Programming Practice with Y86

The following are a few Y86 programming exercises for you to consider. There is at least one model program in our text and we have given one out in our own class.

1. Add sum of first n numbers.
   Write a Y86 program that calls a subroutine with a single parameter n. The function should compute and return the sum $1 + 2 + ... + n$.
2. Recursive sum array.
   Your book provides an example program of a subroutine that uses a loop to add the values of an array which is passed in as a parameter. Change the subroutine so that it computes the array sum recursively.
3. Fibonacci recursive.
   Write a program that computes the nth Fibonacci number using a recursive subroutine.
4. Linked List Traversal.
   How would you store a linked list in memory for a Y86 program. Assume you have the following simple linked list struct:

```
struct Node {
    int  item;
    struct Node *next;
};
```

   Write a Y86 program that stores a simple list in memory. Maybe create a list with 3 to 5 items. Write a subroutine which takes the root pointer to the list and traverses the list to add all the numbers in the list. It should return the sum.
5. Fibonacci iterative.
   Write a program that computes the nth Fibonacci number using an interatrive subroutine.