

HW 9

For HW 9 we will write a Java program that defines and uses a linked list interface to that forces implementors of the interface to support very basic linked list functionality. The file `Main.java` contains the main function. Your code should work with it and produce output similar to what is shown in the file `output.txt`. **Your code does not have to have the same number of lines listed below, these are basically guidelines to let you know approximately how long the code will be.**

You will create three `.java` files with the following functionality:

MyList.java (6 lines, including blank lines, in my implementation): This defines the *MyList* interface, which defines two abstract methods:

```
public MyList next( );
```

```
public void printNode( );
```

IntList.java (20 lines, including blank lines, in my implementation): This defines the *IntList* class which implements the *MyList* interface.

This class has two fields, *next*, which is a *IntList* reference, and *data*, which is an *int*.

The class defines a constructor and several functions:

```
public IntList(IntList n, int data) which adds n to the tail of the linked list.
```

```
public int getData( ) which returns the value of data;
```

```
public IntList next( ) which returns the next node in the linked list. Note that this is the implementation of public MyList next( ); in the MyList interface.
```

```
public void printNode( ) which uses System.out.print to print the kind of node, and the value of data. Note that this is the implementation of public void printNode( ); in the MyList interface.
```

LongList.java (20 lines, including blank lines, in my implementation): This defines the *LongList* class which implements the *MyList* interface. The functions are very similar to those in *IntList*.

This class has two fields, *next*, which is a *LongList* reference, and *data*, which is a *long*.

The class defines a constructor and several functions:

```
public LongList(LongList n, long data) which adds n to the front of the linked list;
```

```
public long getData( ) which returns the value of data;
```

```
public LongList next( ) which returns the next node in the linked list;
```

```
public void printNode( ) which uses System.out.print to print the kind of node, and the value of data. Note that this is the implementation of public void printNode( ); in the MyList interface.
```