Lebanese University
Faculty of Sciences 1

INFO216 E

Imperative Programming II

Session2 13.14
Wed. Sep 3rd pm
Duration: 2 hours

Exercise I

Assume the structure of a Linked List node is as follows.

```
struct node
{
  int data;
  struct node *next;
};
```

1. What does the following function do for a given Linked List?

```
void fun1(struct node* head)
{
  if(head == NULL)
    return;

  fun1(head->next);
  printf("%d  ", head->data);
}
```

Consider the following function.

```
void fun2(struct node* head)
{
  if(head== NULL)
    return;
  printf("%d  ", head->data);

  if(head->next != NULL )
    fun2(head->next->next);
  printf("%d  ", head->data);
}
```

2. Draw the the memory state resulting from the call of fun2 on the following list: head=1->2->3->4->5->6.
3. Deduce what does, in general the function fun2 do on a given linked list.

Exercise II

1. Write a function "merge" which merges two sorted doubly linked lists of intergers into one. The merged list must remain sorted. No Node allocation or deletion is allowed. Only one iteration is allowed for each list. The function must return the head of the resulting merged list.

Exercise III

Consider a text file containing flight information from Beirut to Istanbul on a given date, following the below format. Note that the time is given according to the 24 hours format.

```
BEY 7:20 -> IST 9:15 Turkish Airlines
BEY 15:25 -> IST 17:20 Turkish Airlines
…
BEY 12:00 -> IST 17:30 Egypt Air
```

1. Write the function "filter" which, given a file name, displays on the screen **only** the day flights. A day filght [departure-arrival] interval is included in this interval [7:00 – 19:59].