Ou No		Motoby	ЮK
Pg. No			_
Date	/	/	

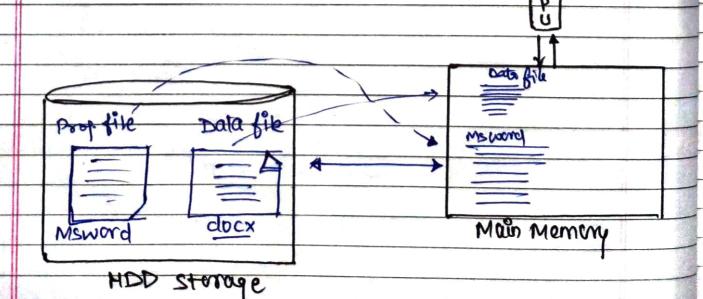
Introduction to Data Structure.

Data is an integral part of our application or programs.

A program is nothing, but set of instructions which perform operations on data to get some results.

(without Data means wo no instruction)

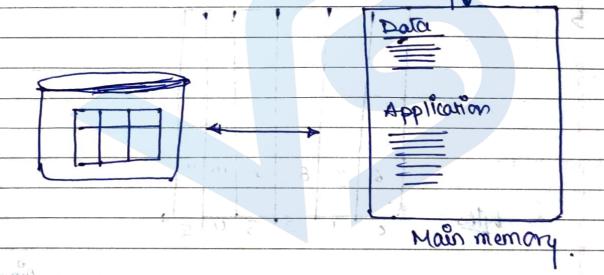
Data smichuses can be défined as arrangement of collection of data items, so that they can be utilized efficiently, operations on the data can be done efficiently.



	Noteb	ook
Fg. No.		
Date_	/ /	
10000		

Database:-

A database means arranging the data in some model like rational relational model in the permanent storage so that it can be retrieved on to accessed by application easily that arrangement in the hard-disk, or in the permanent storage, its called as database.



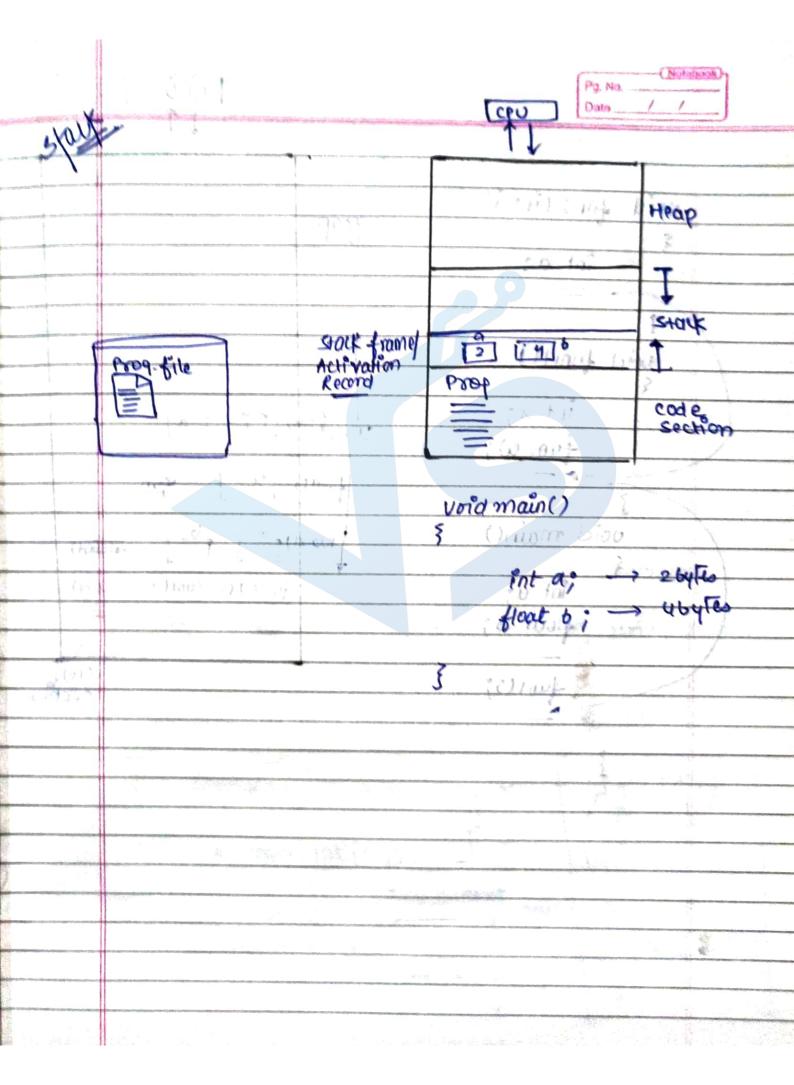
para-warehouse:-

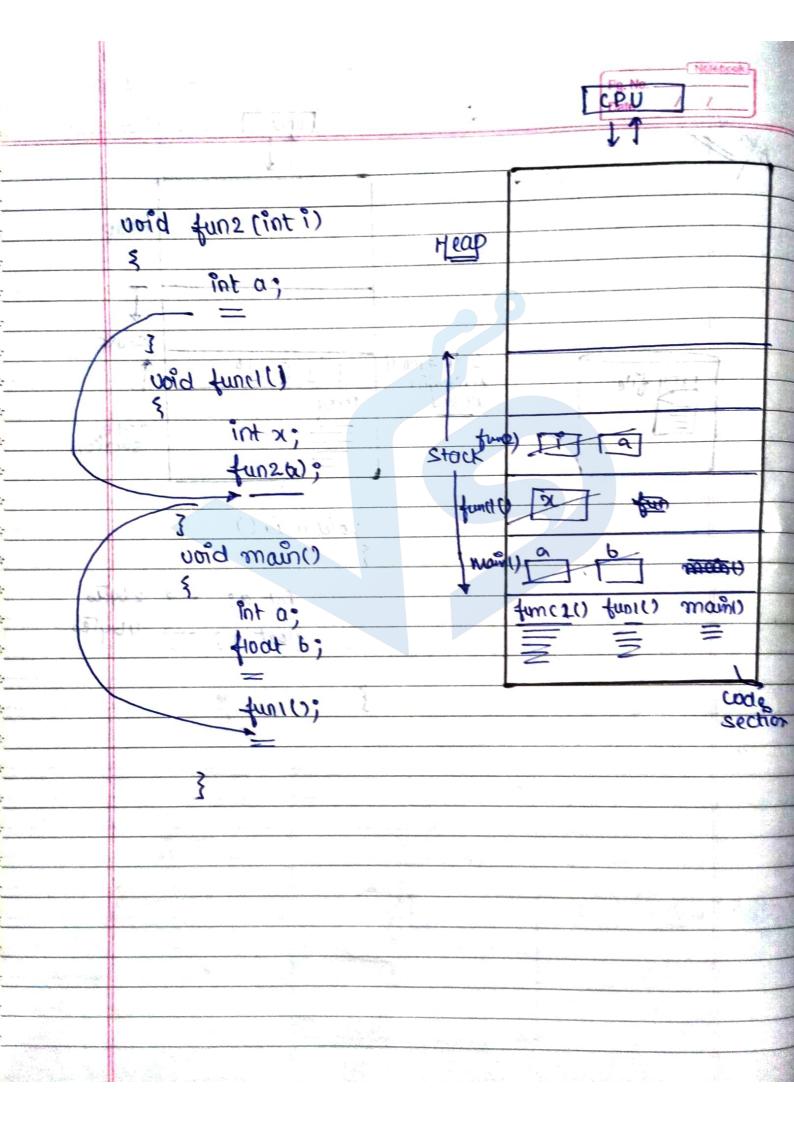
Data warehouse is a central repository of information that can be analysed to make more informed deusions.

Data washouse

SAMS =

Pg. No. ____/ / · gandriet BATA/plantove4 Stack us Heap Memory Statuc vs Dynamic Memory Allocation 9 10 11 8 Address are linear +65535 - MOG Segment 0-65535 = 65536 BUKB =64×1024 2 GYKB





	Pg. No. Date / /
ic	
MORT	The stand bound
Syndroic	
	Heapris used for unorganised thing
	nondoniza
	Dulley Cotos & will
	emuozaje so ajus batoson a te
A THE !	Miles Julius Institute La
5 = 1	
	Teap memory is unorganised.
2. 1.	Heap memory is unorganised.
3/11	
(0) w/0	
JAJ MIT	frogram cannot directly access the How memory.
	they can access Heap momony using points.
	3
	TOT FOR IN HIS ME LO I TEST TOUR ON ACU.
	void main()
	3 P Heap
36	int to: -> stutes 1
	1
	P= new int[s];
	p=(int *) malloc(2 * 5); stock mains sod P
	p=(int*)malloc(2*5); I main() dente(spp or free(p); = main()
	p'=muu;

(Notebook)
Pg. No
Date/_/
the state of the s

Phy	sical	VS	Logical	Data	5	ructur	e
	_	_	-				12

Physical vs Logical D	sata structure
	TY LE TO TO TO TO TO
The state of the s	
Type of Data Struct	we
1 10 10 10 21 1 1 1 1 1 1 1 1 1 1 1 1 1	
Physical	20 greus
1. Array	3. Palees 7 mm
2. linked list	3. Palees 7 run
	s. Rash Pable
	Dellas Dellas
Array (size of the	re list is fixed)
A 8 3 5 19	us peties
0 1 2 3	4 7
106.041.3	1010
when the 18131	(mwont too as tall soft for
, , B -> 3 F	5 - 9/
	511d5 = 19 + 1,1
A Company of the Comp	
	Walthour - 1
	13 Heap
That Civila	*(2 45 bollon (+ hill-9)
70/16	stack (a)etion
2000	* U185-9

co de

Pg. No		Notabo
Date	1	1

mplemented using foray

100	1.79	or tone	13 dA 1 7	ra	14
wheed	مد	always	created	in	Heap.

Physical dolla stricture actually used to store the dolla in the memory.

coglical data structure are used for searching deletion, the discipline of operation.

Stock -> LIFO J - Array

Queues -> FIFO J -> Winked

Chaphy - may - may - when hot

Application tourself

1990 formali primblille

S1,01,0,1,6,8,0 -- toll

0 3 1 2 3 10

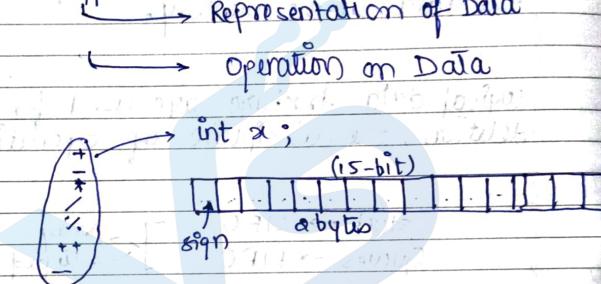
Interior printe for storing distart

2. layuung

	(Heret	ook)
Pg. No.			-
Date	/	/	

ADT (Abstract Datatype)

Data Type Representation of Data



Abstract -> Hiddening internal operation

Abstract Data - Lype _____ Used in opps

> Hiddening internal operation

 $vist \rightarrow 8,3,9,4,6,10,12$ 0123456

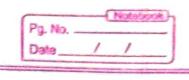
Data: 2. Capacity
3. Size.

Pg. No	abook)
- Hond	
1 e A	Į.
3	
	i. b.
-	4
a and operation	on en
a and operation of the for	hidding
	1
a) Perlied	
lement)	
(errent)	
nsert (index, o	element)
Side of ear	1
Replace (index,	element)

Operations: add (x) remove(x) search (Key) Abstract data-type is defined some data data, together is used as data the internal details. · add(element)/append(el · add (index, element) / Ir · remove (index) set (index, evement) getlindex) 5(1)0 search (key) / contains (key) · sort()

	Pg. No
	Mime and space Complexity
	-jaman-j-
	Array:
	A 2 5 9 6 4 12 15 8 3 7
	A [2 5 9 6 4 12 13 8 3 1) 0 1 2 3 4 5 6 7 8 9
	n→ sum mulber of element
. 45 W	Complexity O(m)
With H	
V.	actions to inthis ult.
	1) for(i=0; i <n; i++)<="" th=""></n;>
	(
	(Justina) of Part Principle
Tab. 15 - 112 1	Code & running
1 200 Hay	
	(xabat) gvenu •
(46., , , , , , , , , , , , , , , , , , , 	
(No as in	(2) 3 3 forti=0 ((xm git++) x 1000) 1000
X 80 - 10 /	5
	Exitinities
	for (j=0; j <n; j++)="" o(n2)<="" th=""></n;>
	(post) an solution (post) by Ose .
17-2	
	3

3



120

O (m2)

3)

1+2+3+4 - - - + n-3+n-2+n-1

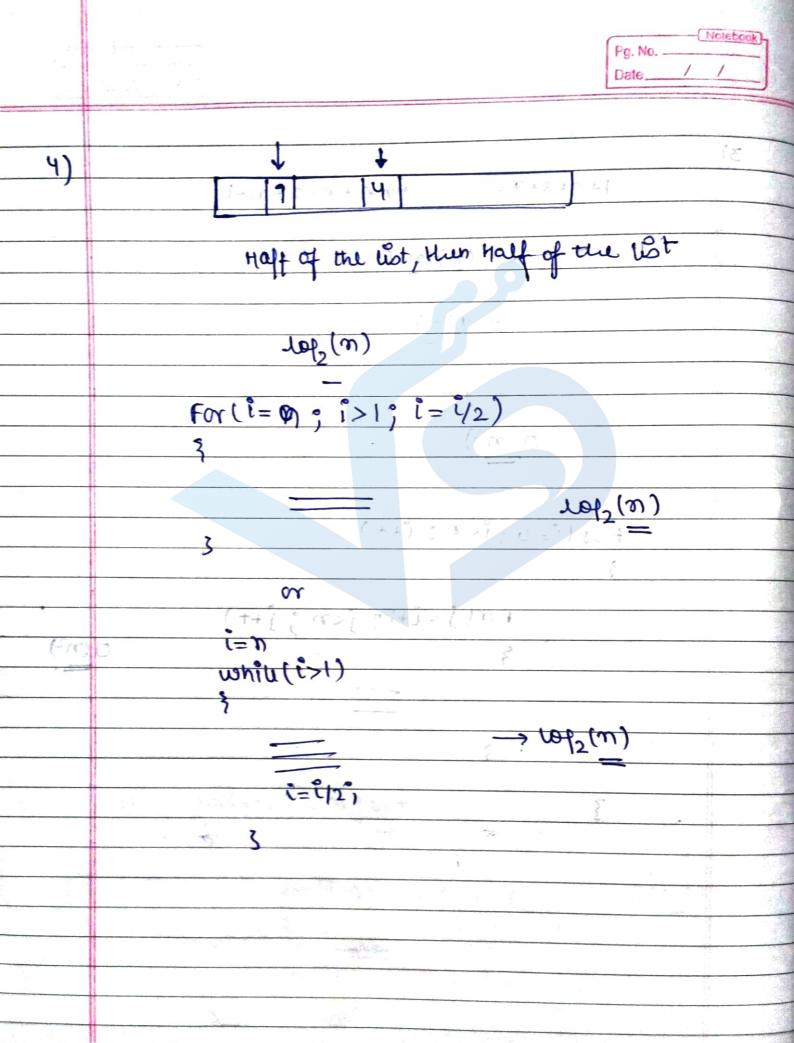
2 (n)(n-1)

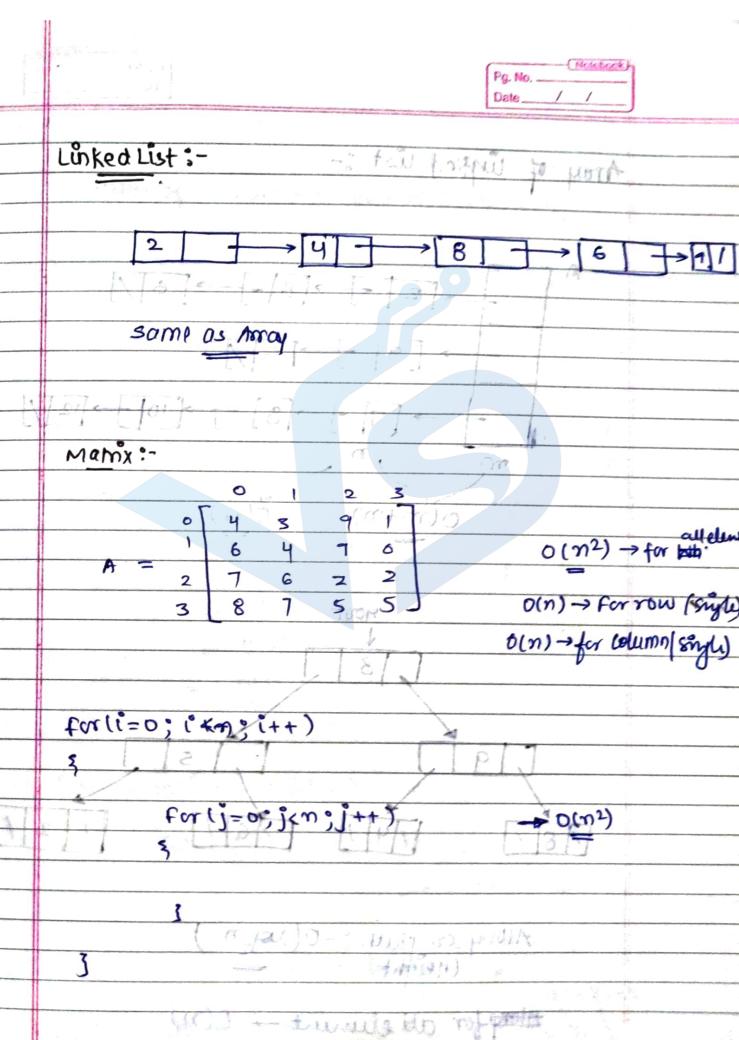
0(n2)

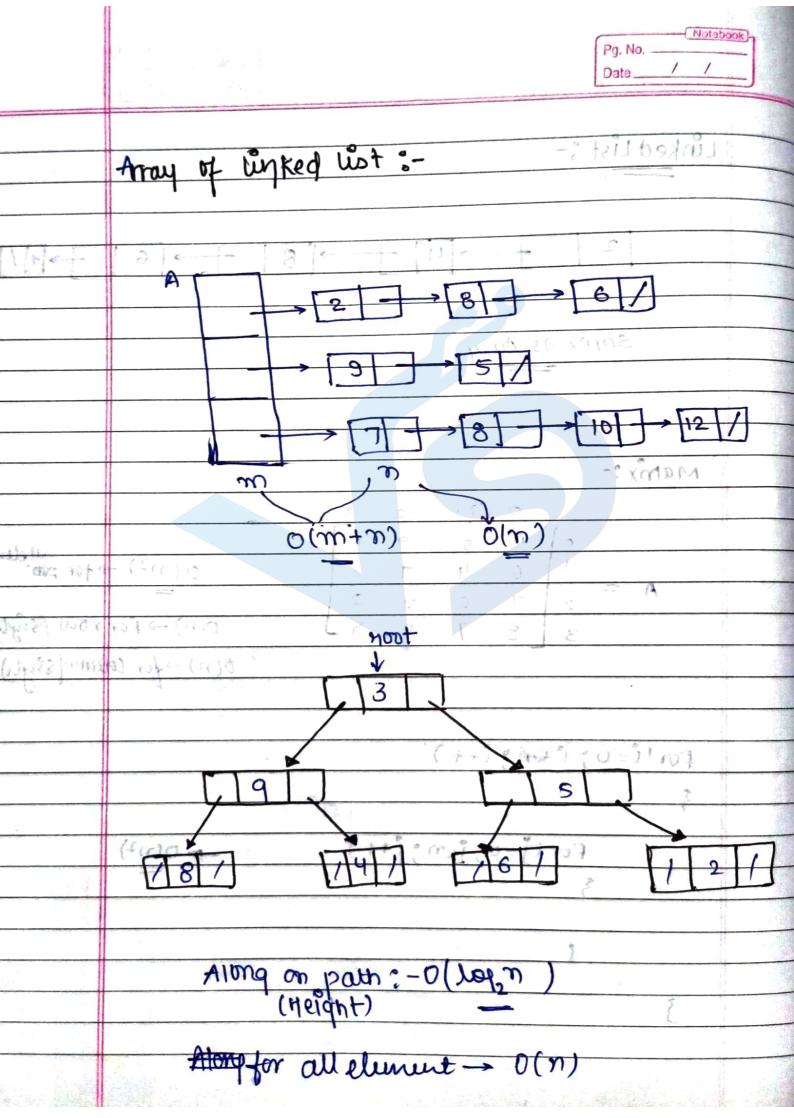
For (i= 0; i<n; i++)

3

for (j= i+1; j(n; j++) 3







	Po	. No.
	Da	te/
	ST1+155 =	- (01)
	Value of a more - some will be	
	Value of n more → space will be	morte
	O (r	00
	void swap (x, y)	
	3	71
	int t; -	
	+=x; -1 (15 3017 b	DA DIOU
		3
	y=4; —1	
	$\frac{3}{4(n)} = 3n^0$	
-	10101	
	=) 0(1)	3
	(1+ (1)(+ - + 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1	11
	(1+ m)1+ 1+12m) 2001 m)	
	= O(1)	
100	OLDU FEDEIJA = EDETE	ily in the second
1.00		
	int sum (int Acz, intm)	
}	3	
	int si;	
/	S=0; -1 2m+2	⇒2(<u>n+1)</u>
	tor((=0; (<m; (++))<="" th=""><th></th></m;>	
] -> 	क्षी १
	-8= STACIJ-ME = (a)	
	1 +00+500	\$1+p(w)+1
	Heturn s; -1	= 0(10)
4901834	ζ (-'a')0	

Date / / fin) = 2n+1+2 20+3 0(2) CP. K) graz bios void Add lint m) int ij; for (1=0; (< m; (++) - m+) For(j=0; j<n; j++) -n(n+1) רנוֹנוֹנוֹ = אנוֹנוֹן א פנינוֹן; ארנוֹנוֹן ארנוֹן ארנוֹן ארנוֹן ארנוֹן ארנוֹן ארנוֹן ארנוֹן ארנוֹן ארנוֹן ארנו (or to EJA toilows toi *(n) = カナーナガネカナガ2 = 2n2+2n+) = aiutare 0(n2)

	Pg. No	
	Date / _ /	
	and the second of the second o	
	funt()	
	Sinistury is Remaining ?	
	miz fun 2(); (10)2 =	-
	3 . acteruly 4 colony 1 ° O	
	- a figure of the com	
	Auner) signa smit	
	Spitten e sourrence Parting.	
	$for(i=0; i< n; i+1) \rightarrow n+1$	-
ave	other rose por price a tous of	
	constant (3111) I estacial net	
		-
	3	
	-1291q/nox3	La circa
	* (ir hi) Dauf piek	_
	(o<1r) \$i	-
	60-11) 41	
	° N N Invitation	-
	*(1-100) ### (1-100) *(1-100)	
		-
	A CONTRACTOR OF THE PROPERTY O	
	Oniogr Blou	
	1 AND	
	reak this	-
	; (v) 15m)	