Data structures and Algorithms NIM: Program to find the largest and smallest number in unsoited amay · milluropla Algorithm: House thouse it to head had up at it is 1. Input the array elements. 2. initialize small = longe = arrio) 3. Repeat from i = 2 to noi dunde to die vogo 4. if (arrli) > longer) and on discords all to the longe = arr[i] of all when it had reduced in their 6. if (arrli) < small) who all horas holos à tot litro Biogra 7. Small = arr(i)

8. print small and longe.

your hiloson no

2

Aim! Write a mogram on insertion sort

Algorillim .

- 1. if it is the Arest element, it is already sorted.
- 2. Pick next element = (others prod = thomas yearing)
- 3. Compare with all chments in the soiled sub-list
- 4. Shift all the element in the society sub-list that it greates than the value to be stated
- 5. Inselt the value
- 6. Repeat until but in souled

spint bus Vone try

3

a program on Quick sort

Algorithm:

1. choose the highest brinder value has pivot Take two vaniables tours point left and night of

the list excluding pivot owner too it will left points to the buston index

night point to the high index

While value at left in less than pivot move night

while value at Right is quater than pivot move left

if both step 5 and step 6 does not match swap

bift and night

if left > right, the point where they met is new pivot

4

Aim: Whit a program on merge soit.

Al gonilling .

in almendy sorted translations and many sorted translations.

list necessively inters two halves until the divide mare aber adivided of Among NO Can

men list into new that in Smalley 3. Idam Menge toring and out a fit ha whom little

solad moder. your forms for ab dig book & got that is

tupin ban His

à lou pour solle thing alt , tolor sign s

toring was

singly linked list a) Aim : (real a program **M** Algonilling: if PTR = Null frimmpso to besi to white over flow go to step 7 boliveri of it of od it tugni a (fi to bas) ston an new stand o New_ Moder = PTR 26 observed also also a story to the story set PTR 2 PTR -> Next - bin woln take to links to a New - Mode -> Data = Val = Tring + + waterels all New - Mode -> Mext = Heady is - ling i - line voill, dr - hold . Head = New - Node set golz 8 7. Exit base to their in holiciai ad at ATAG legal stellands a done loss think i a should (note of tage level) 1.

i) insert at Boginning

1. stant

2. input the Data to be insented to pole of of 11: to 1/1)

coate a new node

4. New Mode -> pata = Data New Node -> L point = Null

if stort is Null New node -> R point = Null

Ela Newnode > Rpoint = STant. and - stoll woll stort -> L point = Now No deel - help - shold - usli

Start = New No de

stop 8.

ii) in self at End

stoot

input DATA to be insorted

3 . Greate a New Node

New Mode -> DATA = DATA

Newhode -> R Point = Null

6. it (start equal to Mull)

7. Stop

sheld - well - bust

iii) insention at boation: 1. start markengo that Arespool a Wirls : MA 2. input the DATA and POS 3. initialize Temp = stort; i=0 4. Repeat the step 4 if (i text than pos) and (Temp is not equal to Mull); 5. Temp = Temp -> R Point; i= 1+1 box onepon 6. It (Temp not equal to Mull) and (i equal to pos) but notified in the salved acat a Mew Mode Your Inmitornit son p done 8. New Node -> Data = Data New Node > R point = Temp -> R point New No do -> L point = Temp 4. (Temp -> R point) -> L point = New Mode

Temp -> R point = New Mode 10. Else Display "position Not found" 11. STOP .

(7) white as program on stack operations using

linked list

Algorillim :

(the fire west) that it wrop putated had s

1. Create a node new and declare variable top

2. Set new data post to be Null

node to be insorted that the it is a

check it the node in Hull then print "memory in full"

if node is not Null, ownign the item to date point of new and awign top to link part at new and also point stack head to read were collision deals it

chick it the top is not will, awigh the top's link posts to ptr

and amon ptr to stack-head in faith point soil

Peck() 3.

stout 1.

node pointed by top vonable tho print or store ₹.

to it pour two thing day the mill

Stop 3.

Aim: Write a program on Queue using Array

Algonilhm .

1. Enqueue ()

1. check Whether queue it full (new == 513e -1)

2. if it is full, then display " Queue is full and terminate

The function that full protein incument near value by one (now) = (now) = value.

transport of and it will represent the plant of the first of the first

2. Dequeuel) to imply the party (front = = near)

2. The check whether queue has Empty (front = = near)

2. It it is Empty, then display queue is Empty 1

3. it wist and sonot comply, then incoment the part value

a debt de element Than check who then both pant

and rear one equal (point = = rear), it it True,

Then set both kint and road to -1'

(point = made = +1) Laring to

3. display () 1. check - whether queue is Empty (fent = = quear) 2. if it is Empty, then display " pueme is Empty" 3. it it is not empty, then define an integer voisble " and set " i= tront +1". 4. Display 'quene [i]' value and increment is value by one (i++). Repeat the same until "it value meaches to

many (ic = near) obstructures there was be not plying the A to It A tolnious a rout buc (Male . . . but) figure à ways pollater touts y plant it would " polycib not , plant it to a get adainst these or whole court physics from a to be to they a to the thou in flynd dith one held to they they be not

- 2.
- Hear = new Mode
- if it is not empty than, set man -> next = new Node 4. and rear = new Mode
- De que ()
- check whatten queue is Empty (front == alull)
- if it is empty, then display " Quew is empty"
- if it is not empty than, define a Node pointer temp and set it to ' font'
- 4. Then Set point point next and det 'temp' (free (temp))

- 3. display ()
 - 1. check whether queve in Empty (front = = Null)
 - 2. It It is Not Empty than, display "Queue is Empty"
 - 3. it it is not empty then, define a Mode pointer temp'
 - and Initialize with front.
 - 4. Display 'temp \rightarrow date -->' and more it to the next node. Repeat the Same until 'temp' nearbes to 'near' (temp \rightarrow Next! = Null).
 - 5. Finally; Display 1 temp -> data --> Mull 1