AIM:

To Merge los sorted arrays and store is a Ihred away.

### ALGORIGHM:

Blep 1: Black.

Step 2: Declare the variable.

18 tep 3: Stopel the elements is frest and second assay

Ostep 4: Repeat ostep 5 and 6 while i'm and i'm

1 tep 5: check if asi[i]>= ar2[j], then ars(k++)= ar2[j++].

(8tep 6: 8/se ass[14+] = ass[i++].

Step 7: Repeat Ostep 8 wohl i/m

Btep 8: a23[k++] = a21[i++]

Ostep 9: Repeat ostep 10 nobele j<n.

(8 tep 10: au3[1<++] = au2 [1++]

Step 11: Duplay the first array

Step 12: Display the New Merged array.

8 tep 14: En

### OUPPUD :

Enter the number of elements in array 1: 4.

Enter elements in array 1: 12 34 56 78.

Enter the number of elements in array 2:5

Enter elements in array 2: 33 43 52 86 90

First array :

78.

Becord array:

New Merged array

# PROCIRAM - 2

### AIM:

To implement circular queue and perform add, delete, and search operations.

### ALGORITHM:

"Tribalizing queue [MAX].

Bet front = -1 and rooz = -1

Algorithm to insul element:

Ostep 1: \$1 P(reax+1) % MAX = front.

Priot coverflow".

Proto ostep 4.

(End if)

Step 2: If front = -1 and rear = -1.

Set front = rear = 0.

else if rear = MAX-1 and front! = 0.

Bet rear = 0.

else

get rear = (rear+14) Molo MAX.

8 tep 3: Set queve [rear] = Val 18tep 4 : Escil-Algorithm le delete element. Step 1: 18 Pront = -1 HOMAGE MAINIL A pant "andaylow" Croto estep 4 - 11 - made many made ? (End if) or maker all its Step 2: Set Val = queen [Pront] Olep 3: If feont = rear. Bet Pront = rear = -1 else If Paont = MAX-1 cet front = 0. else. set Paront = Paront + 1: [End of] [End of] Step 4 : Exil:

#### OUPPUT:

- 1. Freuton
- 2. Delehon
- 3. Duplay
- 4. Cearch
- 5. Exit

Ester your choice: 1

Enter the dement which is to be insurted: 10

- 1. Frection
- 2. Deletios
- 3. Delehon Display
- 4. Search.
  - 5. Exil

Enter your choice: 1

Enter the element which is to be inscited: 20

- 1. Insuhos
- 2. Deletion
- 3. Duplay
- 4 Beach
- 5. Escil

Enter your choice: 1 Enter the element notices is to be inserted: 30 1. Insertion. 2. Delehon 3. Duplay 4. Bearch. 5. Exil Enter your charie: 2. the degued element is 10. 1. Insertion . 2. Deletion 3. Display 4 Seasch. 5. Escil-Enter your choice :3. Elemente in a Quere: 20 30 1. Insertion 2 Deletion 3. Duplay 4. Beach. 5. Exit Enter your choice: 4. Enter the element which is to be search: 20 Alem found at location a.

### PROGRAM 3

AIM :

and perform bush, Pop and hureau Search.

### Alchoridhm.

Ostep 1: Ostael

Olep 2: Print mena 1. Parts 2. Pop. 3) Display. Olep 4) Bearets 5) Exit.

Step 3: 26 chause i 1, 8 no go go lo bles 4

- a) Read line element la be inserted.
- 6) Create a node with this number
- 3) Anseal the node after header node,

go de 18tip 2

18 tep 4: Ab the chance is a, it so go to a) Change the pointer of header node to

pert of the node to which it already points. be) Delete the node that was previously next of header node to naturally points. c) It's next of header is North, then paint stade is empty. ely 5) 7 & the choice is 3, if no golo step 6. a) traverse the last forom the header and paint the date part of each note (8top 6) It the choice is 4, if no got to wtep 7. a) search the element that you went te be search is the list (step 7) Escel from program Wap 8) 8 top

# 

- 1. PUSH
- 2. POP.
- 3 DISPLAY
- 4. LINEAR SEARCH).
- . 5. Exid.

Estre Che value: 10

- 1. PUSH
- 2 POP
- 3 LINEAR SEARCH.
- 4. DISPLAY
- 5.2819,

Entre goethe value: 12

- 1. POSH
- 2.POP
- 3 RINEAR SEARCH
- 4. DISPLAY
- 5. exid

Entre your chone: 2

1 POSH .

2. POP

3. LINEAR SEARCH

4. DISPLAY

5 exit. beday planto done la sonetan of Entre your choice : 4.

10-NULL.

Enlo

1. PUSH

2.POP

3. LINEAR SEARCH .

4. DISPLAYIOS - 2 desqui some Joseph : 2 gas

5. EXIT.

Este your chone: 3.

Enter the element & search: 10.

Element found 10

1. pos 41

2. POP 3. LINEAR SEARCHI.

4 · DISPLAY

5- 8x1+1.

Ester gous chone: 5

### PROGRAM - 4

AIM:

to implement doubly his lead hust - and perform insertion deletion and wearch.

### ALGORIGHM:

Ostep 1: Ostart.

18tep 2: Declare a stracture and related variables
18tep 3: Declare functions to create a node insof
a node is the beginning, at the end and
given position, display the list and search
an element is the list.

Step 4: Define function la create a node, declare the variables.

(Step \$1: Set menory allocated to the node = temp.

then set temp > prev = nell and temp>

next = nell.

18 tep 4 2: Read the value to so inserted to the Step 4.3. Set temp > n = date and increment count Step 5: check if head == null,
then call the function to create a
node, perform otep 4 to 43. Step 5:1: Set head = temp and templ = head Ostep 5.2: Pergens Ostep 4 to 4.3 then sellemp>next=head, set head > prev=lemp and head = temp It be chose is oserhon at end 18tep 6: check if head == null then, call the ferschoo to perform the insution at end. Ostep 6.1: Blea Else call fundos lo create a new node then set temp- next ztemp, temp > prev = temp1 and. lumpl = temp

It the choice is insertion at any position. Ostep 7: Declare the variables Step 71. Read the position notice the node need to be insched, set temp2 = head. 18tep 72: Check if posk 1 02 1700) = count+1, thes position i out of range Step 7.8: check if head == null and pos=1 thes. paint "Emply lust" cannot insent there. Ostep 7.4: Chedi Bet limp = head and bed=tems). Step 7.5: nolule i < pos then set, Bet temp2 = temp2 > next then 10 crement i by 1. 18tep 7.6: Call the function to create new node then set lemp > prev = temp 2. temp >ret = temp2 > next > prev = lamp. temps > next = temp.

It chave is lo perform delchor operation. Ostep 8: Declare variable. Alep 8.1: Check if pos <1 ox pos>= coard +1. print power out of dans verge. Step 8 2: Cheek if head == null, elen. parot the lest is emply. Step 8.3: nohele 1/pas thes Leope = leope > next and increment i by 1. Step 8.4: Check if i==1 Quen diede ( Leng 2) next == nall then prest node deleted free (temp 2) set lemp2 = herd = nell. Sep 8:5: chede if temp2 -> next == neil then Lenge > prev > next = nell been free (lemps) then print noone deleted Step 8.6: Lemp 2> rext > prev = lemp 2> prev then cheek if (! = 1 then tempz) prev > next = lemp2 > next.

ostep 87: cheek if i=1 then head = temp2>noxt then paint node deleted then force lemps and decremented unit by 1. To ophon is to perdusplay operation. Step 9: 08 et lemp 2 = n. Step 91: cheele if lemp2 = neil1 = no then paint hat step 9.2: nohule lemp2> next = nell then part lemps >n then lemps = lemps >neal. Otep It ophon i le perform search. Blep 10: Dec Bet lemp2 = head Aug 10.1: elect if lamp2 = = neel the pend the lust is emply Step 10.2: Read Que value le be Bearded. Dest 103: white fem 21 = null cheele if temp 2> n== data then paint element found at position went 1. (step 10.4: Else set lemp2 = temp2 > next and movement 18tep 10.5: Paint element not found in list Step 10.6: End

DUMPUM. choose one option from the following list. 1. Assert in beginning 2. Insut at last 3- Frank al any random location 4. Delete forom Beginning 5 Delete Parono last 6. Delet the note after the given date 7 · Search 8) 8how 9) Exit Estre your chome ? Entre Item Value 12. Node Franced. choose one opton from the following lef. 1) Sheet to beginning a) Insut at last 3) Sheert at any random location

4) Delete from beginning 5) Delete from Part 6) Delete the node after the given dete 7) Beach 8) Show Ester your chow? & Esta Value 45 node insuted. choose one ophon from the following left. 1 d'unit in beginning 2. A new at last 3 drent at any random location 4. Delete from Beginning. 5. Delete from last le le gives date 8) Oshow a) Exul Ester your chour? 3. Enter She location 1 enter realize 11

choose one option from the follow, ng node insuled 1. Ansert lo beginning & Insert at last-3. Insert at any rouders location 4. Delete Prom beginning 5. Delete from last 6. Delete the noole after the gives date Ester your choice ; +. node deleted. choose one option from the following list. I Anset is beginning & Freet at last 3. Frank at any random location 4. Delete from beginning 5 Delete from last 6. Delete the node after the gives date

Ester your choice choose one ophon from the following list 1 Ansert es beginning & Angest at last 3 Ausat at sandon location Delete from lasgonning.
Betete the node node able the gives Este your diace 9 choose one option Peom the Bollowy list a Anset at last 3 growt at random location 4. Delenos from beginning .5. Delete from last. 6 Delete the node ables the gives the date

7) Search 8) 8 how 9) 8x1-Ester your chour. 9.

#### PROGRAM-5

To implement Binary Trees and Performs
Anseation, Deletion and search.

## ALCORIGHM :

Otep 1: Whart.

Otep 2: Declare the necessary variables Etruchae and Ostructure pointers. for insertion, deletion and search and also a function for inorder Posaversal.

8/23: Declare a pointer au 2001 and variable

8tep4: Read the choice.

8lep5: It ophon is insert, then:

Red the value which is to inserted to

the tree from the user.

Alo the rate pointer.

Step 5.2: check If! nost then allocate memory for the 2006. Step 53: Bet the value to the 10h part of the root and the cet lest of right pail of the root to nell & returned. OSEP 5.4: cheele if eost > info>x Eles call the insut poister de insud la lest de de Step 5:5: cheek if not > 106) x then call Che insert porter la insert le the right of root. Blep 5.6 : Refuer le 2001. Step 6: 76 chouse i deletion. 18tep 6.1: Check if not pto then paint node not found Step 6.2: Else if pt > info < x flue call delete pointer by passing the zight pointer like OSlep 6:3: 8he if pla > info> x then call delete pointee by paring the left poste

Step 6.4: check if play into = = 1 tem then cheek if play lebt == play zgbt then free plas and referen rell. Ostep 6.5: Else if pta> left == null this set propers aught & free ptos, reduciti Ostep 6.6: Else if pta> right == neel thes Oct PI. Play left of free play returned Ostep 6.7: Elec Bet PI = PEn>zyht & pz=pla) ight Blep 6.8: notule p1 → ledt not equal lo nell, set PI > lebe. pla > lebe & lese pla retus P2 Step 6.9: Rober Pla. 8/ep 7 . It option is search Step 7.1: Declare the necessary pointers franke Oster 7.2 Dedan Read the element to be step 73: nohele plan check if ilens planting.

Ostep 7.4: Else if ilem (plea > into the pt== pta> lebt .. Ostep 7.5: Else breale. Bleg 7.6: check . Pyla theo paint that the element is board. Otep 7.7: Else paint element not found in tere and reduce 2001. Ostep 8 : = f ophon is foraversal; call torveral function and pass the soot pointer Otep 8.1: IP 2001 not equals nell recursively call the function by passing 2001 8/2: pust 2001 > 10h. Slep 8:3: Cal the fravenel function. recurredy by parring noot > right.

OUTPOT TO A MAN AND THE STATE OF THE STATE O 1. Anxilor is BSH 2. Detehos in BS 3. Search Element in BS-1. 4. Amonder Paraversal R = 2 good ( 80 P call) 5.801-1. Enter your chone 1 Ester your obota: 12 Coshnue Ansulus (oli):1 Ester your date: 66 Conhoue Angular (0/1):1 Entre your dete: 77 Controve Ansietros (0/1):1 Enter your date: 88. Contrae Ansalos (0/1):0: F) I received in BST. 2) Delehon in 1359 3) Dearch Element in BSof. 4) Frances Proversel 5) Ext.

Este your chone: 2. Ester your dete: 66. I Angulon in BST. 2 Bluleation in 135-1 3 Beach Element in BST. 4. Anorder Somvered Ester your chone: 3: Ester value for date: 77 date found. 1 Anexation in BSG. 2 Deletion in BS4 3. Berech Elempt in BSY. 4. Fronder Proversal 5-18rd Enter your choire : 5

To perform set data structure and set operation (Union, Intervalion of Difference Using Bit Ostring. 1 1 LSS Je 2018 819 30

### ALGORITHM:

Plep 1: Otard ! to de lamels . 19 et .

Ostep 2: Declare Die necessary Mariables.

Step 8: Read the chone from the court

purpero sed operation.

8 tep 4: It le une choose le person

Velep 4.1: Read the cardinality of a vet.

estep 4.2: check if m kn, then paint cannot perform anios .

Step 4.8: Else read the elements in hoth · Cety and market

Osteps 44: Repeat the Osteps 4.5 to 4.7 until icm

sleptice [i] = A[i] | B[i] ostep 4.6: paint c[i] Ostep 9.7: Increment i by 1. Blep 5: Read the choice forom the uses to peaper Intercehon. Ostep 5 1: Read the cardenally of a wet Ostep 5.2: cheek if m!= n then paint cannot perform interactions Ostep 5.8: Else read the element is both is both the sets. Step 5.4: Repeat the 1step 5.5 to 5.7 unl 8 Ep 5:5: C[] = A[] PB[] 8 lep 5.6: print c[i] Ostep 3.7: 10 cement i by 1. Step 6: It option is deference. Ostep 6.1: Read the cardenaly of 2 set Osteps 1.2: chede if m! = n then print combt

perform det différence operation. Otep 63: Else read the climent is both Otep c.4: Repeat the step 6.5 le 6.8 cishi 8tep 6:5: check if A[i] == 0 thes c[i]=0 8 top 6.6: Elec if B[i] = 1 then c[i] = 0 Step 6.7: Elee C[i] = 1 Ostep 6.8: Incument i by Step 7: Repeat the Step 7.1 lo 7.2 unhlike Otep +1: paint C[i] Step 7.2: Increment i by 1.

Edu cleant le perfer mos

1

OUTPOT. . 110 colg = olg Pren 1 Por union Press 2 for intersection Press 3 for venderaction Pres 4 for out. Ester choice 1 Entre Che 812e of 8et 1 Entre Che element of set 1. Otap & 1: 1 P rook not equal accuracy Entre the \$12e of set 2. Este la element of set 2. Union: 123.

Pres 1 for asion pres 2 Poe intersection press 8 for subfraction prex 4 Ros cocit Estu your choice : a. Estre Che \$120 of Bet 1. Ester Char clement of Bet 1. Entre Che 1814 of Bet 2. Entre Cha demost of set 2 delles Intercetion: 3. Pren 1 pe annos Press 2 for intercition pres 3 6, subfaction press 4 for exect.

Entre Che 9000 chours Entre the element of Bet 1. 3 at any all marsh works in his of allow Ester the Bize of Bet 2. Este the element of Bet 2. 2. Some with the low the shoots defleusie 4. Pren 1 foe unuos Press & for interrection. Press 3 Ba confeaction. Pren 4 for excet. Estre your drove : 4.

# PROGRAM - 7

AIM:

To perform disjoint esets & ese the associated operation (create union, find).

estepl: Ostant.

Ostep 2: Declare lu rebrucher and related

Osters : Declare function makeret ()

Step 3.1: Repeat Step 3.2 lo 3.4 whili < n

slep 3 2 : de parent [i] is set to 1

Blep33: vet du zank [i] i equal los

(8/23.4: Ancrement i by 1.

Oster 4: Declare a function display oset.

Oster 4.1: Repeat 1step 4.2 lu 4.8 cishl ikn

step 4.2: paint du gavent [i]

Oster 4.8: Ancrement i by 1.

Osle 4.4: Repeat osleg 4.5 & 4.6 ashlikn

(8tep 4.5: paint du zente [i] Step 4.6: Increment i by 1. Ostep 5: Declare a function and I pass a lo the function. Step 5.1: check if disposert [n] 1-oc thes set the section value to disposert [ra]. Step 5.2: retuen deparent (n) Step 6: Declare a fanction union & par 2 Nariable or & q. Otop 6.1: set xout le fral (x). Step 6.2: set Yout to find (g). Otep 6:3: check it yout = xole Thes relies Step 6.4: Bet Agreet cheele it diseask (xeet) Kdu. sasle (Y set) thes. Step 6.5: Bet Ysel- Luparerst (7 Bet) Step 6.6: 08et -1 to devraste [x cet] Step 6.7: Ele if cheele durante (x set) du rack (Yaot) Oty c.8: out x set le duparent [Yout].

Ostog 6.9: Set -1 le du reste Yact.] Step 6.10: Elec du parent [10ed] = neet Step 6.11: 8et dissanle (xoset) +1 la dissanle(xoet) Step 6.12: 8 02et -1 le duraste (Yoset) Step & 7: Read the no. of elements. 1step 8: call the function makesul. Step 9: Read the choice from use to perform uncon. End and duplay operation Step 10: If the war choose to perform unos operation read the element to perform unuon of the call the Ruschen to pagen union operation. Step 11: El Que use choose la jerform find operation read the element to chede if connected. Oster 11.2: she print not connected conposest Oly 12: Al the wer door to perform Sunction the call the digray set Ostep 13: End.

Oceput. How many element 9. 4. Menu . 1. Onuos Este choise: Estre elevers le jergoes unes: Do you want le comme 9 (1/0) Mesu. 1. Onion 2. Ind 3- Diplay Enter choice: Enter climent la perform union: 5

Do you work le costrace ? (1/0). Mesy-2. Find 3. Duplay Entre chous: Parest Array Do you neuro la connere ? (1/0). gal leages is (i) wheat who loss wit love dry A 2.4 plo trupell : D. a gill