the row and/or column height for the following:
   a. Print a horizontal line
   b. Print a vertical line
   c. Print a square box (size x size)
   d. Print a diagonal from left to right
   e. Print the other diagonal from right to left
2. Combine the basics and do the following:
   a. A big letter ‘O’ (prac1.pdf q.256)
   b. A big letter ‘T’ (q.240)
   c. A big letter ‘U’ (q.236)

Use 3 nested for loops to draw:
1. 3 Big X's: (stacked)
   *     *
   *   *
   * *
   *
   * *
   *   *
   *     *
   *     *
   *   *
   *
   * *
   *
   * *
   *   *
   *     *

2. 3 Big +'s in a row:
   +        +        +
   +        +        +
   +        +        +
   +++++++  +++++++  +++++++
   +        +        +
   +        +        +

**Just for fun:**

1. Draw a big Chinese character for a farmland ‘田’: 
   
   **Version 1:**
   
   ~~~~~~~~~
   *  *  *
   *  *  *
   ~~~~~~~~~
   *  *  *
   *  *  *
   ~~~~~~~~~
   
   **Version 2:**
   
   -------
   | | |
   | | |
   |-----|
   | | |
   -------
   -------

2. Ask for a positive integer n and use it to draw an inverted triangle with n rows and 2*n – 1 columns. (This was our first lab exercise but now you can do more than before.)

   **Inverted triangle:**
   Please enter a positive integer: 5
   ~~~~~~~~~
   *  *  *
   *  *  *
   *  *  *
   *  *  *
   *  *  *

I have ranked the pattern questions in terms of difficulty found in `prac1.pdf` from Spring’18.

**Easy:** 20, 24; 101, 102, 103, 104; 133, 134, 135; 140, 148; 173, 177, 181, 185; 189, 193, 197, 201, 208; 212; 236, 240, 256; 261, 268

**Average:** 12, 16 (do 268 first); 28, 33; 64, 68; 69, 70, 71, 72; 73, 74, 75, 76; 129, 130, 131, 132; 216; 224; 244; 271

**3 Nested Loops:** 4, 8; 32; 37, 41, 45, 49; 56, 60; 144, 152; 156, 160, 164, 168

**Table questions:** 220, 232