

Exercise I

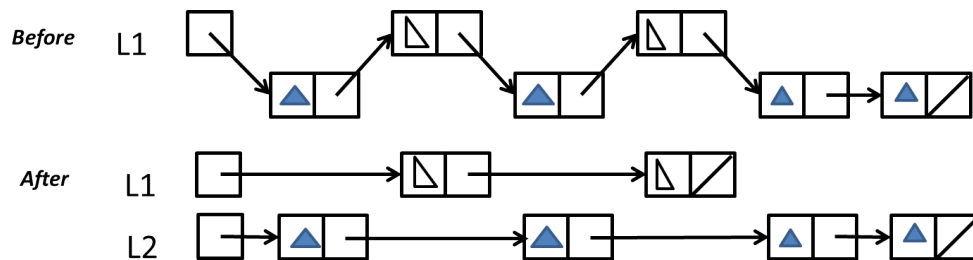
A triangle is defined by three vertices, each vertex being a point, which is defined by two integer coordinates. Consider a linked list of triangles.

1. Define the necessary data types.
2. Write the function "extract" which, given a list of triangles, extract the isosceles triangles to form a separate list and returns it. It is forbidden to create or delete nodes.

N.B.:

- A triangle is isosceles if two of its sides are equal.
- Recall the formula for the Euclidean distance, d , between two points $p_1(x_1, y_1)$ and $p_2(x_2, y_2)$:
 $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$.

Example :



Exercise II

3. Write a recursive function which reverses the order of the elements of a non circular doubly linked list of integers.
4. Write a recursive function which reverses the order of the elements of a non circular simply linked list of integers.

Exercise III

5. Write the function "**wordCount**" which counts and displays the number of words, and the number of paragraphs in a text file, given its name (a string). We suppose a word is delimited by one or more of the following characters (space, colon, semi-colon, question mark, exclamation mark, point, or line feed). Paragraphs are followed by carriage return and line feed.

The End