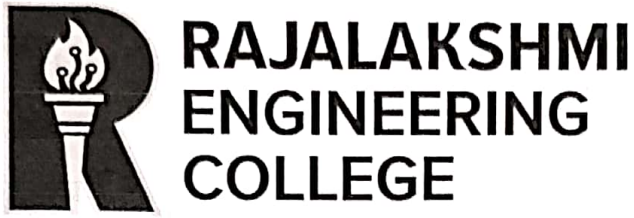
RAJALAKSHMI ENGINEERING COLLEGE
(Autonomous)

RAJALAKSHMI NAGAR, THANDALAM, CHENNAI-602105



CS23331 – DESIGN AND ANALYSIS OF ALGORITHMS

LABORATORY RECORD NOTEBOOK

Register Number	:	241801197
Name of the Student	:	C. Parvendhan
Year / Semester	:	**II / III**
Branch	:	**Artificial Intelligence and Data Science**
Academic Year	:	**2025 – 2026 (ODD)**

RAJALAKSHMI ENGINEERING COLLEGE

[AUTONOMOUS]

RAJALAKSHMI NAGAR, THANDALAM – 602 105

BONAFIDE CERTIFICATE

Name: C. PARVENDHAN

Academic Year: 2025-2026 (ODD) Semester: III Branch: AIDS

Register Number: 2116241801197

Certified that this is the bonafide record of work done by the above student in the **CS23331 – DESIGN AND ANALYSIS OF ALGORITHMS LABORATORY** during the year 2025 - 2026.

18/11/2025

Signature of the Faculty In- charge

Submitted for the Practical Examination held on .....

Internal Examiner

RAJALAKSHMI ENGINEERING COLLEGE

(An Autonomous Institution affiliated to Anna University)

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

Subject: CS23331 – DESIGN AND ANALYSIS OF ALGORITHMS

Reg No: 241801197

Name: PARVENDHAN C

Department: AIDS

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S.NO	Date	Name of the Experiment	GitHub QR Code	Marks Awarded	Signature
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S.NO	Date	Name of the Experiment	GitHub QR Code	Marks Awarded	Signature
5.	24/10/25	Dynamic Programming		8	
6.	31/10/25	Competitive Programming		8	

NAME : C . PARVENDHAN

REG NO: 241801197

BASIC C PROGRAMMING-PRACTICE

PROGRAM 1:

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

Given two numbers, write a C program to swap the given numbers.

For example:

Input	Result
10 20	20 10

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main()
{
    int a,b,c;
    scanf("%d %d",&a,&b);
    c=a;
    a=b;
    b=c;
    printf("%d %d",a,b);
}
```

	Input	Expected	Got	
✔	10 20	20 10	20 10	✔

Passed all tests! ✔

PROGRAM 2:

Question 2 | Correct Mark 1.00 out of 1.00 Flag question

Write a C program to find the eligibility of admission for a professional course based on the following criteria:

Marks in Maths >= 65

Marks in Physics >= 55

Marks in Chemistry >= 50

Or

Total in all three subjects >= 180

Sample Test Cases

Test Case 1

Input

70 60 80

Output

The candidate is eligible

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main()
{
    int a,b,c,t;
    scanf("%d %d %d",&a,&b,&c);
    t=a+b+c;
    if((a>=65&&b>=55&&c>=50)||(t>=180))
    {
        printf("The candidate is eligible");
    }
    else
    {
        printf("The candidate is not eligible");
    }
}
```

	Input	Expected	Got	
✔	70 60 80	The candidate is eligible	The candidate is eligible	✔
✔	50 80 80	The candidate is eligible	The candidate is eligible	✔

Passed all tests! ✔

PROGRAM 3:

Question 3 | Correct Mark 1.00 out of 1.00 Flag question

Malini goes to BestSave hyper market to buy grocery items. BestSave hyper market provides 10% discount on the bill amount B when ever the bill amount B is more than Rs.2000.

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

Input Format:

The first line denotes the value of B.

Output Format:

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

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main()
{
    int a,r;
    scanf("%d",&a);
    if(a<=2000)
    {
        r=a;
    }
    if(a>2000)
    {
        r=a-(a*0.1);
    }
    printf("%d",r);
}
```

	Input	Expected	Got	
✔	1900	1900	1900	✔
✔	3000	2700	2700	✔

Passed all tests! ✔

Correct

PROGRAM 4:

Question 4 | Correct Mark 1.00 out of 1.00 Flag question

Baba is very kind to beggars and every day Baba donates half of the amount he has when ever a beggar requests him. The money M left in Baba's hand is passed as the input and the number of beggars B who received the alms are passed as the input. The program must print the money Baba had in the beginning of the day.

Input Format:

The first line denotes the value of M.
The second line denotes the value of B.

Output Format:

The first line denotes the value of money with Baba in the beginning of the day.

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main()
{
    int b,p,r;
    scanf("%d %d",&b,&p);
    r=b*(2*p);
    printf("%d",r);
}
```

	Input	Expected	Got	
✔	100 2	400	400	✔

Passed all tests! ✔

PROGRAM 5:

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 Monday to Saturday), he will be awarded Rs.200 more than the previous day as "Punctuality Incentive". The incentive I for the starting day (ie 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 of the employee.

Input Format:

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

Output Format:

The first line denotes the value of P.

```c
#include<stdio.h>
int main()
{
    int a,b,r=0;
    scanf("%d %d",&a,&b);
    for(int i=0;i<b;i++)
    {
        r+=a+(200*i);
    }
    printf("%d",r);
}
```

	Input	Expected	Got	
✔	500 3	2100	2100	✔
✔	100 3	900	900	✔

Passed all tests! ✔

PROGRAM 6:

Question 6 | Correct | Mark 1.00 out of 1.00 | Flag question

Two numbers M and N are passed as the input. A number X is also passed as the input. The program must print the numbers divisible by X from N to M (inclusive of M and N).

Input Format:

The first line denotes the value of M
The second line denotes the value of N
The third line denotes the value of X

Output Format:

Numbers divisible by X from N to M, with each number separated by a space.

Boundary Conditions:

1 <= M <= 9999999
M < N <= 9999999
1 <= X <= 9999

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main()
{
    int m,n,x;
    scanf("%d %d %d",&m,&n,&x);
    for(int i=n;i>=m;i--)
    {
        if(i%x==0)
        {
            printf("%d ",i);
        }
    }
}
```

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

Passed all tests! ✔

PROGRAM 7:

Write a C program to find the quotient and reminder of given integers.

For example:

Input	Result
12 3	4 0

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int main()
{
    int a,b,q,r;
    scanf("%d %d",&a,&b);
    q=a/b;
    r=a%b;
    printf("%d\n%d",q,r);
}
```

	Input	Expected	Got	
✔	12 3	4 0	4 0	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 8:

Write a C program to find the biggest among the given 3 integers?

For example:

Input	Result
10 20 30	30

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int main()
{
    int a,b,c,r;
    scanf("%d %d %d",&a,&b,&c);
    if(a>b&&a>c)
    {
        r=a;
    }
    else if(b>a&&b>c)
    {
        r=b;
    }
    else
    {
        r=c;
    }
    printf("%d",r);
}
```

	Input	Expected	Got	
✔	10 20 30	30	30	✔

Passed all tests! ✔

PROGRAM 9:

Write a C program to find whether the given integer is odd or even?

For example:

Input	Result
12	Even
11	Odd

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main()
{
    int a;
    scanf("%d",&a);
    if(a%2==0)
    {
        printf("Even");
    }
    else
    {
        printf("Odd");
    }
}
```

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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 10:

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

For example:

Input	Result
5	120

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int factorial(int n)
{
    if(n==0||n==1)
    {
        return 1;
    }
    return n*factorial(n-1);
}
int main()
{
    int a,fact=0;
    scanf("%d",&a);
    fact+=factorial(a);
    printf("%d",fact);
}
```

	Input	Expected	Got	
✔	5	120	120	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 11:

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

For example:

Input	Result
3	6

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
int main()
{
    int a,sum=0;
    scanf("%d",&a);
    for(int i=1;i<=a;i++)
    {
        sum+=i;
    }
    printf("%d",sum);
}
```

	Input	Expected	Got	
✔	3	6	6	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 12:

Question 12 | Correct Mark 1.00 out of 1.00 Flag question

Write a C program to find the Nth term in the fibonacci series.

For example:

Input	Result
0	0
1	1
4	3

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main()
{
    int n;
    scanf("%d",&n);
    int a=0,b=1,c;
    for(int i=2;i<=n;i++)
    {
        c=a+b;
        a=b;
        b=c;
    }
    if(n==0)
    {
        c=a;
    }
    if(n==1)
    {
        c=b;
    }
    printf("%d",c);
}
```

	Input	Expected	Got	
✔	0	0	0	✔
✔	1	1	1	✔
✔	4	3	3	✔

Passed all tests! ✔

PROGRAM 13:

Question 13 | Correct Mark 1.00 out of 1.00 Flag question

Write a C program to find the power of integers.

input:

a b

output:

a^b value

For example:

Input	Result
2 5	32

Answer: (penalty regime: 0 %)

```
#include<stdio.h>
#include<math.h>
int main()
{
    int a,b,r;
    scanf("%d %d",&a,&b);
    r=pow(a,b);
    printf("%d",r);
}
```

	Input	Expected	Got	
✔	2 5	32	32	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 14:

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: (penalty regime: 0 %)

```c
#include<stdio.h>
int prime(int n,int d)
{
    if(n<=1)
    {
        return 0;
    }
    if(d==1)
    {
        return 1;
    }
    if(n%d==0)
    {
        return 0;
    }
    return prime(n,d-1);
}
int main()
{
    int n;
    scanf("%d",&n);
    if(prime(n,n/2))
    {
        printf("Prime");
    }
    else
    {
        printf("No Prime");
    }
}
```

	Input	Expected	Got	
✔	7	Prime	Prime	✔
✔	9	No Prime	No Prime	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

PROGRAM 15:

Question 15 | Correct Mark 1.00 out of 1.00 Flag question

Write a C program to find the reverse of the given integer?

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main()
{
    int a;
    scanf("%d",&a);
    int digit,rev=0;
    while(a!=0)
    {
        digit=a%10;
        rev=(rev*10)+digit;
        a/=10;
    }
    printf("%d",rev);
}
```

	Input	Expected	Got	
✔	123	321	321	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.