



Digital Design Verification

Lab # 06

Pointers & Linked List

Submitted by:

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Date:

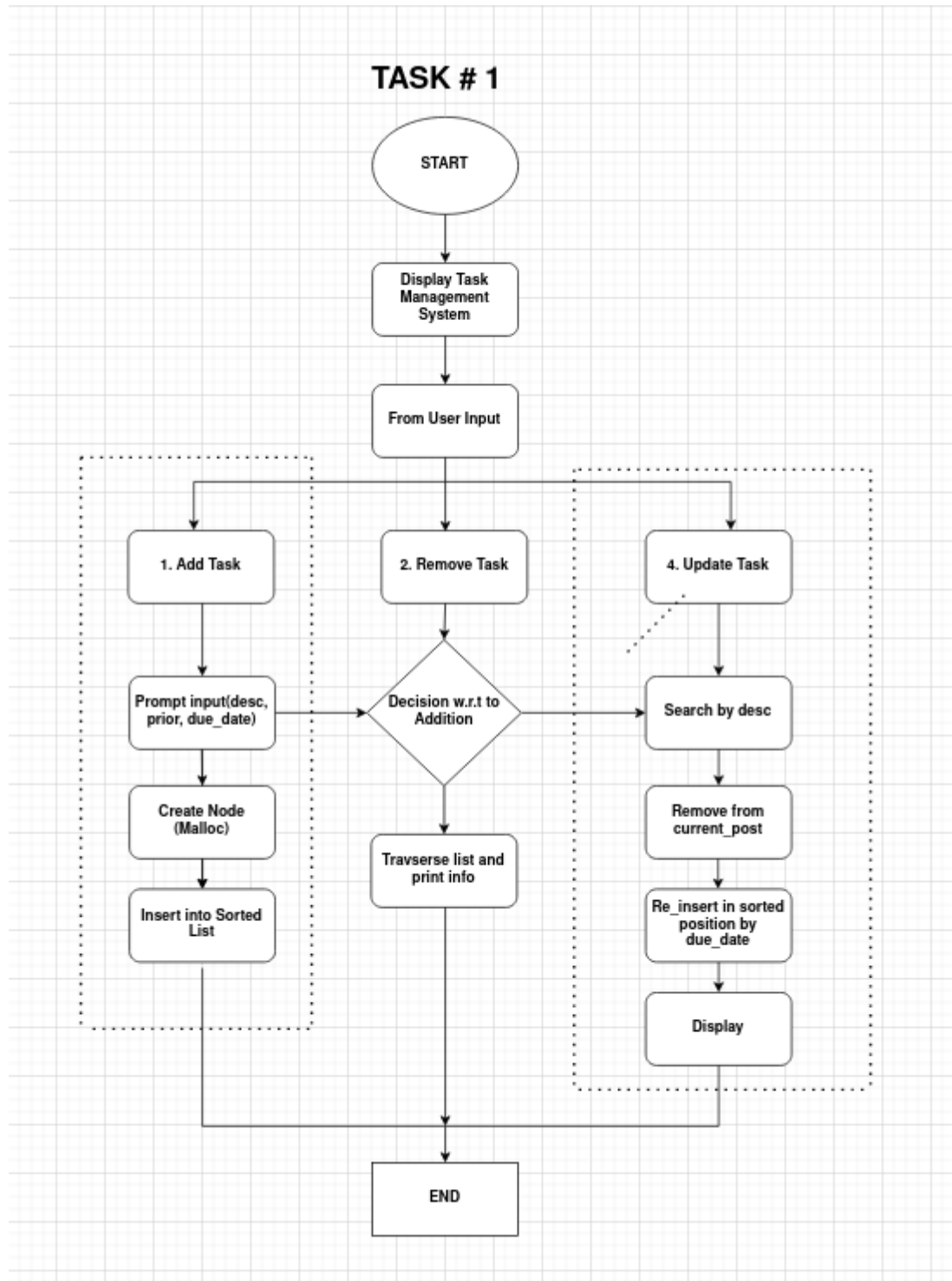
July 24, 2025

NUST Chip Design Centre (NCDC), Islamabad, Pakistan



TASK # 01:

FLOW CHART:





Terminal Output:

```
File Edit View Search Terminal Help
[cc@ncdc-0087 lab6]$ gcc task1.c -o task1
[cc@ncdc-0087 lab6]$ ./task1

--- Task Management System ---
1. Add Task
2. Remove Task
3. Display Tasks
4. Update Tasks
5. Exit
Enter your choice: 1

Enter Description: homework1
Enter Priority (1=High, 2=Medium, 3=Low): 1
Enter Due Date (YYYY-MM-DD): 2025-07-22

--- Task Management System ---
1. Add Task
2. Remove Task
3. Display Tasks
4. Update Tasks
5. Exit
Enter your choice: 1

Enter Description: homework2
Enter Priority (1=High, 2=Medium, 3=Low): 2
Enter Due Date (YYYY-MM-DD): 2025-07-24

--- Task Management System ---
1. Add Task
2. Remove Task
3. Display Tasks
4. Update Tasks
5. Exit
Enter your choice: 2
Enter the Description of the Task to remove: homework2
Task Removed Successfully

--- Task Management System ---
1. Add Task
2. Remove Task
3. Display Tasks
4. Update Tasks
5. Exit
Enter your choice: 3

Description: homework1
Priority    : 1
Due Date   : 2025-07-22

--- Task Management System ---
1. Add Task
2. Remove Task
3. Display Tasks
4. Update Tasks
5. Exit
```



```
--- Task Management System ---
1. Add Task
2. Remove Task
3. Display Tasks
4. Update Tasks
5. Exit
Enter your choice: 4
Enter the Description of the Task to update: homework1

Task found:
Description: homework1
Priority: 1
Due Date: 2025-07-22
Enter new priority (1=High, 2=Medium, 3=Low): 1
Enter new due date (YYYY-MM-DD): 2025-07-25
Task updated and reinserted successfully.

--- Task Management System ---
1. Add Task
2. Remove Task
3. Display Tasks
4. Update Tasks
5. Exit
Enter your choice: 3

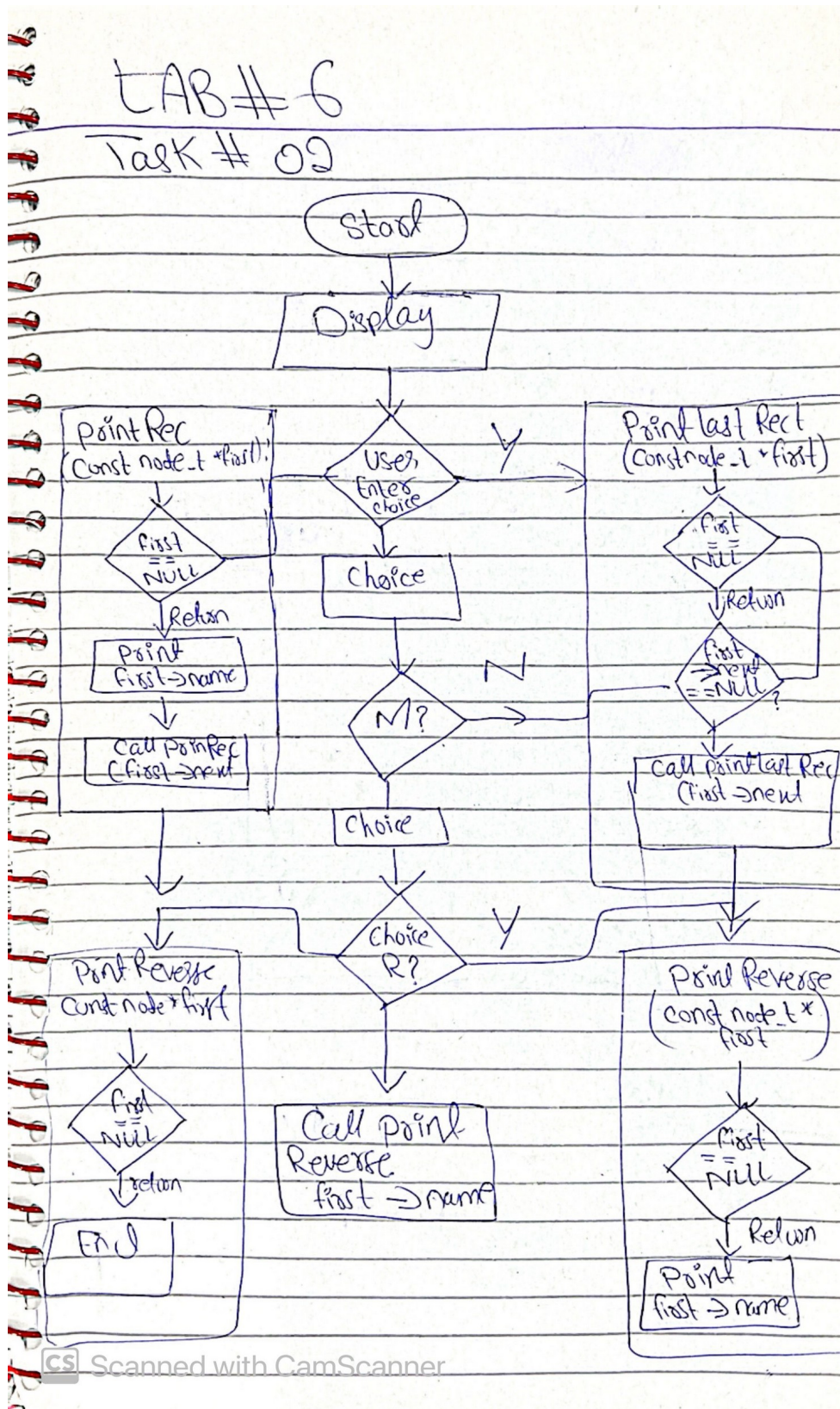
Description: homework1
Priority   : 1
Due Date  : 2025-07-25

--- Task Management System ---
1. Add Task
2. Remove Task
3. Display Tasks
4. Update Tasks
5. Exit
Enter your choice: 5
Exiting...
[cc@ncdc-0087 lab6]$
```



TASK # 02:

Flow Chart:





Terminal Output:

```
cc@ncdc-0087:~/Documents/KR/lab6
File Edit View Search Terminal Help
[cc@ncdc-0087 lab6]$ ./task2
Program to Maintain a List of Names
Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: M
List is empty:
Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: R
Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: I
Enter name to be inserted into list: KHALIL
KHALIL inserted into the list

Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
```



```
cc@ncdc-0087:~/Documents/KR/lab6
File Edit View Search Terminal Help
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: M
KHALIL
Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: R
KHALIL
Options available
```



```
cc@ncdc-0087:~/Documents/KR/lab6
File Edit View Search Terminal Help
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: R
KHALIL
Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: I
Enter name to be inserted into list: KHALIL
Enter old name which new name should precede,
or enter ? if new name should be placed last: KHALIL
KHALIL inserted into the list

Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: I
Enter name to be inserted into list: REHMAN
Enter old name which new name should precede,
or enter ? if new name should be placed last: REHMAN
REHMAN inserted into the list

Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
```




```
cc@ncdc-0087:~/Documents/KR/lab6
File Edit View Search Terminal Help
Enter desired option: I
Enter name to be inserted into list: REHMAN
Enter old name which new name should precede,
or enter ? if new name should be placed last: REHMAN
REHMAN inserted into the list

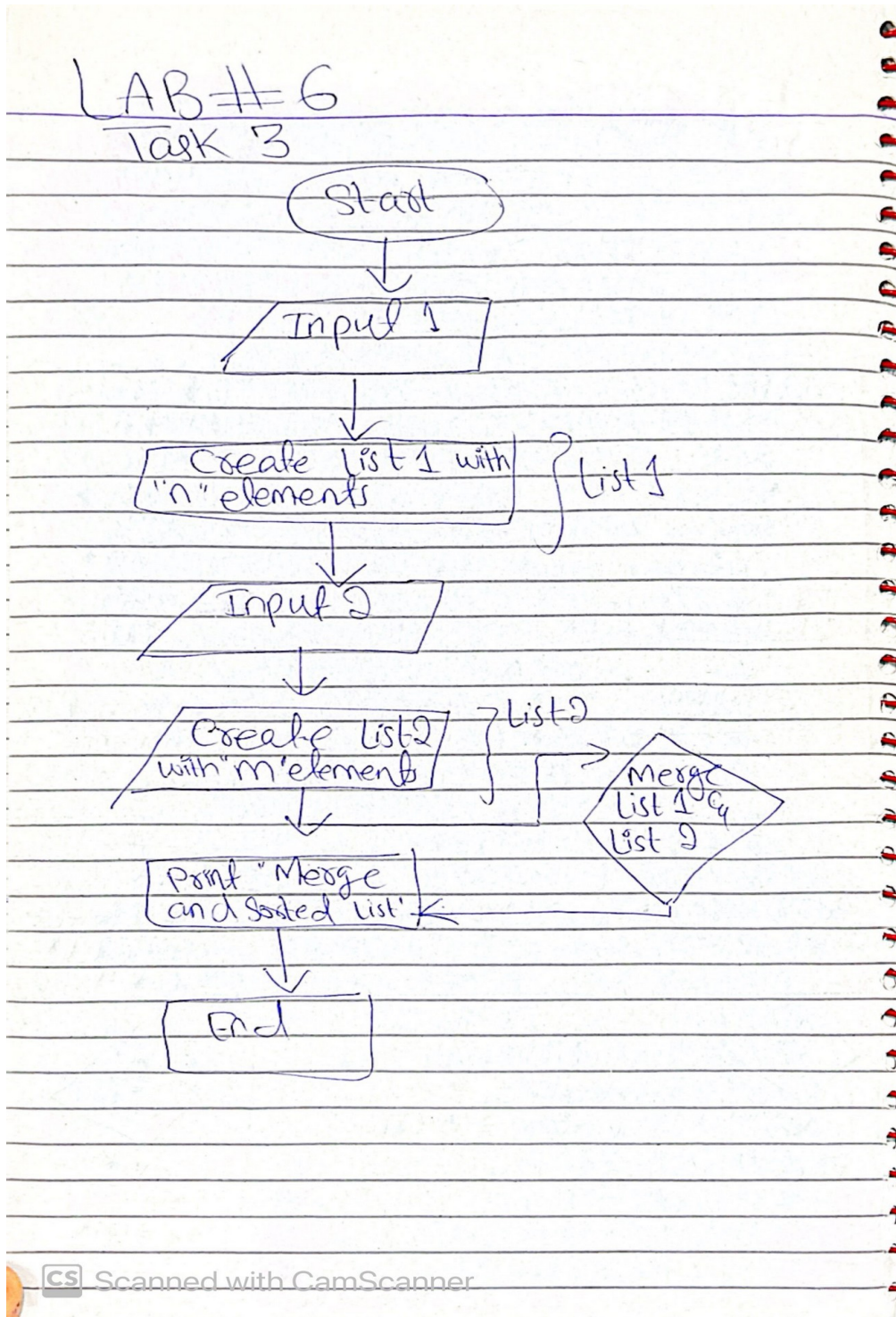
Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: M
REHMAN
Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: R
REHMAN
KHALIL
KHALIL
Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
F - Move an item to the front of the list
L - Print the last item on the list (iteratively)
M - Print the last item on the list (recursively)
P - Print the names on the list (iteratively)
S - Print the names on the list (recursively)
R - Print the names in reverse order
Q - Quit
Enter desired option: S
KHALIL->KHALIL->REHMAN->

Options available
I - Insert a name into the list
D - Delete a name from the list
C - Count the number of items on the list
```



TASK # 03:

Flow Chart:





Terminal Output:

```
cc@ncdc-0087:~/Documents/KR/lab6
File Edit View Search Terminal Help
[cc@ncdc-0087 lab6]$ gcc task3.c -o task3
[cc@ncdc-0087 lab6]$ ./task3
How many elements do you want to insert? 3
Enter Element 1: 7
Enter Element 2: 3
Enter Element 3: 5
FirstLinked List:
7->3->5->
How many elements do you want to insert? 3
Enter Element 1: 2
Enter Element 2: 4
Enter Element 3: 1
Merge and Sorted List: Linked List:
1->2->3->4->5->7->
[cc@ncdc-0087 lab6]$
```