**Algorithms and Data Structures**

**BS-III Fall 2022**

**Assignment 1**

**Deadline: 26th Nov 2022 Instructor: Dr. Sajid Khan**

Suppose that Chinese government wants to maintain database of their male residents. That database contain information of husband, wife and children. We know that there is policy of one child per couple in china, so expect maximum one child per employee. You are supposed to think about the following structure



Did you got any idea? Let me explain. Whenever someone wants to enter data of a male, he will be asked whether that person is married or not, if that person is married, a wife node will be created and it will be linked to the husband node as well as wife linked list(Doubly). After creating the wife node, that person will be asked whether he have a child or not. If that person have a child, a child node will be created and will be linked in the similar way. You are supposed to create three node classes named husband, wife and child whereas one link list class that have pointers named husbandHead, wifeHead and childHead. You are supposed to implement the following functions

1. **Insertion:** No need to worry about ordered, unordered etc. Just insert a new node as the last node.
2. **Finding parents:** Get a child name as parameter and display parent’s name.
3. **Finding child:** Get name of husband as parameter and display name of the child and wife.