Kevin Shah Batch-C 231070060
Page

Aim To understand how visual studio code works and its installation process, code editing, productivity tips and learning about its entensions. Writing an algorithm to find gross and net satury of 2000 employees of ABC Co. Itd and find manimum and minimum salary wing divide and conquer.

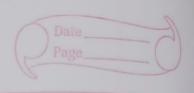
Input: (sv file having salary information of 2000 employers along with the breakup.

Theory: According to swary literature.

Gross salary -> Buse salary + HRA+ other Allowances.

Net salary -> Cross salary - Professional tanEmployed provident fund - Troome Tan

Columns of cov file contain all those elements and now reprosents each employee.



Canoss and net salaries of employees:

function colculate\_sularies (employee):

Mirput: employee ontains begic\_solaray, ARA,
other allowances, Income-Tan, Projectional\_Tan,
Employee Provident Fund.

Il any value < 0 in any column employee gros - salary = "Invalid"

employee net salary = "Invalid"

Else:

employee. GRA + employee. Other\_Allowances

employee. Forplayee\_ provident - Fund + employee. Pro-land-Tan

employeenet-Salary = employee. gnoss-salary-employee.

> linear algorithm function minman (arr[]) &

(1) searches for manimum and minimum salary value

(1) loom events iver areas by wine iterative // Inom every given array by using iterative approach

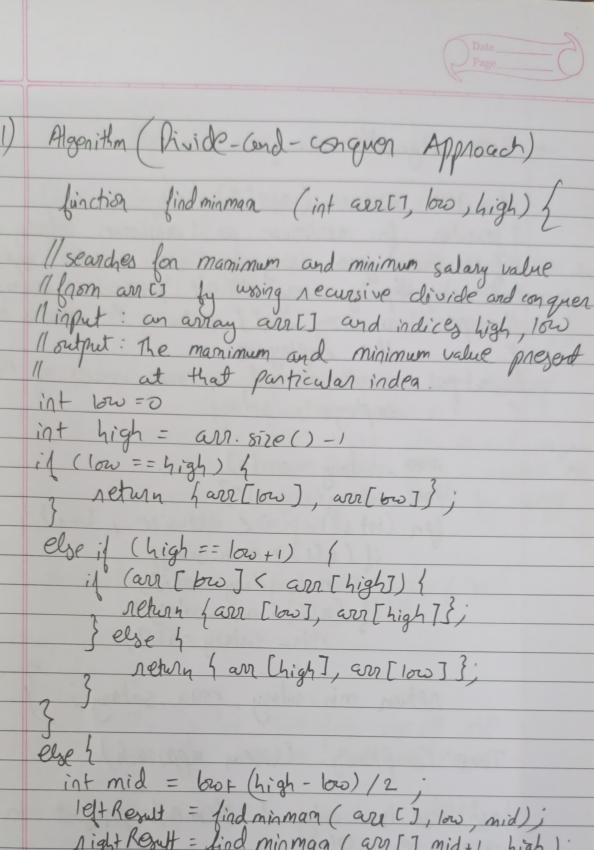
// ip by emparing every element present in array.

// input: ar array arrif containing the salaries of

the employees

// output: marrimum and minimum values of the

// employee's solary man - swary =ann [0] min\_salary = arr[0] for (intiel; ican. size; l++) } if (ali) > man-salary) man\_salary = a[i]; if (a[i] < min-salary) min- Salary = ati]; return min-salary, man-salary; Time Complenity: (linear approach) lage case is only I element prejent in  $\leq 1 = (n-1)+1$ = O(n) 4



1 (low == high) {

neturn farr[low], arr[bw]}; else if (high == low+1) {

if (arr [brw] < arr [high]) {

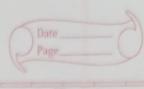
return {arr [brw], arr [high]};

} else 4

return {arr [high], arr [low]}; int mid = bot (high-low)/2; left Result = find minman (are [], low, mid); sight Result = find minman (are [], mid+1, high); minimum = min (left Result. min, right Result. min); manimum = man (left Result. mam, right Result. man);

return minimum, manimum,

int high = an. size () -1



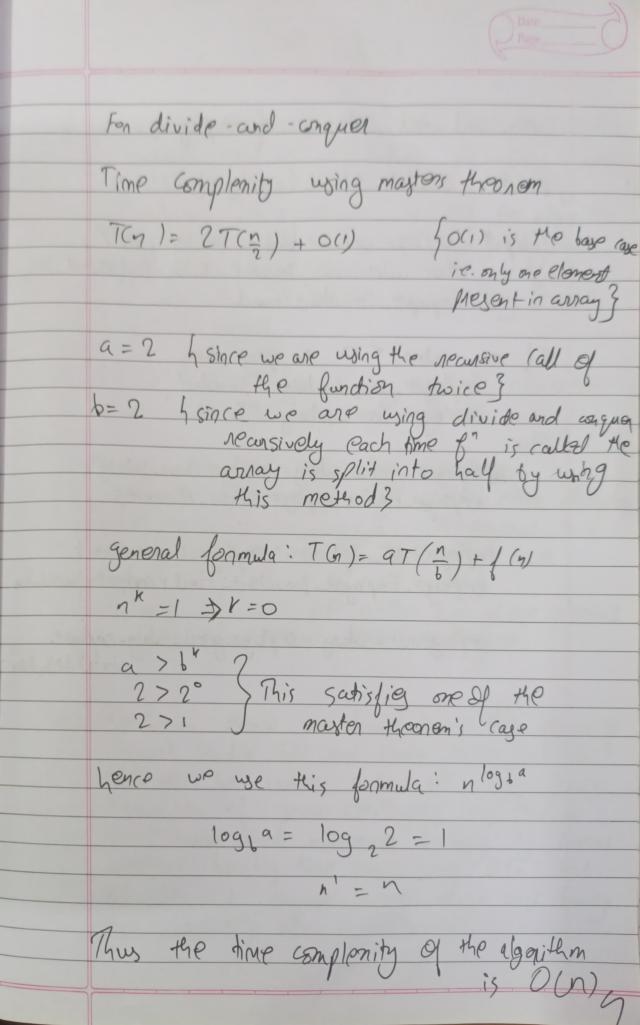
Test cases: (Positive) 1) Input: employee\_valid\_1.csv autput: Linear Search -> Min: 23167 (ID: 3), Man = 101218 (ID:6) Pride and conquer + Min: 23167 (ID:3), Man: 101218 (ID:9) 2) Input: employee - valid - 2. CSV Dusput: linear search > Min: 33923 (ID:10), Man: 96456 (ID:16) Dide and wigner + Min: 33923 (ID:10) tan: 96456 (ID:16) 3) Input: employee \_ valid \_ 3. csv Output: Linear search - Miz: 35613 (TP: 23), Man: 122970 (ID: 18) Pivide and conquer > Min: 34613 (ID: 83), Mag: 122910 (ID:18) 4) Imput: employee\_valid- 5.050 Dutput

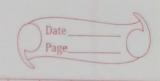
Vinear Search > Min: 48907 (ID: 19), Man: 69370 (ID: 24)

Divide and singues > Min: 48907 (ID:19), Man: 69370 (ID: 24)

	rage
5)	Input: employee_valid_5.csv
1	
	Eutput:
	4-1108527
	linear Stand - Min: 30372 (TD:19), Man: 128537 (ID:18) Divide and Congres - Min: 30372 (ID:19), Man: 178537 (ID:18)
	Dide and (2010 - Min: 30372 (ID:19), Man: 128537 (ID:18)
	Moral and sugar
	Meadina
0.50	regative:
r	Input: employee-invalid-1: CSU //ID missing
6	Influ antiques me
	output: Employee ID is missing for an entry
	Copa Compagned to
7	Input: employee_invalid - 7. (su (/ Field Heads missing)
-	Differ Compagned in the state of the state o
	output: Emon: Missing required fields in input data
11:00	K J P J J B . ANT   OI   OI   C DI C C . OI ) - WIND ( WALL)
3)	Input: employee - invalid - 3: (SV
	ID 32 has alphabets by data and not no.
	output. Invalid Data for Employee FD 32
2)	
KI M	Input: employee_invalid = 4. csv
0.0	2 says Tools Tools Tools
	Dupul: Invalid on missing Employee ID
10	Input: employee invalid _ 5. csv
	tata =
	output: No employee data avidable
183	1000 - 100 D 20 OF RE 1000 - 2000
	Dark and when the cases (as) have the shall

Date,





Cordusion:

Mence we computed the gross and net sularies of comployees found employees with minimum and manimum net salaries using two different functions.

Gross-Net salary is calculated by

Gross salary = Basic salary + HRA + OKEN abowances

URA = 4 1. of Basic Salary

Net salary - Moss Salary - Deductions

tenear search was implemented - it traverses
through the list of employees and neeps track
of employee with minimum and manimum net salary

Time Complomity = 0 (n)

Divide and conquer was implemented too.

It news vely divides into smaller gub arrays

Find min and man in each sub arrays and compline

Using master theonem we found T(n) = O(n)

Both adjeve same complenity i.e. o(n)
...linear Search is preferable due to simplicity.