Continue to use the sample code provided in project 1 to implement a program which save the triangles into doubly linked lists. For convenience, the code is copied and renamed at: ~zxu2/Public/Proj2/proj2_file_io.c

Instructions:

1. A header file named "int.h" is created. In this header file, TRI and POINT structures are defined. POINT structure is used to save coordinates of individual nodes of the mesh. TRI structure is used to save information about individual triangles of the mesh.

2. Implement a global function "POINT* Point(double*, int)" to allocate memory for creating a variable of POINT type for saving information about a point of the mesh. (For demonstration, this function has been declared in int.h and implemented in mesh.cpp).

3. Implement a global function in mesh.cpp to allocate memory for creating a variable of TRI type for saving information about a triangle of the mesh. Let the function prototype be:
   TRI *make_tri (…); The declaration of this function is in int.h file.
   Note: The allocated points in Step 2 need to be saved for this step. Use any data structure that's appropriate.

4. Implement a doubly linked list to save the dynamically allocated triangles in **Step 3** of the mesh in the main() function.
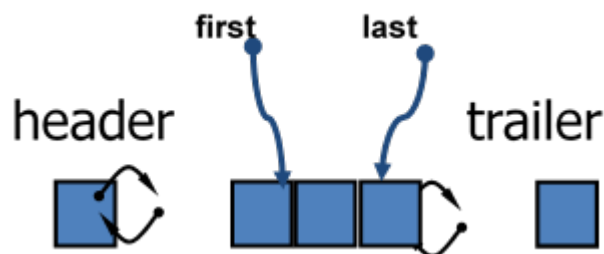

Figure 1

   Add a new "node", which is a triangle as the first "node" of the list. See Figure 1. After insertion, the new "node" is the "first" "node" in the list.
   Use the following prototype for this function:
   void insert_tri_at_head_of_list(TRI *newnode, TRI* head);

5. Delete triangles in the region $[0,2.5] \times [0, 1.5]$ by removing these triangles from the list created in **Step 4**.
6. Implement the add-last algorithm using the C++ STL List template.
7. Write a makefile for compilation.
8. Test your code by saving the remaining triangles of the mesh using the vtk supported mesh data file. Show the result in paraview, take a snapshot and paste the snapshot in the project report.

Hand-In. Make a tar ball of all of your source code. Turn in the electronic and hardcopy of your report which contains results and description of your implementations. Email the tar ball of source code. Use the following title for your email: acms40212S16-Proj2-your-ND-ID