Experiment NO:- 8

DATE

PAGE NO.

⊛ Title:- Write c++ program to realize set using Generalized Linked List.(GLL)

⊛ Objective:-

To understand the concept of Generalized Linked List (GLL).

⊛ Problem statement:-

write c++ program to realize set using Generalized Linked List.

eg. A={a,b,{c,d,e,f},h,i,{j,k},l,m}. store and print as set notation.

⊛ Outcomes:-

Result of Applying concept of Generalized Linked List as a set notation.

⊛ Hardware and Software Requirements:-

1] Operating System:- Linux- Ubuntu 16.04/windows 7-10.

2] RAM:- 2GB RAM

3] You have to install python 3 or heigher version.

⊛ Theory:-

Generalized Linked List (GLL):-

• Concept of Generalized Linked List (GLL):-

A GLL A, is defined as a finite sequence of n>=0, elements $a_1, a_2, a_3, \ldots\ldots, a_n$.

Such that a_i either items or the list of items

Thus,-

$A = (a_1, a_2, a_3, \ldots\ldots, a_n)$

where, n is the total no of nodes in the list.

⊛ Node structure :-

Flag	Data	Docon pointer	Next pointer

- Flag = 1 ⟶ down pointer exists.
  = 0 ⟶ next pointer exists.

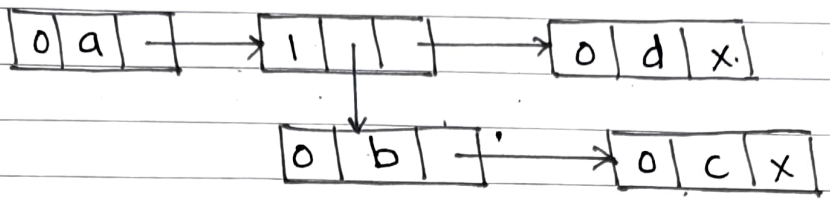
- Data means items.
- Down Pointer → address of node which down of current node.
- Next pointer → address of node which is attached to next node.

⊛ C++ structure of GLL:-

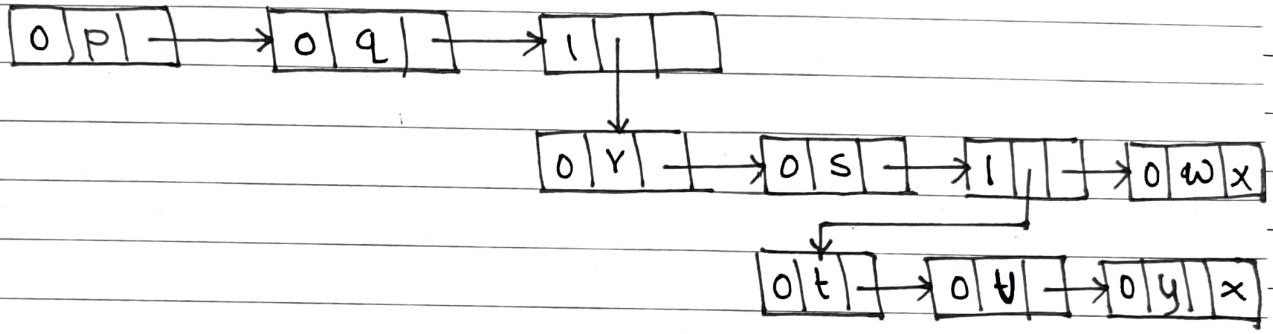
```
Struct Gnode
  {
    char c;
    int ind;
    node *next, *down;

  };
```

⊛ Examples:—

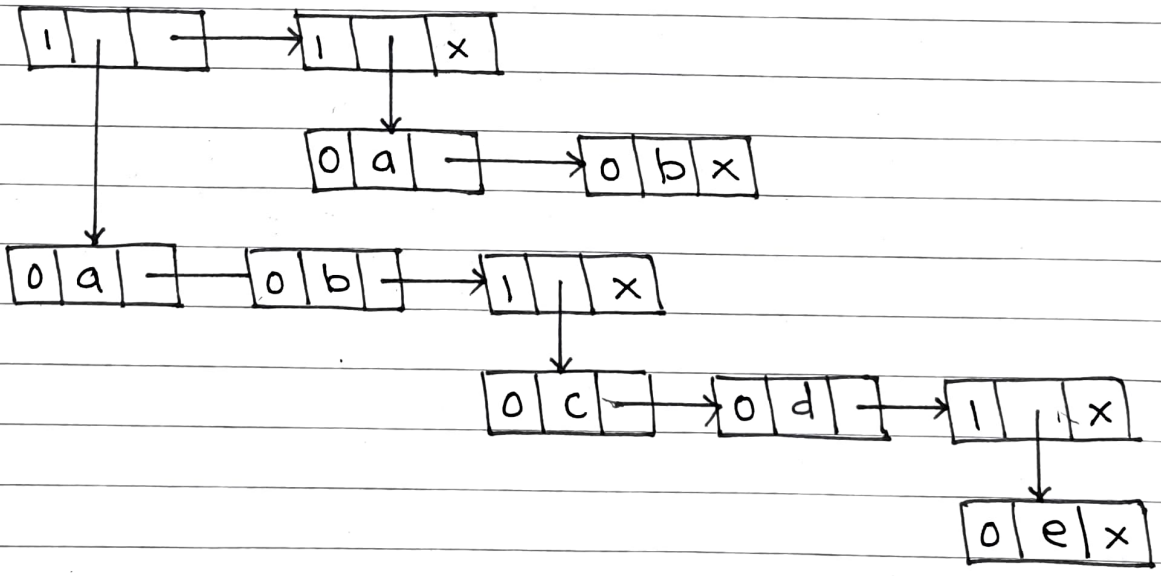
1) (a,(b,c),d)



2) G = (P, q, (r, s, (t, u, v), w), x, y)



3) G = ((a,b,(c,d),(e)),(a,b))



Algorithm:-

Step 1] Start

2] declare the variables choice, d, MAX, set [MAX], Ans.

3] Display menu

1) Create GLL.

2) Display GLL.

3) Depth of GLL.

choice = Enter your choice.

4] if choice == 1, call create function

call create (start)

if choice == 2, call display function

display (start)

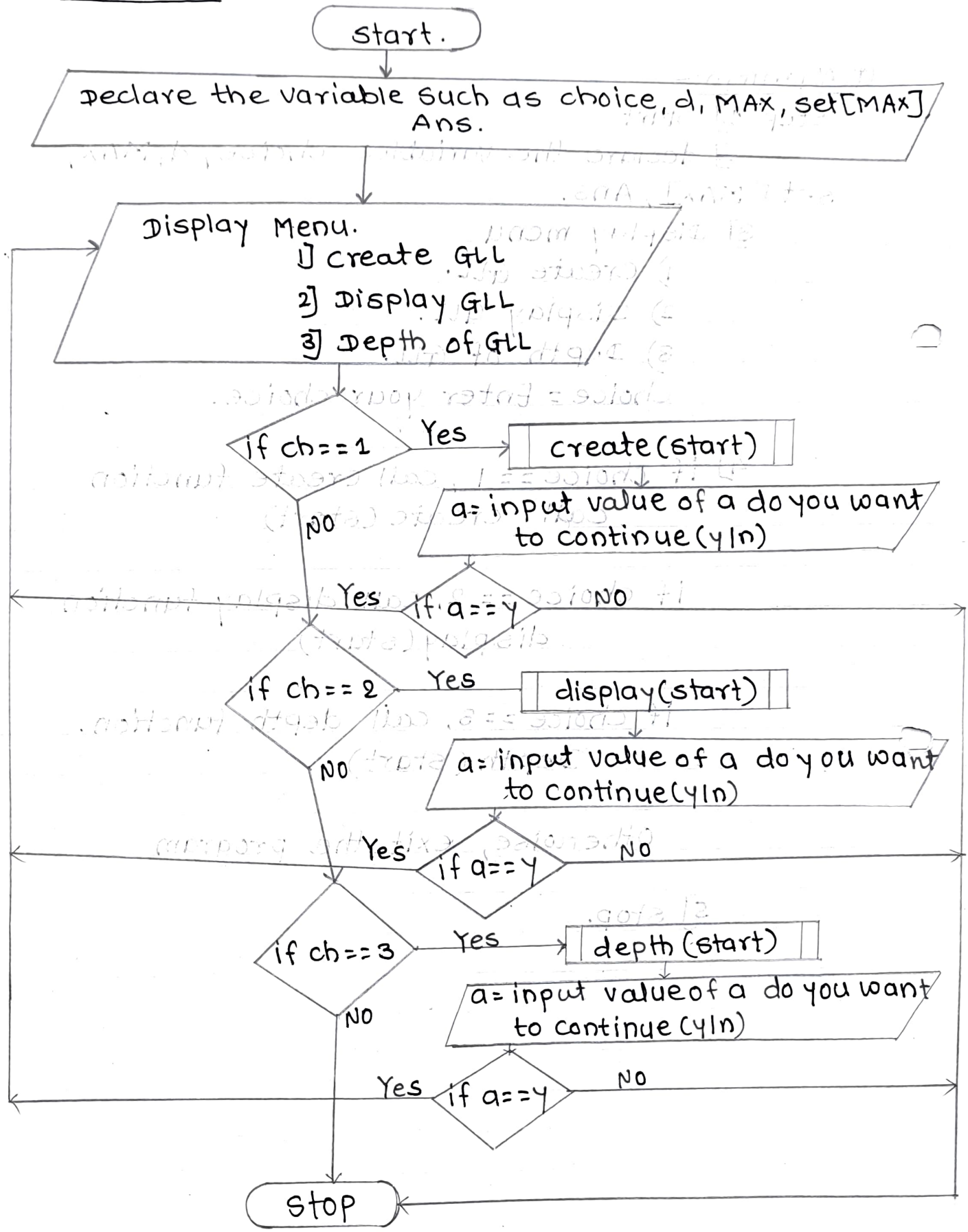
if choice == 3, call depth function.

Depth (start).

Otherwise, exit the program

5] stop.

⊛ Flowchart:-


start.
Declare the variable such as choice, d, MAX, set[MAX], Ans.
Display Menu.
1] create GLL
2] Display GLL
3] Depth of GLL
if ch==1
Yes
create(start)
a= input value of a do you want to continue(y/n)
NO
Yes
if a==y
NO
if ch==2
Yes
display(start)
a= input value of a do you want to continue(y/n)
NO
Yes
if a==y
NO
if ch==3
Yes
depth(start)
a= input value of a do you want to continue(y/n)
NO
Yes
if a==y
NO
stop

DATE

PAGE NO.

Conclusion:-

In this way we can learn how to implement Generalized Linked list store and print the set notation.