RAJALAKSHMI ENGINEERING COLLEGE

RAJALAKSHMI NAGAR, THANDALAM 602 105

RAJALAKSHMI ENGINEERING COLLEGE

CS23331 Design and Analysis ofAlgorithms

Laboratory Record Note Book

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Year / Branch / Section : 2025-2026 CSE

University Register No. :2ll624070ll74

College Roll No. :24070ll74

Semester : 3

Academic Year :2024-2028

RAJALAKSHMI ENGINEERING COLLEGE

An Autonomous Institution

BONAFIDE CERTIFICATE

Name:

Academic Year: …… Semester: …… Branch:

Register No.

Certified that this is the bonafide record of work done by the above student in the.....Laboratoy during the academic year 2025- 2026

SignaNre of Faculty in-charge

Submitted for the Practical Examination held on……

Internal Examiner

External Examiner

INDEX

FX NO	DATF	NAYF OF THF. F.XPFRIMF.NT	C'›ITHtJR OR
1		Basic C Programming	
2		Time Complexity	
3		Brute Force	
4		Divide and Conquer	
5		Greedy Technique	
6		Dynamic Programming	

Question 1 | Correct | Mark 1.00 out of 1.00 | Flag question

Given uro numbers, wTïe a Cprogram to swap the gwen numb °rs.

Fer exemple:

Input	Result
ll 20	2G. t0

Answer: (penalty regime: 0 %)

```
1 ″%1nclude smdié.h>
2  ont maîn(j{
3       int n,m,tempi
a       •«an*r‴.^r '=n" .^n .*«›:
5       teinp n,


8       Prtnt*("'En '****",n.m}:
```

inpw upa»eä æt

*«= ha Za Z0 1c 2.0'›'o v

'Païtfñ4«ft.tëëfi

Marks for this submission: 1.00/1.00.

Write a C program to find the eligfbili/ of admission for a professional course Dased on the followiT.Jg E tfi'Nd:

Marks in Maths >= G5

Marks in Physics >= 55

Marks in Chemistry »= 5g

Total in all three subjects = 180

Sample Test Cases

Test Casa 1

70 6d BO

Output

The candidate is eli.gjble

Test Case 2

50 b0 BO

Output

The candidate is eligibie

Tast €asc 3

l'nput

50 GO 40

Output

The candidate is not eligible

Answer: (penalty regime' Dâ)

```
¥imclude stdio.h»
int na1»{ ){
    int a, p, c;
    scanf(”0d %d %d’,%m,&p„Sc};
    if((m>=65 && p>=55 && c>=50)||(m+c+p>=180)){
        printff"Tte candidate is eligible");
    }

    else(
        printf{”Tte candidate is not eligible");


}
```

ln;put	Expected	Go:
70 60 80	The candidate is eligible	The candidate is eligible
•d' TO BO B0	The. candid.ate .is e1i'gib1e	The ca.ndtdate ts e1tgsblo' •d'

Correct

Question 3 Correct Mark 1.00 out of 1.00

Ualini goes to BesWave hyper market to buygrocery items. BesWave hyper market pravides 1 discount on the bill amount b when ever the bill amount B is more flan IIs.2000.

The bill amount B is passed as the input to the program. The program must print the final amount A payable by h1alini.

'Inpur Format:

The first line denotes the value af B.

Ouput Format:

The first line contains the value of the final payable amount A.

Example InpuL*Outpcit 1:

'Inpu:

T90D

OUPAJNA:

39D0

Example Input/Output 2:

‹Input:

300D

Ouput

2700

Answer: (penalty regime: 0)

```
1  #1nc1üóe<stg1o.h•
3• 1nt  maln( ){
3'      int n;n ;
:4.     scanf f"M'  ,6n) ;
5•      if(n›2000 ){
ó           m=n'O. 1;
7           .n=n-g,
B           pr1ntf( "M" ,n) ;
9       }
T0•     else(

12          .printi('td",n);

T4
```

Input	Expected	Got	
1éb0	1'90d	1980	•d*
3000	2700	2700	

Correct

MarWfor fms•mie:nm far:J0D/i.">1

Questions can Nark10o:utoflm 1- ..

6aba. is very kind to beggars and every day Bcba .donates hal'f or the amcunt he has'/vtien ever a beggar requests hirri, The money kl left in. Baba's hand is passed as tte input arid the number of beggars .B who received the alms. are passed as the input. Thz program must print the money Baba had in rhe beginning *of* ltte day..

Input Format:

The first line denotes ltie value cf'M.
The second line rlenotes the value of B.

Output FormaL:

The first line denct:es tfie '.'alue of money \vitLi Baba In the beginning of the day.

Example InputJ'0utput:

Input:

t00
2

Ougut:

400

Explanarian:

Baba donated io two beggar. So when he encountered second beggar he had 1D0*2 = Rs.200 and when he encountered 1st he had *100*y* = Rs.40ll.

Answer: (penalty regirr•e: 0)

```
T  #imclude stdio:h»
2 int main(){
3       int m,ni
4       scanf ( "Sd  I.d" ,Psi, &n ) ; ;
5       int a,t;
6       a=m'n;
7       t-a*2;
8       printf("¥é',z),

11
```

	tnput	Expactati	Not	
✔	100	400	400'	sP
	2			

Passed all tests! ✔

Question 5 | Correct Mark 1.00 out of 1.00 | Flag question

The CEO of company ABC Inc wanted to encourage the employees coming on time to the office. So he announced that for every consecutive day an employee comes on time in a week (starting from Sunday to Saturday), he will be awarded Rs.100 more than the previous day as "Punctuality Incentive". The Incentive I for the starting day(i.e. on Monday) is passed as the input to the program. The number of days N an employee came on time consecutively starting from Monday is also passed as the input. The program must calculate and print the "Punctuality Incentive" P Sofie employee.

Input Format:

The first line denotes the value of I.
The second line denotes the value of N.

The first line denotes the value of P.

Example Input/output:

Input

500

Output:

2100

Explanation:

On Monday the employee receives Rs.500, on Tuesday Rs.700, on Wednesday Rs.900

So total = Rs.2100

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int main(){
    int m,ms,t;
    scanf("%d",&n,&m);
    for(int i=0;i<m;i++){
        s=n+200;
        t=t+s;

    printf("%d",t);}
```

✔	500	2100	✔
	100	900	Wrong
	3		

Correct

Marks for this submission: 1.00/1.00

Twn numbers M and N are passed as the inpui. A ,number X is also passed as the input. The prBgram must print the numbers diiasible by Xfrom If to M(inclusive nf Mand ñl.

Input Format:

The first line denotes the value of M
The second line denotes the value nf H
The third line denotes the value nf X

Dutput Fnreiat:

Numbers divisible by Xfrom Ntn M, with each number separated by a space.

1•=M•=999 99
M•N<=999999S

Input:
2

7

Output:
35 Z821 14 7

Example Input/Output 2:

Input:
66
121
11

Output:
121 110 99 88 77 60

Answer: (penalty regime: B%)

```
1  pinclu"de std1o: h•
Z‹ 1nt rta1nf ){
1      1nt zi,n,x;
'1     scanf( "W     M",&n ,to, &xJ;
5•     1f(e<=n){
6•         for(Int 1=n;i<=n;1++) {
7 |            1f(i%x==0){
8                  printf('%d",i);


12.    else(
13.        for(1nt 1s; 1-=n;1-- {
:14•           âf‹i¥x==0)(
15                 prntf( "id  ",1} ;

17         }

19     return 0;
20 }
```

	Input	Expected	Got	
✔	2 40 7	35 28 21 14 7	35 28 21 14 7	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00

Questizn 7 :Co u &ir& >O0ou o lOO ?’ F «no »

Write a C program to finó the quotient and reminder of given inregers.

InpuC Result

Answer: (penalty regime: 0 %)

```
1' /includ stdió.h•
2'• zrit na1n( ){
3       int n, ri, q, ren,
4       scanf( ed Rd" ,Bn, liz} ;
        £j=Fl›*Nlj
6       print f( "Sd'\n" ,q} ;
7       reo=nTri;
B       pr1ntf("Ud",re‹o\ .
9       return 0;
**  f
```

Es ut“ «n«a”uif

✔ 12 4 **4 w**

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Question 8 Correct Mark 1.00 out of 1.00 Flag question

Y%rite a C program to find the biggest among the giver. 3 integers?

Fer exampl'e:

InpuL	Result
'19 zO 3D	30

Answer: fpenalW regirr.e: D's)

```
1  #1nc1ude<std1o.h>
2, int maim()(
3      int n,m,p;
4      scanf("%d %d %d",&n,&m,&p);
5.     if(n>m &&n>p){
6          printf("%d",n);
7      }
8.     else iff,p-n&mp•m){
9          pr1ntf("/tJ",p):

11•    e1se{
t2         pr1ntt{"l:d",n);
;y     )
```

inp«t 5Exgetw set

)0 20.30 3@ x v

"4 *

Question 9 | Correct | Mark 1.00 out of 1.00 | Flag question

Write a C program to find •Aether the given integer « *oad* or even7

Fer example:

Input	Result
12	E'en
11	Odd

Answer.° tpenalty reglme: 0 '1)

```
1  #include<stdio.h>
2. int main(){
3       Int .n;
4       scanf("id",a"n);
’S.     if(n%2==0)(
6           pvintf(”Even');
7       }
8.      else(
9           printf("Odd");

11  }
```

	Input	Expected	Got	
✔	12	Even	Even	✔
✔	11	Odd	Odd	✔

Correct

Marks for this submission: 1.00/1.00

Question 10 | Correct Mark 1.00 out of 1.00 Flag question

Write a C program to find the factorial of given n.

For example:

Input	Result
5	t20

Wwwer. IpenNtv gr<: 0 \

```
1. 4inc1ude•scdio.h•
2. int main(){
3.     int n,t=1;
4.     scanf("%d",&n);
5.     for(int i=1;i<=n;i++){
6.         t=t*i;
7.     }
8.     przn t T(”:•c",t) ,
```

	InpMt	Expected	Grit	
✔	5	120	120	✔

Correct

Marks for this submission: 1.00/1.00

Question 11 | Correct Mark 1.00 out of 1.00 | Flag question

Write a C program to find the sum of first N natural numbers.

.For example:

Input	Result

Answer: (penN@regime: 0)

```
#1nc1ude stdlo. h»
int main(){
    inf m,t=0,
    scanf("T1'htm;
    7or(int i=1;i•=n;i+-){
        t=t+i;
    }
    pr1ntT("1a",t);
```

	Input	Expected	Got
✔	3	6	6

Marks for this submission: 1.00/1.00

Question 12 | Correct Mark 1.00 out of 1.00 Flag question

Write a C program 1o lino the Nth term In Ihe fibonacci series.

Far example:

Input	Result

Anawer: tpenalty regime! D'A)

```
#include<stdio.h>
int main(){
    int n,a=0,b=1,fib;
    scanf("  ",6n);
    if(m==0){
        printr("«d", 0);,,
        return 0;

    e1se 11'(n==1){
        pr1ntf("tel", 1);
        return 0;

    #or(int 1=2;i =m;i++}(
        fib=a-b
        a=b;
        b=fib;
    }
    printf("%X,b)
```

input	Expected	Got	
1	1		W
4	z		

Correct

Marks for this submission: 1.00/1.00.

Question 13 | Correct Mark 1.00 out of 1.00 Flag question

'Ohite a C program to finü thz po ver of iritegers.

›np›uü

output:

a^b value

For example:

Input	Result
2 5	3.2"

Ariswer: [penalt\ rcgime: ß'ö)

```
l  'f:imcludeCmath:h›
2  t"1nc1ude•szd1o.h•
3 • Lnt mainf){
4       int n,m,power;
5       scanf("%d %d",&n,&m);
6       power=pow(n,m);
7       printf("%d",power);
8       return 0;
g  f
```

	Input	Expected	Got
✔	2 5	32	32

Passed all tests!

Correct

Marks for this submission: 1.00/1.00.

Question 14 | Correct | Mark 1.00 out of 1.00 | Flag question

Write a C program to find Whether the given integer is prime or not.

For example:

Input	Result
7	Prime
9	No Prime

Answer: lpenalttv" rcgirr-e: 0 Al

```
1         e  tdio.•
 !ʟnt 1 d ( f
3     int n;
4     int isprime=1;
5     scanf("%d",&n);
6     for(int i=2;i<=n/2;i++){
7         if(n%i==0){
8             isprime=0;
9             break;
111       }
11    }
12 .  if(isprLme}{
13        prir+tf(”Prime"),
14    }
15    else{
16        printf("No Prime");
17    }
18    return 0;
19 }
```

	Input	Expected	Got	
✔	7	Prime	Prime	✔
✔	9	Nc Pr'zme h Bri+oe b		

Passed all tes

Correct

Marks for this submission: 1.00/1.00.

questi0'n 15 f•«rre-t r‹ark .ao o.«rrJ..Oa \" '! ,t .s.. I

Writz a Cprogram to find the reverse of the given integer?

Wwwer: Ipena@ regime 0)

```
1  #znc1ude+std io. h>
2  int main(){
3      int n,rev=0,rem;
4      scanf("%d",&n);
           e n . =
6          r em-nil G;
7          r ev  i-ev*1.0+rev j
8          n  n. 1,0
9      }
10     printf("%d",rev);
11     return 0;
12 }
```

col

✔	123	321

Passed all tests! ✔

321

Marks for this submission: 1.00/1.00.

Problem 1: Finding Complexity using Counter Method

‹ Started on Thursday.7 Augusc 2025, 8:07 PM

State Finished

Completed on Thursday. 7 August 2025, 8:13 PM

Time taken 5 mins 29 secs

Marks 1.00/1.00

Grade iO.b0 ui of i 0.TO (1O0i»«

Question 1 Correct Mark 1.00 out of 1.00 P Flag question

Concert the lot to-ring aLgor1Ehm into a program and find iLs Lthe' complexi Ey usi ng Ehe coun*ter* atethod.
void function (in E n)

```
int i= l;
int  s =f:
mhile{s  <= n1
K
```

Note. Sta ne-ed of counter increment for deE1aral ions and scanf*) and cornE variabLe pr1ntf{) statements.

A posiLive Integer n

Print the value of the counter var1able

-or example:

Input	Result
9	12

Answer: (pc°nalty regime: 0"'x)

```
1  |#inc 1ude<stdio.h>
2  ' znt  co=0;
3   vold  Tunat1on{ int  n)
4  ‹
5        1rit  I=J ;
6        co+-,
7        int  s=1,
9        co
10.      whilefs:=n){
12           co++;
 3           s+=1;
14           co+=2;
15       }
16       pr zntl  '"id", co) ;
17  }
IB.  int  main(){
19       int  n.;
20       scanf("    ',&n);
21       function(m);
2Z  }
```

	Input	Expected	Got	
•d'	9	12	12	w*
✔	d	9	9:	✔

P'assed dll testst V

Correct

Problesti 2: Finding Complexity using Counter method

Started on Wednesday. GAugust 2025, 9:05 AM

Stata finished

Comp/etad on Wednesday, 6 August 202S, 9.22 AM

Tlmete¥zn j7nWmsl8secs

Marks 1.00/'1.00

Grade 10.M out of 10.0El f100%)

Question 1 Correct htark 1Q8 out of 1.00 {' Clpmuesuor

Couvert the follswing algori‹hm into a program and rind its time oompIexi{y .using the coun0er method.

```
void func(int r)

   if(n==1!

     qprint ft"•"l;



   for{int i=1; i*=n; 1+*)

     for{int j=1; j<=n; j++]

        print f{""- };
        print f{""- };
        braak .


  )
 T
```

Nate. No need of coúnter zncremenE for decla.ra.tion.s and scanf } and counC v.ari abfe prin.If(J statements.

Input

A ‚pasi ti'ze Integer n

fXJtput:

Pr1nt Ihe vaJue of the *coaa ter* **varlab1e**

Answer: (.penalty regime' 0 %)

```
"{  #imclude‹stdîo.h>
2  int co=0;
3   void l'unE(int  n)


6      co=(5*n)•2;
7      printf{"%d',to);


10 • imt main(){
11
]Z       int n;
13       scanf( "W",8n ï ;
14       func(n);
IS   }
```

	Input	Expected	Got	
✔	3	12	12	✔
✔	1000	5002	5002	✔

T# 1Æ3 ’717 7]7 V

Problem 3: Finding Complexity using Counter Method

Started on Wednesday, 6 August 2025, 9:31 AM

State Finished

Completed on Saturday, 9 August 2025, 5:42 PM

Time taken 3 days 8 hours

Marks 1.00/1.00

Grade **10.00** out of 10.00 (**100%**)

Question 1 Correct Mark 1.00 out of 1.00 Flag question

Convert the following algorithm into a program and find its time complexity using counter method.

```
Factor(num) {

   for (i = 1; i <= num;++i)

    if (num % i== 0)



}
```

Note: No need of counter increment for declarations and scanf() and counter variable printf() statement.

Input:

A positive Integer n

Output:

Print the value of the counter variable

Answer:.

```
   finrludr>tdio.h•
2  int count=0;
3• void Factor(int num){
4      int *.
5•     <
6          for(i=1;i•=ni;--i)
7•         {
8              count--;
9              count--;
               if(num%i==0
11                 count++;
12             }

14     }
15     count++;
16     printf("%d",count);
17 }
16. int main(){
19     1nt n.
20     scanf("%d",&n);
21     Factor(n);
```

	Input	Expected	Got	
✔	12	31	31	✔
W	J	1?	13	✔

Passed all tests! ✔

Problem 4: Finding Complexity using Counter Method

Started on Saturday, 9 August 2025, 5:50 PM

State Finished

Completed on Saturday, 9 August 2025, 6:13 PM

Time taken 22 mins 52 secs

Marks 1.00/1.00

Question 1 Correct Mark 1.00 out of 1.00

Converr the foll *mg algazisha into z prsyrasm rO fzrt *tv time

tongle*Dty usimg co«niec .methnd.

void funct ion l tnt n)

```
int c= 0;
for(int i=n/2; i<n; i++)
    for(int j=1; j<n; j = 2 * j)
        for(int k=1; k<n; k = k * 2)
```

Note: No need of counter increment for declarations and scanf() and count variable printf() statements.

A \D¥ltlV0 ZJtA F 'l

Print the value of the counter variable

Answer:

```
1  f.1nC1ude stdlo.h•
2  :vnt count=0.
3  void tunztiom(inr x)
4  {
5      int c=0;
6      count++;
7      for€iw.z i=n.2.i•nii--}(
8          count++;
9          for(int j=1;j<n;j=2*j){
10             count++;
11             for(int k=1;k<n;k=k*2){
12                 count++;
13                 c++;
14                 count++;
15             }
16             count++;
17         }
18         count++;
19     }
20     count++;
21     printf("%d",count);
22 }
23. int main)(
24     imi n:
25     scanf("%d",&n);
25     fuhctiom(n):
27     return 0;
28 }
```

	Input	Expected	Got	
w'	d	3r	30	✔
✔	!0	212	212	✔

'PassedaBtests' V

Problem 5: Finding Complexity using counter method

Started on ü.aturöay', 9 August 2025, 6.1G Plat

State 1n:shed

Completed on Saturday, 9 August 2025, 6:27 PM

Time taken 11 mins 25 secs

k1arks 1.d'3 '1. ïXl

Grade **10.00** out of 10.00 (**100**%)

¢}uestion 1 Conect kfazk 1.ûû our of 1.ûO \- ' » •- •

Concert the. following algorichm imto a program amd fond its time complexi<y uslng counter mrthed.

```
void reverse(inc n}

   ini rev = 'ä. remairider,
   ntii1e (n != 01

        remaïnder = r. 'â 1^u;
        rev = res 1D + reca.oder;
        n›'= 10.


prin L(.re•z);
```

Note: Wo need of counter inc renerir for declarat3ons arid scanr } and counr *var*iab Ie princ I( ) s LaIements.

Input :
A positive Inleger o

Print the value of the coumLer variable

énerver:

```
Æ  #îmclude•stdlo.h>
2  int count=0;
3  void reverse(int n)

5       int rev=0, remat nder;
6       count++;
7       nh1le{n =0)

¢           count-+;
fO          remainder=n%10;
i 1         count++;
t2          rev=rev*lO•remainéer;
13          count-+,
14          n/-10;
1,5         count:-+;

17      count++;
la      coun.t++;
t9      prtntf("S.d",coun.t);

21 1nt maln{)

23      int n;
24      sea nf " ", b^n ;
25      rev er se(n );
26      ret urn 0;
27  }
```

	Input	Expected	Got
V	IZ	11	11 ✔
✔	1234	19	19 V

1-Number of Zeros in a Given Array

Started on Wednesday, 17 Sepcember Z0Z5. API

Scate Eni.s •ed

pleted ou Y/zd sday. 17 Sejxcmber <0ZS &45 AM

Time tak:en fi•ruins 28 secs

Marks 1.03/1.0g

10.00 out of 10.00 (100%)

Question 1 Correct Mark 1.00 out of 1.00 P Flag question

Given .an arr.ay of 1s arid 0s tfds has aB 1s first by at W Aazits oi firxl da• rxszibe'r aft Wñze a program using Divide and Conquer zo Count fix' nurr&er of w———\nz e Iveu may.

Input Format

First Line Comair Integer m —Size Ofarray

hext m tmes Cantons m nurrAvers— Berr›ems of an array

ut rmat

F-irst Line Contains Iniep•r - Number sherries preserx zi the gzren array.

Answer: (penalty regime: 0 a)

```
1  #tzicLude«stdio.h>
2 • Ant aiain( ){
3       writ n;
4       scanff"    ', in) ;
5       Int  arr[n].
6 •     for(tnt    :t=D;1•n;1    )¿
7 |         scanf("%d",&arr[i]);

9       TziE count=D.
10 •    For(Inc  1—0;1*n,1+-•J{
T1 •        If(.arr[1]       0){
12              c     t    ;

14 |     }
15      pr1ntf{"9<I- . c¢asnt};
```

V 5 2. 2

1

1

1

1

1

1

1

1

D

8

	Input	Expected	Got	
V	5	Z	e	W
	1			
	D			
	D			
	1			
	1			
	1			
	0			
	0			
b	17	Z	2	✔
	1			
	1			
	1			

2-Majority Element

Started on Wednesday, 17 September 2025, 8:45 AM

State Finished

Completed on Wednesday, 17 September 2025, 9:12 AM

Time taken 27 mins 30 secs

Marks 1.00/1.00

Grade

Question 1 Correct Mark 1.00 out of 1.00 Flag question

Given an array nums of size n, return *the majority element*.

The majority element is the element that appears more than ⌊n / 2⌋ times. You may assume that the majority element always exists in the array.

Example 1:

Input: Annes - .[3,2, 3j

fxampTci

Input: nuts = [2,2," ,1.1,Z,2j

Constraints:

- n == no° ..er.-^
- 1 <= n <= 5 * 10⁴
- -2³¹ <= nums[i] <= 2³¹ - 1

Input	ResulC
3	
7 2 2 2 1 1 1 2 2	

Answer: (penalty regime: 0 %)

```
]  Canclude<:s:dio.fs>
2. in: mainf)(
3      int n,r,
4      s.:3r (.' .:V .
5      iml x=n'2:
6      jnt nrr{mj;
7•     {orbit: i G:ion.i--){
8          seem:-*3" ••      ).

10     int c.ouri†=€:
i;•    {or(in- :  r.ion i--}C
T2•)       fGr(znt j    j.'m;j ')t
13•            if{arr[i]==arr[]]){
14                 count++;

16•            i€(roun?'-•)(
17                 r-arr[i];
19
1              }
?G
2*     j
22     printf("%d",r);
/73
```

Input	Expected	Got
3 2 3		

P'assed all =se.' •P'

3-Finding Floor Value

Started on Wednesday, 17 September 2025, 8:38 AM

State Finished

Completed on Wednesday, 17 September 2025, 8:55 AM

Time taken 17 mins 39 secs

Grade **10.00** out of 10.00 (**100%**)

Question 1 Correct Mark 1.00 out of 1.00

Given a sorted array and a value x, the floor of x is the largest element in array smaller than or equal to x. Write divide and conquer algorithm to find floor of x.

First Line Contains integer n - Size of array
Next n lines Contains n numbers - Elements of an array
Last Line Contains Integer x - Value for x

First Line Contains integer - Floor value for x

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int main()
{
    int arr[100],n,x;
    scanf("%d",&n);
    for(int i=0;i<n;i++)
    {
        scanf("%d",&arr[i]);
    }
    scanf("%d",&x);
    for(int i=0;i<n;i++)

        {
            printf("%d",arr[i-1]);
```

```
6    2
1
2
8
```

```
100
7    9    9    9
3
5
7
9
11
13
15
16
```

Passed all tests! ✔

Correct

OTwo Elements sum to x

Started on Wednesday. 17 5eptemt›er fiZ5., ddd

State Finished

Completed on Wednesday, 17 September 2025, 8:38 AM

Time taken 18 mins 13 secs

Marts 1.JG1.R0

6rade **10.00** out of 10.00 (**100**%)

Question 1 Correct Mark 1.00 out of 1.00

Given a 3orted may of inteSters s a y s and a number a Wftiv ar v program using dn de and conquer strategy to check if there exist r ro elements in dx' a-rash+ace szz = x If tberz e x p e r t info eli rriems ifien return the numbers. otherwise prm as ".

Note: 7v'rite a Dwide and Conquer Sotuacn

Input ron«at

First Lir.e Contains lrziegzr n —Size of array

Next n lines Contains n numbers —I-3e hems afzm t r a y

Last.Line Ccrcains Integer x —Sum v l u e

Output Format

First Line Contains Integer —Element1

SeEond Linz Contains Integer —Bemenc2 (Bernerc 1 ami Ba•nents 2together sums to value -x•}

Answer: I:penalty regi'q °: 0)

```
1  dinclUdwszdio.h*
]. int main(l(
3      imt n:
4      scanf(' ',5m);
       Int  arr[n] :
6 •    f'or(Int    z—0;1<n;1    ){
7          scanf( "'id",Barr:[1] 3.

9      1nt x;
TO     scanf{"M-,Sx);
11     1nt  .res=arr[1}-arr[n-1]:
12.    if(x==resl{

14         printf("%d",arr[n-1]);

17.    else{
18         printf("No");

20
31
22
```

z 10 1B

1B

J

6

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

5-Implementation of quick Sort

Started on \Yednesday, 7 September 2025, 9:13 AM

State Finished

Completed on '?¥ednesday, 17 September 2025, 9:32 AM

Time taken 19 mins 12 seEs

Marks 1.00/l .LO

10.00 ou: of 10.00 (100%)

Question 1 Correct Mark 1.00 out of 1.00 Flag question

Write a Program to Implement the Quick Sort Algorithm

Input Format:

The first line contains the no of elements in the list-n

The next n lines contain Itie elements.

Output:

Sorted list of elements

For example:

Input	Result
5 67 34 12 9B 78	12 34 S7 78 98

Answer:

```
#imclude‹stdio.h>
#Inc 1rTde• std lib .h•
int ma1n.I ){
    int n,
    seanf I "@", 6n› ;
    int ar r [n] ;
    for( int 1=0;i•n;i++}{
        scanf{"Td",&arr [i] ):

\1 •    int cmp(const void "a, const void "b) {
12          returns*(Int ')a-* lint ")b};

14      qsort(arr,n,sLzeof(int),cmp);
15 •    forfint i=0;i<n;i++)(
16          printf("td ",arr[i]);
17      }
18  1
```

	\nputE	Expected	Got	
✔	67 34 12 98 7B	12 34 67 7B 98	12 3g 67 7B 98	✔
•d'	10 S6 78 9g 32 56 11 10 90 114	T 10 11 32 55 56 78 90 90 114	1 10 11 32 56 56 78 ?g 90 1T4	W
✔	9 8 7 6 5 4 3 2 1 10 11 90	J 2 Z 4 5 6 7 8. 9 10 11 9D	1 2 3 4 5 6 7 8 9 10 11 90	•d'

Passed alCestQ

Correct

Marks for this submission: 1.00/1.00.

1-G-Coin Problem

Started on ’Sturüay, 23 Augusr 2025, i:4B PkI

State Fnished

Completed on Tt röay, 23 August 2025, 7:24 PM

Time Eaken 4C mir s 10 secs

Grade 10.Al out of 0.0g (100%]

Question 1 Correct Mark 1.00 out of 1.00 * Flag question

V7rite a program to take value V and we want to make change fcrV Rs, and we have infiniie supply of each of the denom›narions in Ind›ar‹ currency i.e.. we na' e in›Fn re supply‘ of { 1, 2, 5. 10. 2g, 50, 100, 500, 1000} VdM9l EDïflS/flotg5, what is toe minimum numöer of coins and/or nctes needed to make the change.

Ingur Fcrmat:

Take an nteger frcm stdin.

Output FDrmac:

print rhe Integer which is change afttie number.

Example Input:

64

Qutput:

Explanaton:

Weneed a50 Rs noie and a 10 Rs nate and *Nsa 2* **rupee coins.**

Anawer: fpenalt'7 regime: 0’ë)

```
#inc1ude•st:d1o.h>
ont naing ){
    Lnt n;
    LFI1 COURt=0, C=D,
    scanf f"iid" ,in ) ;
    Lnt arr ]={1000,500, 100,50, 20,10,5, 2,1};
    fortina i=O;i•9;i++)(
        count=n/arr[i]
        c+=count ,
        n*.=arr [1] ,
    }
    pr1ntf( ’”Ad",c) ;


}
```

	Input	Expected	GoË	
✔	49	5	5	✔

Passed all testsi V

2-G-Cookies **Problem**

Started am 'wiurday, 23 Augusc 2025, 7:34 PM

State 'n shed

CDmpleǫed on *wiJrday, 2ñ August 2025, 8:46 PM

Time taken 1 hour f2m«r‹s

Marks 1."33/1.OF

Grade 10.00 out oT 10.00 (1OD%)

Question 1 Correct Mark 1.00 out of 1.00 P Flag question

Assume ynu aoe an awesome parenE and want to give yaur children some cookies. Bak, you should give each child at mosEone cookiJZ.

EaEh Shild i has a greed factor g i], which is the minimum size of a cookie that the child wiJ be torrent with; and each cookie j nas a si*• *fJI It‹§J•= g[i], we ran assign tne cookie j to the criild i, and oie chilo i will be content. Your goal is to maximize the number of your content children and ouqput the maximum nurnt›er.

Example 1:

123

}1

Outpub

Explanation: You ha •e 3 children and Z caokies. The breed factors of 3 children are T, 2, 3.
And even idough you have 2 cookies, since their size is bath 1, you could only make the child Wose greed factor is 1 content.

Youneedcooutputl.

con.strains.

1•:g.len/h•:3'10^4

0•= s.len h•= 3' 10'O

•=g ,/j‹=2^31-1

Answer: (penalty regime: 0 ‘â)

```
1  #include•stdio.h•
2. int main()(
3       int m,c;
4       scanf(”%d”,mn);
5       int g[n] ,
6•      for(1nt i=0,i‹n;i++){
7           scanf("td",8g[i]);

9       sc.anf "I.J",a'c);
TPI     int s[c];
11•     forT1nt 1=0;i •c;1++){
12          scanf{ "I'd",is [i] );

14      1nt i=0, j =C', count=0;
15•     uh1le(i•›n b" j ‹c){
!6.         i*(sfil'=8[il){
t7              count+•;


21      j+ ;
22      print f ( ”id", count) ;
23      return 0;
```

	Inpur	Expected	Got
w*	2	2	2 V

1 2 3

3-G-Burger Problem

Started on Wednesday, 3 September 2025, 8:41 AM

State Finished

Completed on Wednesday, 3 September 2025, 9:06 AM

Time taken 25 mins 22 secs

›Marks .90.*1.P3

Grade **10.00** out of 10.00 (**100**%)

Question 1 Correct Mark 1.00 out of 1.00 P Flag question

A *pemo* **ne+ds to eat burgers.. Eade burger cm-azr<s a co'wc of makerle. -8+-er eatzng EFS burger. the perso I f he has eaten. a burgers •1ct c calorses each. tte. tie i1•s to r'w at T<asc a ^ v kllomé Eers to bur.n ouL** *burgers.* **'ith the count of calori e' zn .ice ord . £“› -f.. Zi. the kzT=ae-ers *@ needs Lo ruti** *acre* **(3^ ‘ I) + (But t.his 1s uot the ai.nTaun. so eeed -.e cry . ooh .woerz sf cers -.a ams c•<tose rise minis*w v'alue. he .needs to run. kole: He .cv eat. burger in any or0er to use as eff1czer•c sar c.ing** *al nr i z.*hñi.*@p\y* **greedy**

Input Format.

Farst Line contains zine n ' V r of be gers

Se'cond I ine con t.ains ca lor xes or each burger Wxch is * space- ara te integers

Prin't' l4inicu*D mumBer of kzlosaeDecs nreded to re io dxam eat zhx .calories

Sasple Input

3
5 10 7

Safq?e Output
76

---

par example:

Test	lrtput	Restdt
7est Case 1	3 1 3 2	1g

Answer: (penal1:yregime:.g)

```
] #include=s•di0.h•
2 finclude ar.h•
3 finClude•szdlib.h•
4
8. int main()(
6     int n.
7     scanf(”td”,&m);
8     Int ar:r[n]
9 •   for (i'r•t 1=B.1<n 1s) {
10        maN ld ,Arr[1]1.

T2 •  int mmp(consr void -a.const void *b)(
!3        reEurn I*{Int lb-•(inc• Ja7.
14    }
15    qsort(arr,n,sizeof(int),cmp);
16
i7
l8    in.t c=0;
19.   for(in* i=D:i•n,i l(
20        c+=arr[i]*pow(n,i);

22    pr1ntf(”to-, c);

24 }
```

		ected	Got	
¥¥	**Test Case 1** 3 **1 3 2**	16	16	✔
wP	Test Case '2 d	7R0	1R0	✔
V'	Tert Case 3 3 G]› T	76	76	✔

Passed all tesc?› W

3-G-Burger Problem

5tarEed on \'fedne aay', 35eptem0er 2025, g:41 AM

State F!nched

Completed on 'diednew.day, 3 Sepiemtier 2025, 5:06 AM

Time taken 2E mins 22 secs

Marks 1.00/1.00

Grade 10.00 out of 10.00 (100%)

Question 1 Correct Mark 1.00 out of 1.00 P Flag question

a counL of cafarbe. AfEer eal ing Lhe burger , the person needs Co run a dis Lance to burn out hzs ca1orles. n he has Fa r un aE teasE fi' c kilome*hers* Eo burn out Lhe ca1or1es. For examsle, 1l he aLe 3 3, Zl ; the k11onecers he needs to run are 13" * 1) + (3' * 3) * (3' * 2) = 1 • é * 18 = GB. er 'orders r nsumpEton and choose the minisn vat ue. DeLerlTiine Lhe mi nimum di sLance er and use an eftic zenL earcing algorithm. App1y greedy approach to solve Ehe prob1em.

```
s n space-separate 1nt egers
```

```
burn out Che ca1or*es
```

.For example:

Test	Inp ut	Result
7est £ase 1	3 7 3 Z	18

Answer! fpenalty regime: 0 'â)

```
#include<stdio.h>
#include<math.h>
#include<stdlib.h>

int main(){
    int n;
    scanf("%d",&n);
    int apr[n];
    {or(inc i=0;i•n;i++}(
        scanf("*.J",Garr[i] };
    }
    int emp{const void 'a,const vokd b)(
        return" (Int")b-*(1nt*)a);

    qsort l arr ,n, sizeof(Ent),cmp);

    int c=0;
    for(imr i=0;i<n;i++)(
        c+=arr[i]'g (n,i);
    }
    printfi"%a",c)
}
```

	Test	In put	Expected	Got	
•d'	Test Case 1	3	18	18	✔
	Test Case 2	d	389	389	•P'
b	Test Case 3	3 5 40 7	75	76	V

Passed all tests! R

4-G-Array Sum max problem

Started on Yfednesday, 3 September 2025, 9:12 AM

State F›n‹shed

Completed on Wednesday, 3 September 2025, 9:2fi AM

Time Eaken 14 mins 16 secs

Mañœ 1.Q0M.OO

Grade 10.ŒÏ out of t0.b0 (t00%)

Question 1 Correct Mark 1.00 out of 1.00 P Flag question

Given an array of N nteger, we have to maximize the sum of an[J * i, where i s the index of the element(i = g, 1, 2, ..., N).Wnre an algorith m based on Greedy technique wilh a Complexity D(nlogri).

Input Format:

First line sgenfies rhe number of elements-n

The next n lines comain the array elemenLs.

Output Format.

MaHîTutl Array Sum ro be grin.ted.

Sample Input:

5

2534II

Sample ouEput:

Answer: (penally' regime: 0 'ö)

```
1  #imclude•stdîo.h›
2  #include•sidlib.h•
3. int maiml){
4       int m;
5       icanff"/vd-,8m);
6       int arr[n];
7•      for( fr    i=0;ion,++){
8           scanN "id' ,barr [i]  );
9       }
t0•     1nt cxip(const  void  °a, const  vald  *b){
t1          return  (*(1nt*)a-° (1nt")b);
T2      }
13      qsort (arr, n, szzeof(1nt ) ,cnp);
t4      1nt sum=ü;
15•     fort inc  ï=0;1<n;1++)
t6          sun+=arr [1]*i  :

T8      pr:tntf( "id", sum) ;
t9  }
```

	Input	Exppqcted	Got	
✔	5 40	40	40	✔
	5 d 0			
sP	10	1S1	191	•d'
	4			
	5			
✔	2	45	45	•d'
	Æ5			

5-G-Product of Array elements-Minimum

Started on " ndav "Acorn"' e**- MI

State Finished

Tlmetaken B8m 3xc

Marks .3C:1 13

Grade 10.00 out of 10.00 (100%)

Question 1 Correct Mark 1.00 out of 1.00

Given two arrays array_Onej and ey_T g ‹ * g * n. Rearranghee arrays such that the sum of

Thapxductcpa 1=Mmzmfro‹eeachi1s*•*mwn.TF*mu&JV •R{Qfordli6w Umum.

F-oFexdm e:

Input	Result
3	ZB
1	
2	
3	
5	

Arzxww: Ipenalty r¢girre. 0)

```
1   p1n<1ude«szd^ o.h>

4       scanf("%d",&n);
5       int a[n];

7           scanf(" -    Sa[1]};

9
la      £nt bent.
11 •    Tor(In*. 1=Q:  1«nt1•--){

03      }
14•     for(inr i D:ion I:i-Jf
15•         tor(int  =0;g-u-z-1:}--){

17                  int temp-a[j];
18                  a[j] a[j+1];


21              }
Z2      }

                [ 1-0:1<n-1:1++){
                r(int j=0;j<n-i-1;j
26.               if(b[j]<b[j+1]){
27                    int temp b[j];
2a                    b[j] b[j-1];
7Q                    b[j+1]=temp;


3Z      }

            inz â=Q.i n; 1•
35          sua' aL1J•bL1J :
36      }
37       &lnt7t- -.-):
```

3 2â 2â ✔

3

Input	Expected	Got	
5 7			
5 20 10 10 40 9 10	590	590	✔

Passed all tel W

1-DP-Playing with Numbers

Started on Wednesday, 8 October 2025, 8:15 AM

State Finished

Completed on Wednesday, 8 October 2025, 8:54 AM

Time taken 37 mins 42 secs

Grade 10.00 Out of 10.00 (1001)

question 1 Correct Mark 10.00 out of 10.00 C * '

Playing with Numbers:

Ram and Sita are playing with numbers by giving puzzles to each other. Now it was Ram turn, so he gave Sita a positive Integer 'n' and two numbers 1 and 3. He asked her to find the possible ways by which the number n can be represented using 1 and 3.Write any **efficient** algorithm to find the possible ways.

Example 1:

Input. 6

Output:6

Explanation: *Tifiere are 6 ways io 6 represent number with 1 and 3*

3+3

1+1+1+3

1+3+1

3+1+1+1

Input Format

First Line contains the number n

Output Format

Print: The number of possible ways 'n' can be represented using J and 3

Sample Input

6

Sample Output

6

Answer. (penalty regime: 0 9+)

Ace editor not ready. Perhaps reload page?

Falling back to raw text area.

```
#include <stdio.h>

long long countWays(int n) {
    long long ways[n + 1];

    for (int i = 0; i <= n; i++) {
        ways[i] = 0;
    }

    ways[0] = 1;

    for (int i = 1; i <= n; i++) {
        if (i - 1 >= 0) {
            ways[i] += ways[i - 1];
        }
        if (i - 3 >= 0) {
            ways[i] += ways[i - 3];
        }
```

✔ 2% 8641 8641 *

V ION 2#382809596721629 24382819596721629 **

Correct

2-DP-Playing with chessboard

Started on Wednesday, 8 October 2025, 8:54 AM

State Finished

Completed on Wednesday, 8 October 2025, 9:15 AM

Time taken 20 mins 25 secs

Grade 10.00 out of 10.00 (100 j

Question 1 | Correct Mark 10.00 out of 10.00 P Flag question

Playing with Chessboard:

Ram is given with an n*n chessboard with each cell with a monetary value. Ram stands at the (0,0), that the position of the top left white rook. He is been given a task to reach the bottom right black rook position (n-1, n-1)constrained that he needs to reach the position by traveling the maximum monetary path under the condition that he can only travel one step right or one step down the board. Help ram to achieve it by providing an efficient DP algorithm.

Example:

Input

3

124

234

871

Output:

J9

Explanation:

Totally there will be 6 paths among that one optimal is

Optimal path value:1+2+8+7+1=19

Input Format

First Line contains the integer n

The next n lines contain the n*n chessboard values

Output Format

Print Maximum monetary value of the path

Answer: (penalty regime: 0 %)

```
11nc1ude <stdio.h>

int main() {
    int n;
    scanf("id", 6n);

    int arr[n][n]i
    int dp[n][n];

    for (int 1 —0; 1 ° n; i• ) {
        for (Int j = 0; j • n; j-• ) {
            scanf("?Ld", Barr[i] [j ]);
        }
    }

    dp[0] [0] arr[0] [0]:

    for (Int j = 1; j n; j--) {
        dp[0][j ) - dp[0] [j - 1] arr[0] [j ]:
    }

    for (Int i —1; 1 n; 1- ) {
        dp[1j [0] dp[i 1] [0] arr[i] [0];
    }

    for (Int 1 —1: 1 n; 1- ) {
        Tor (int j = 1; j - n: j• ) t
            if (dp[i - 1][j ] dp[i] [j 1]) {
                dp[i] (j ] = dp(i 1] (j ] - arr[i] [j J,
            ) e1se {
                dp[iJ [j ] dp(1] [j 1J arr[i] [j ]:
            }
        )
    }

    printf("td\n", dp{n lj{n lj);

    return 0;
}
```

Answer: (penalty regime: D9't)

```
Pinc1udé <std1o.h>

int main() (
    int n;
    scanf('6d", in);

    1nt arr ml {n1;
    int dp[n1[n1:

    fOr (iMt 1 = D: i • m; i•.) (
        for (int j = 0; j   n; j••) (
            scanf("Xd", Barr[i][j});
        }
    }

    dPE›JtoJ  °rr foJEoJ:

    for (1nt j - 1; j   n: j   j
        dp 0](}]   dpto\[j   1J   arr ¿0]  ];
    ›

    for (1nt i   1; 1   n; i*-} {
        dp i][a]   dp[i  - 1][0] • arr i]  0];
    }

    for (1ñt 1   ; 1   n: 1• )
        for (ink j   l: )   n: j- ) (
            I f (dp[1 - 1][j ]   dp[i] [j  - 1]) \
                dp i) j]   dp[i   1) j  • arr[i) tl l:
            } e1se (
                dp[i](j]   dp[i]tj   lj   arr[i][j];
            }
        }
    }

    pr 1nt l("Jf›d' n" , dp(n   1][n   1]);

    return 0;
}
```

Input	Expected	Got
3 2 3 4 B 7 1	19	19
3 1 3 1 4 2 1	12	12
4 1 1 3 4 4 S 7 8 2 3. 4 .6 1 6 9 0	28	28

Passed all tests!

fio rrect

Marks for this submission: 10.00/10.00

3-DP-Longest Common Subsequence

Started on Wednesday, 15 October 2025, 8:34 AM

State Finished

Completed on Wednesday, 15 October 2025, 9:03 AM

Time taken 28 mins 51 secs

Marks 1.00/1.00

Grade 10.00 out of 10.00 (100%)

question 1 Correct hilak 100 out of 06 V ¿ * '

Given two strings find the length of the common longest subsequence(need not be configuous) between the two.

Example:

s1: ggtabe

s2: tgatasb

st		**g**	**g**	**t**	**a**	**b**
s2	**g**		**t**	**x**	**a**	**y**	**b**

The length is 4

Solveing it using Dynamic Programming

For example:

Input	Result
aab	2
azb	

Answer. (penalty regime: 0%)

```
#include ‹stdio.h›
#1nc1ude ‹str1ng.h>
dde f1ne gAX 100
1nt max(int a, 1nt b)

    return (a   b) * a : b;
}
Int LCS(char 'X, char *Y) {
    int  e = st i'len(X) ;
    Int n = strten(Y);
    int L[MAX] [MAX);
    Int i,  j:
    for (1 - 0; 1 ‹- n; i-+ ) {
        for (j = 0; j <= n; j••) (
            1f (1 == 0 |  j -- 0)
                L[i] [j j = 0:
            e1se if  (X[1 - 1j -- Y[j - 1])
                L[i] [j j = L[1 - 1j[j - 1j • 1:
            e1se
                L[i][j] = max(L[i - 1][j]. L[i][j   1]);

    }
    return L[nJ [n] ;
}
3nt aaln( ) {
    char X[MAX] , Y[MAX;]
    scanf("Ss", X);
    scanf( "is",  Y);

    int length = LCS(X, YJ:
    print f( "?:d\n",  1ength);

    return 0;
}
```

	Input	Expected	Got
••P	aab	2	2 •P
	ABCD	4	

4-DP-Longest non-decreasing Subsequence

Started on	Wednesday, 22 October 2025, 7:31 PM
State	Finished
Completed on	Wednesday, 22 October 2025, 7:41 PM
Time taken	10 mins 10 secs
Marks	1.00/1.00
Grade	10.00 out of 10.00 (100%)

Question 1 Correct Mark 1.00 of 1.00 ?" !•¿ ^

Problem statement:

Find the length of the Longest Non-decreasing Subsequence in a given Sequence.

Eg:

Input:9

Sequence{-1.3.4,5,2,2,2,2,3)

the subsequenre is [-1.2,2.2,2,3}

Output:6

Answer: (penalty regime: 0 %)

```
1  f/inc1ude ‹s td1o. h>
2
3 • nt ub(Int a[] , ‹nt 1en, 1nt key) {
4      Int 1 0, h - ten;
5 •    whi 1e (1 h) {
6          1nt o - 1 - (h l ) .' 2;
7          if (a(m] - key)
8              1 - m • 1;
9          else
10             h m:
11     }
12     return 1;
13 }
14
15 • Int lnds( Int a[ ] . Int n) {
16     1f (n 0) return 0;
17     int t [n] , ten - 0;
18 •   for (1nt i 0; 1 n; -• 1) (
19         Int p ub( t , ten, a[1] ) ;
20         t[p] - a[1] ;
21         if (p ten) ten- • ;
22     }
23     return ten;
24 }
2S
26 • Int main( ) {
27     Int n - 9;
28     Int a[ j - ( -1, 3, 4, 5, 2, 2, 2, 2, 3 };
29     pr in t f( "id"•.i", 1nds(a, n));
30     return 0:
31 }
32
```

Input	Expected	Got
-1 3 4 S 2 2 2 2 3		
W 7	6	6 ✔
1 2 2 4 S 7 6		

«» Bg€t <

Correct

1-Finding Duplicates-O(n^2) Time Complexity,O(1) Space Complexity

Started on	Wednesday, 8 October 2025, 3:22 PM
State	Finished
Completed on	Wednesday, 8 October 2025, 3:22 PM
Time taken	32 secs
Marks	1.00/1.00
Grade	4.00 out of 4.00 (100%)

Question 1 Correct Mark 1.00 ouc of 1.00 I"

Find Duplicate in Array.

Given a read only array of n integers between 1 and n, find one number that repeats.

Input Format:

First Line - Number of elements

n Lines - n Elements

Output Format:

Element x- That is repeated

For example:

Input	Result
5 1 1 2 3 4	

Answer: (penalty regime: 0 %)

```
1  fitnc dude •stdio.h-
2
3• zMt maln( ) {
4      Int n;
5      scanf(" !", &n);
6
7      int arr[n];
8      for(int i=0; i•n; i••)
9          scanf(" .!", &arr[i] );
10     )
11
12     int slow = arr[0];
13     int fast = arr[arr[0]];
14
15     // Find intersection point in cycle
16•    while (slow != fast) {
17         slow - arr[slo*ji
18         fast = arr[arr[fast]];
19     ›
20
21          "1  nti   r. i,r '-'y ! -  -liJ'l  rat- I
22     slow = 0;
23•    whiie (slow != fast) {
24         slow - arr(slow]:
25         fast - arr[fast ];
26     }
27
28     printf(" d  ", slow);
29
30     i-etui n 0;
31 }
32
```

Input	Expected	Got	
✔ 11 0 9 7 6 5 1 2 3 9 4 7	7	7	✔

Passed all tests! ••

Corruct

2-Finding Duplicates-O(n) Time Complexity,O(1) Space Complexity

Started on Wednesday, 8 October 2025, 3:22 PM

State Finished

Completed on Wednesday, 8 October 2025, 3:23 PM

Time taken 33 secs

Marks 1.00/1.00

6rade 4.00 out ot 4.00 (100%)

Question 1 Correct Mark 100 out of .00 T"

Flnd Duplicate in Array.

Given a read only array of n integers between J and n, find one number that repeats.

Input Format:

Flrst Line - Number of elements

n Lines - n Elements

Output Format:

Element x - That is repeated

Input	Result
1 1 2 3 4	

Answer: (penalty regime: 0 %)

```
pine dude • st d1o . h:

In t ma1n( ) {
    int n;
    scamf(" ", &n);

    1nt arr[n] ;
    Ior(itst i - 0; i - n; i•-) (
        scanf( " !", 6arr(i) );

    1rt slow - arr[o];
    int fast = arrlarr(0])i

j   ”'"T#<–’<–,'i–1° llt:*’,-'—’(’0
    wh le(slow != fasl ) {
        slow - arr[slow];
        fast • arr[arr[fast]];
    )

     ‹  !•J  '.ai t >l -.',  e  Jul1 r t ;
    slow - 0;
    wh1ie(slow != fast) {
        slow = arr[slow];
        fast - arr[fast]i
    }

     pr int f( "' ! ' ", slow) ;

    i etur n 0;
}
```

Input	Expected	Got
11 0 9 7 6 5 \ 2 3 8 4 7	7	7
4 1 2 3 4 4	4	4
4 1 1 2 3 .t	1	1

Passed all tests! W

3-Print Intersection of 2 sorted arrays-O(m^n)Time Complexity,O(1) Space Complexity

Started on	Wednesday, g October 2025. 3:23 PM
State	Finished
Completed on	Wednesday, 8 October 2025, 3:24 PM
Time taken	44 secs
Marks	1.00/1.00
Grade	30.00 out of 30.00 (100%)

Question 1 Correct Mark 1.00 out of 1.DO C

Find the intersection of rwo sorted arrays.

OR in other words,

Given 2 sorted arrays. find all the elements which occur In both the arrays.

Input Format

The first line contains T. the number of test cases. Following Times contain:

1. Line 1 contains NI. followed by N1 integers of the first array
2. LIne 2 contalns N2. foliowed by H2 integers of the second array

Output Format

The Intersection of the arrays !n a single line

Example

Input:

31017 57

6 2 7 10 15 57 245

Output:

1057

Input:

1

6 1 2 3 4 55

2 1 d

Output:

1 6

For example:

Input	Result
1 3 10 17 57 2 7 10 15 57 246	10 57

Answer: (penalty regime: 0 %)

```
Pznc1ude <std la. h•

‹ int  naIn( ) {
    1nt T;
    scanf( "v.d",  &T);

•   wh11e (T--) {
        i nt N1,
        scanI("had", &N1);
        int  ar r1[N1];
•       for (lnt l = 0; l « N ; l *) (
            scanf( "'‹d",  &arr1[1] );
        }

        int N2,
        scanf("%d", &N2);
        lnt arr2[N1j l
        for (int i = 0; i • N2; i++) {
            s[anf("Xd", Barr2 i]):
        }

        int i = 0, j = 0:
        1nt f1rst = 1;   /,›' flag to avoid extra spaces before f1rsI element

•       wh1le (1 < N1 &6 j < N2) {
            if (arr1[i] == arr2[j]) (
                if (!first) printf(" ");
                printf("%d", arr  i])i
                first = 0,
                1++i
                j++:
            } else if (arr1[] ‹ arm j]) (
                i++;
            } else (


        }
        pr1ntf("in"):
    }

    return 0;
T
```

	Input	Expected	GDt	
✔	1 3 10 17 57 6 2 7 10 15 57 246	;O 57	10 87	
	1 **6 1 2 3 4 5 6** **2** **1 6**	**1 6**	1 6	✔

éafi:Ab3l"2&fifiA. @

Correct

Mai ks fcr tl us submission: 1.00›1 .00,

4-Print Intersection of 2 sorted arrays-O(m+n)Time Complexity,O(1) Space Complexi@

Started on	Wednesday, BOctober 2025, 3:24 PM
State	Finished
Completed on	Wednesday, 8 October 2025, 3:25 PM
Time taken	53 secs
lMarNs	1.00f1.00
Grade	30.00 our of 20.00 (100%)

Question 1 Correct Mark 1.00 out of 1.00 {"

Find the intersection of two sorted arrays.

OR in other words,

Given 2 sorted arrays, find all the elements which occur in both the arrays.

Input Format

The first line contains T, the number of test cases. Following T lines contain:

1. **Line 1 contains N1, followed by N1 integers of the first array**
2. **Line 2 contains N2, followed by N2 integers of the second array**

Output Format

The intersection of the arrays in a single line

Example

Input:

1

3 10 7 57

6 2 7 10 15 57 245

Output:

10 57

Input:

1

6 1 2 3 4 5 6

2 1 d

Output:

1 s

For example:

Input	Result
1 3 10 17 57 6 2 7 10 15 57 246	10 97

Answer: (penalty regime: 0 %)

```
#include <stdio.he

Int main( ) {
    int T,
    scanf(" <!", sT);

    while (T--) {
        int N1;
        scanf{".-n", 8N1);
        1nt arrl[N1];
        for (1nt 1   0; 1 < Nl; 1*-<) (
            sccnf<'. <!", sarr1 f1j j;
        }

        int 82.
        scanf("* n", a/f2);
        inl arr2 tN2J;
        for (1nE 1 = 0; 1 < N2; 1**) {
            scanf("  ", sarr2 [iJ >:
        }

        int i = O, j = O;
        int first = 1;    / to uxw .d leudiuq space
        while (i • N1 && j • N7)
            if (arr1{ij == arrZ{j)) (
                if (!first) printf(" ");
                printf(" d", arr1[i]);
                first = 0;
                i++;
                j++;
            T else If  (arr1[1] • arr2fj J) \
                i++:
            } else (
                j++;
            }
        }
        printf"  "):
    }

    re turn 0;
}
```

Input	Expected	Got
1 3 10 17 57 6 2 7 10 '15 57 246	10 57	10 57 ✔
1 6 1 2 3 A S 6 1 6	1 6	1 6 ✔

Passed all tests! ✔

Marks for this submission: 1.00/1.00

5-Pair with Difference-O(n^2)Time Complexity,/1(1) Space Complexity

Started on	Wednesday, 8 October 2025, 3:2S PM
State	Finished
Completed on	Wednesday, 8 October 2025, 3:2d PM
Time taken	39 secs
Marks	1.00/1.00
Grade	4.00 out of 4.00 (100%)

Question 1 Correct Mark l.OOout of 1.00 {"

Given an array A of sorted integers and another non negative Integer k, find if there exists 2 indices i and j such that A§] - A[i] = k, I != j.

Input Format!

First Line n - Number of elements In an array

Next n Lines - N elements in the array

k - Non - Negative Integer

Output Format:

1 - If pair exists

0 - If no pair exists

Explanation for the given Sample Testcase:

YES as 5- 1=4

So Return 1.

For example:

Input	Result
3 1 3 8	1

Answer: (penalty regime: D%)

```
1  ff1nc1ude <stdio.h>
2
3  int  main() {
4      int  n;
s      scanf( "md",  &n);
       int A[nl:
7      for(int i = D, i    n: i++) (
8          scanf("%d", &*[i]):
9      }
10
11     int k.
12     scanf( ",*•d",  &k);
1Z
14     Int  1 '  0,  j '  1;
15     Int  found '  0;
16
17     while(j  < n &8 1  < n) {
18         if (i  != j) {
19             lnt diff = A[j] - Ali];
20             if(diff –= k)  {
21                 found = 1:
22                 break:
23
24             else if(diff  k) {
25                 j++;
26             }
27             else ‹
28                 i•+;
29                 // EnsLJi-e 1 !=
30                 if(i == j) j++;
31             }
32         } else {
33             j++;
34         }

3d
37     printf("%d n", found):

39     return 0;
40 )
41
```

	Input	Expected	Grit	
	1 3 5 10 1 4 6 8 12 1d 15 20 21 25	1	›	V
✔	10 1 2 3 b 11 14 36 24 2B 29	0	0	✔
	10 0 2 3 7 13 14 \5 2O 24 25 10	1	›	W

"PM &) 0

Correct

Marks for this submission: 1.00/1.00

s-Pair with **Difference -O(n) Time Complexity,O(1)** Space Complexity

Started on **Wednesday, 8 October 2025, 3:26 PM**

State **Finished**

Completed on **Wednesday, 8 October 2025, 3:26 PM**

Time taken **42 secs**

Marks **1.00/1.00**

Grade **4.00 out of 4.00 (100%)**

question 1 **Correct** Mark \.00 ouc of 1 00 \"

Given an array A of sorted integers and another non negative Integer k, find if there exists 2 indices i and j such tha[Ag]

Input Format:

First Line n - Number of elements in an array

Next n Lines - N elements in the array

k - Non - Negative Integer

Output Format:

1 - If pair exists

0 - If no pair exists

Explanation for the given Sample Testcase:

YES as 5 - 1 = 4

So Return 1.

For example:

Input	Result
3 1 3 S	"

Answer: **(penalty regime: 0 9s)**

```
slnclude •stdlo.h•

nt maln() {
    \i t n;
    scanf(" ,.", &n);
     nt A[n];
    foi (h›  i - 0; i ‹ n; 1-+) {
        scanf(" I", &A[1]);

    ‹nt k;
    scanf(" !", &k);

    In 1 1 - 0, j - \;
    wh1le (j  - n BI i ‹ n) {
        ‹nt d1ff - A[j]   A[i];
        ‹f (d1ff =- k && i != j) {
            prInt f("1  ");
            return 0;
        } el se I f (d1ff - k) {
            j++;
        } else {

            if (i —= j ) j••;

    }

    prIntf("0  ");
    return 0;
}
```

Input	Expected	Got
1 4 6 8 12 14 15 20 21 25		