Introduction to Data Structures
자료구조개론
2017 Fall Semester

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Homework 3

- 50 points (5%)
  - 3A: 50 points
- Due data: 2017/10/19 Thursday 23:59
  - Penalty: 1% per hour
  - Your time management is very important!
- Submission to icampus
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Homework 3

- 3A
  - Code: Yourid_HW3A.c
    - The file type should be c, not cpp.
    - Submit to “Homework 3A – Code”
  - Report: Yourid_HW3A.pdf
    - The file type can be hwp, doc(x) or pdf, not others
    - Submit to “Homework 3A – Report”
- Delay will be applied to each file.

Homework 3A

- Problem: Implementation of sorted linked list for 2-digit hexadecimal number
  - A 2-digit hexadecimal number is expressed as 00, 01, 02, … 09, 0A, 0B, 0C, 0D, 0E, 0F, 10, 11, 12, …, 1A, 1B, 1C, 1D, 1E, 1F, …., F0, F1, … F9, FA, FB, FC, FD, FE, or FF.
    - Be careful that each character is either 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E or F. (i.e., decimal numbers and upper-case letters A-F).
  - The linked list is sorted in an ascending order.
  - Make the basic functions and the merge function for the sorted linked list for 2-digit hexadecimal number.

Homework 3A

- Input

```
5 2A EA 1E F0 3B
3 EF 3A 6B
```

- Output

```
1E 2A 3B EA F0
3A 6B EF
1E 2A 3A 3B 6B EA EF F0
```

Homework 3A

- You have a template.

```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>

typedef enum {false, true} bool;

typedef struct {
    char small;
    char large;
} Hex_num;

typedef struct _Node
{
    Hex_num hex;
    struct _Node* next;
} Node;

typedef struct
{
    Node* head;
    int len;
} LinkedList;

void InitList(LinkedList* plist);
int IsEmpty(LinkedList* plist);
void Insert(LinkedList* plist, Hex_num data);
void MergeTwoList(LinkedList* plist_a, LinkedList* plist_b, Link
edList* plist_c);
void PrintList(LinkedList* plist);
```

```
int main() {
    …

    InitList(&list_a);
    InitList(&list_b);
    InitList(&list_c);

    …

    MergeTwoList(&list_a,&list_b, &li
st_c);

    PrintList(&list_a);
    PrintList(&list_b);
    PrintList(&list_c);

    return 0;
}

void PrintList(LinkedList* plist)
{
    …
}

/* Modify from here */



/* Modify to here */
```

Homework 3A

- You cannot modify the template except the space between /*Modify from here*/ and /*Modify to here*/
  - TA will copy the space and evaluate your code.
  - In the space, you need to implement the following functions.

Homework 3A

- Performance evaluation (40 points)
  - TA will test several cases.
  - For each case, the result should be printed within 10 seconds.
  - Your C code is tested in
    - http://ideone.com/
    - It is not enough for your program to execute with your complier.

Homework 3A

- Report evaluation (9 points)
  - Explain your code using an example
  - No more than 5 pages
  - In English or Korean
- Code readability (and rules) evaluation (1 point)
  - Indent properly
  - Use meaningful names of variables
  - Write sufficient comments in English
    - Do not include any other natural language than English in you code.
  - Use correct file names