DSA Lab 5

Question 1

Implement Fibonacci series using **recursion (slow method)** and **fast method**.

Question 2

1. Implement a template class **'Node'** that contains two data members: A template variable 'data' and a Node pointer 'next'. You may define any member functions, if required, for the template class.
2. Now using the above class, implement a template class singly linked **list** which supports the following operations:
   a. Insert at start `void insertAtStart(Tconst element);`
   b. Insert at end `void insertAtEnd(Tconst element);`
   c. Print `void print() const;`
   d. Search an element `bool search(T const& element) const;`
   e. Check whether the list is `empty bool isEmpty() const;`
   f. Insert value v1 before value v2 `bool insertBefore(T const v1, T const v2) const;`
   g. Delete all occurrences of a given value `void deleteAll(T constvalue)`
   h. Destructor
   i. Delete from Start `void DeleteAtStart();`

3. Now create a main function which has the following instructions:
   a. Define a linked list object of type **int**.
   b. Insert 2, 6, and 7 at start
   c. Insert 9 at the end.
   d. Now insert 7, 8, and 9 at start.
   e. Delete all occurrences of 7.
   f. Now print the linked list.
   g. Search for 2, 9 and 10.
   h. Now delete from Start and print the linked list.