

Lecture 19.1

Topics

1. Linked List Operations – Insertion & Display, etc.
2. Implementation – List of **Fractions**

1. Linked List Operations – Insertion & Display, etc.

Specific data and selection of notations are to be discussed for implementation.

Discussions are given in class.

2. Implementation – List of **Fraction's**

Actual sample implementation and sample code are performed in class – see written code for insertion and others.

Implementation for removal and other utilities are commented and written in class “**on the go**”.

```
/**
 * Program Name:   fractionY.h
 * Discussion:     Specification File
 *                FractionY
 * Written By:     YourName - First + Space + Last
 * Email:         YourEmail@service.whatever
 * Submitted Date:
 * Grader Email:
 * Return Date:
 */

#ifndef FRACTIONY_H
#define FRACTIONY_H

// Header/Include Files
#include <stdio.h>
#include <stdlib.h>

struct FractionY {
    int num;
    int denom;
};

// typedef

// Function Prototypes

// Required
struct FractionY* createFractionY(void);
void removeFractionY(struct FractionY*);
void displayFractionY(const struct FractionY*);

int gcd(int, int);

// Optional Others

#endif
```

```

/**
 * Program Name:   fractionNodeY.h
 * Discussion:     Specification File
 *                FractionNodeY
 * Written By:     YourName - First + Space + Last
 * Email:          YourEmail@service.whatever
 * Submitted Date:
 * Grader Email:
 * Return Date:
 */

#ifndef FRACTIONNODEY_H
#define FRACTIONNODEY_H

// Header/Include Files
#include <stdio.h>
#include <stdlib.h>
#include "fractionY.h"

struct FractionNodeY {
    struct FractionY* dataPtr;
    struct FractionNodeY* next;
};

// typedef

// Function Prototypes

// Required
struct FractionNodeY* createFractionNodeY(void);
void removeFractionNodeY(struct FractionNodeY*);
void displayFractionNodeY(const struct FractionNodeY*);

// Optional Others

#endif

/**
 * Program Name:   fractionNodeYUtility.h
 * Discussion:     Specification File
 *                FractionNodeUtilityY
 * Written By:     YourName - First + Space + Last
 * Email:          YourEmail@service.whatever
 * Submitted Date:
 * Grader Email:
 * Return Date:
 */

#ifndef FRACTIONNODEYUTILITY_H
#define FRACTIONNODEYUTILITY_H

// Header/Include Files
#include <stdio.h>
#include <stdlib.h>
#include "fractionY.h"
#include "fractionYUtility.h"
#include "fractionNodeY.h"

// typedef

// Function Prototypes

```

```
// Required
struct FractionNodeY* createFracionNodeYPtrAry(int size);
struct FractionNodeY* createFractionNodeWithInfoY(struct FractionY*);
void removeFractionNodeYPtrAry(struct FractionNodeY*);
void displayFractionNodeYPtrAry(const struct FractionNodeY*);

void insertFirst(struct FractionNodeY** listAddr,
                 struct FractionNodeY* newNodeAddr);

void append(struct FractionNodeY* list,
            struct FractionNodeY* newNode);

// Optional Others

#endif
```