RAJALAKSHMI ENGINEERING COLLEGE

RAJALAKSHMI NAGAR, THANDALAM – 602 105

RAJALAKSHMI
ENGINEERING COLLEGE

CS23331

DESIGN AND ANALYSIS OF ALGORITHM LAB

Laboratory Observation Notebook

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Year / Branch / Section : 2 SECOND YearAIML B

Register No. : 231501075 1091

Semester : 3rd Semester

Academic Year : 2024-2025

WEEK 01

BASIC C PROGRAMMING

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

For example:

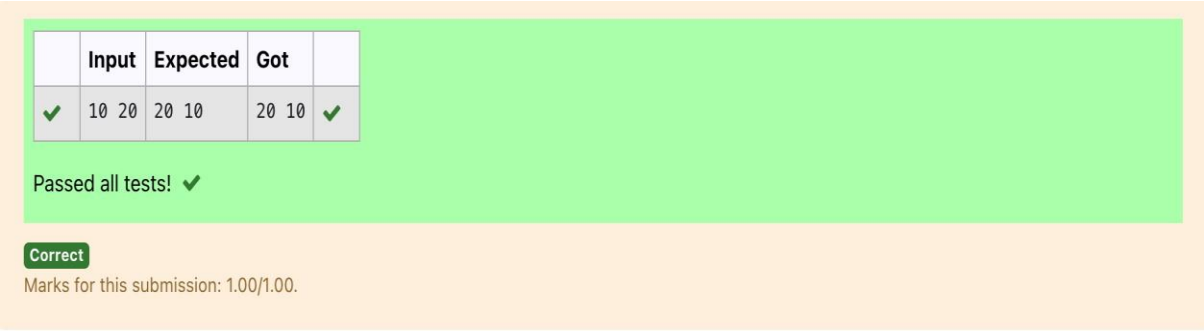
Input	Result

10 20	20 10

CODE:

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

OUTPUT:



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2) 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

Test Case 2

Input

50 60 40

Output

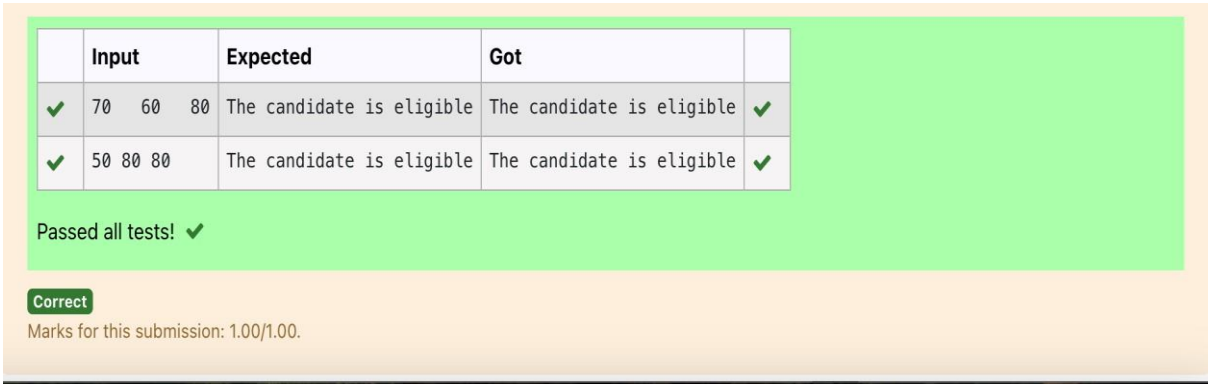
The candidate is not eligible

CODE:

```
#include<stdio.h>
int main()
{
   int m,p,c,t;
   scanf("%d %d %d",&m,&p,&c);
t=m+p+c;
   if(t>=180 ||(m>=65 && p>=55 && c>=50))
   {
```

```
        printf("The candidate is eligible");
    }
    else
    {
        printf("The candidate is not eligible");
    }
}
```

OUTPUT:



	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! ✔

Correct

Marks for this submission: 1.00/1.00.

3) 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.

Example1:

Input:

1900

Output:

1900 Example2:

Input:

3000

Output:

2700

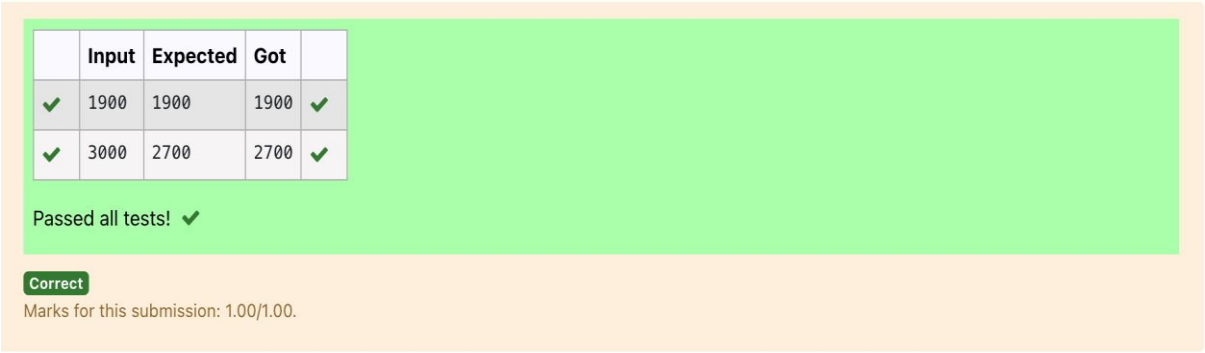
CODE:

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

```
    else
    {
        printf("%d",b);
    }

}
```

OUTPUT:



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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

4) 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 A.
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.

Example:

Input:

100
2

Output:

400

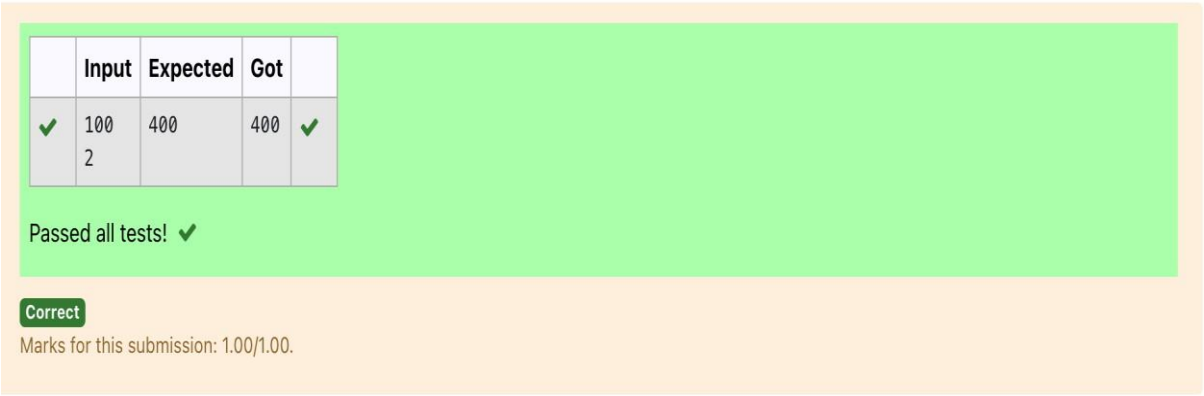
Explanation:

Baba donated to two beggars. So when he encountered second beggar he had 100*2 = Rs.200 and when he encountered 1st he had 200*2 = Rs.400.

CODE:

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

OUTPUT:



	Input	Expected	Got	
✔	100 2	400	400	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

5) 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.

Example:

Input:

500

3

Output:

2100

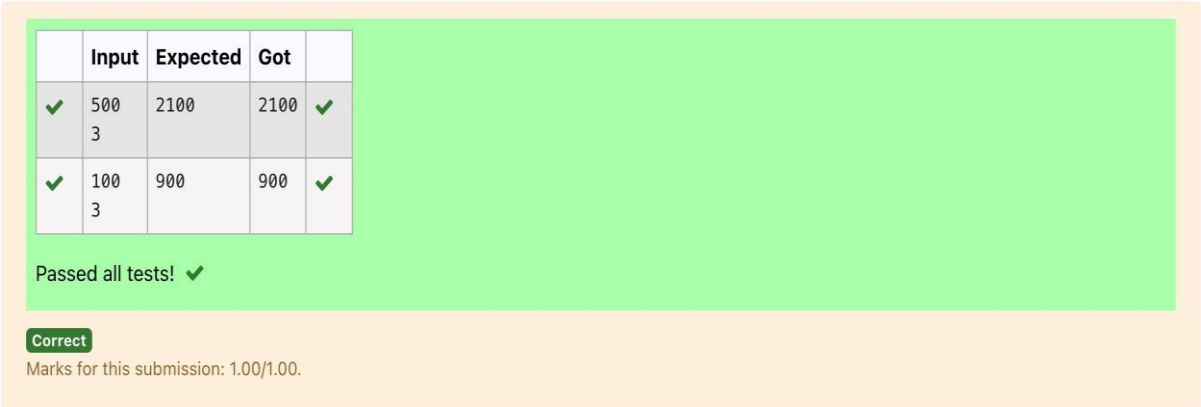
Explanation:

On Monday the employee receives Rs.500, on Tuesday Rs.700, on WednesdayRs.900
So total = Rs.2100

CODE:

```
#include<stdio.h>
int main()
{
   int i,I,N,total;
   scanf("%d %d",&I,&N);
for(i=0;i<N;i++)
   {
total+=I;
      I=I+200;
   }
   printf("%d",total);
}
```

OUTPUT:



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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

6) 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

Example Input/Output 1:
Input:
2
40
7

Output:
35 28 21 14 7

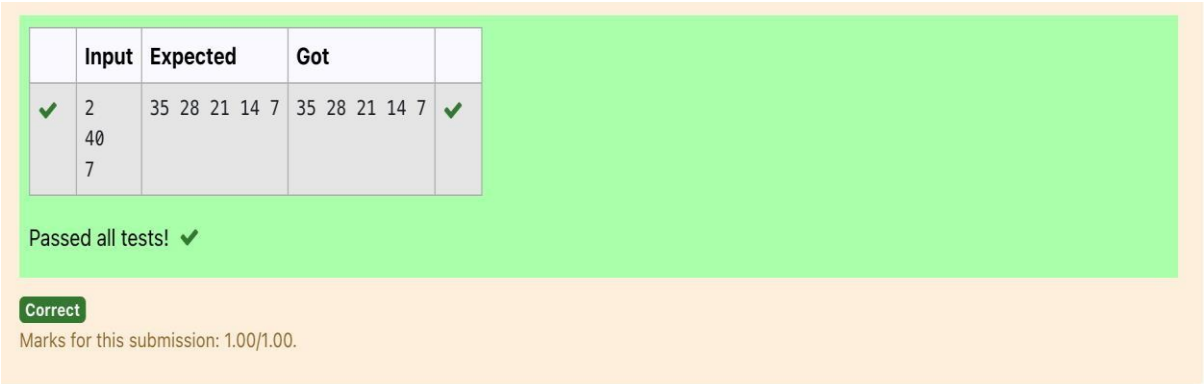
Example Input/Output 2:

Input: 66
121
11

Output:
121 110 99 88 77 66
CODE:

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

OUTPUT:



	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.

7)

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

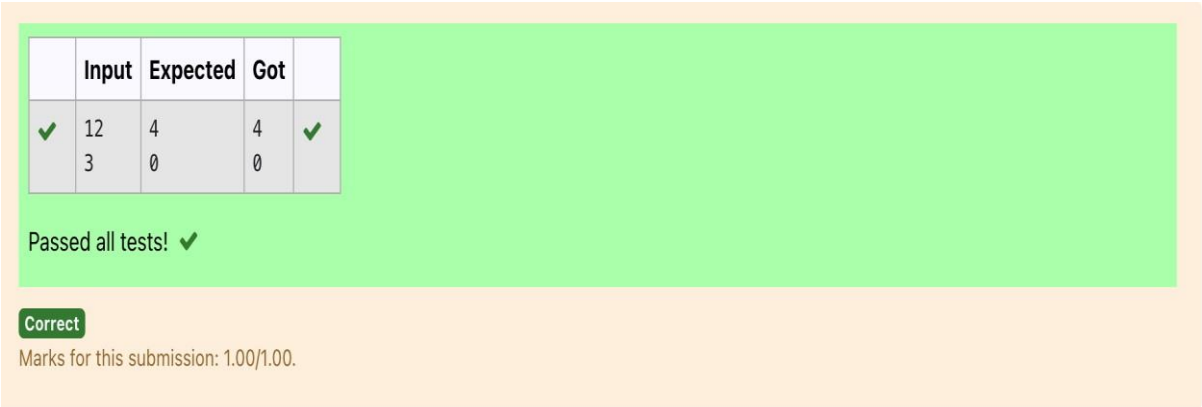
For example:

Input	Result
12 3	4 0

CODE:

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

OUTPUT:



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

8)

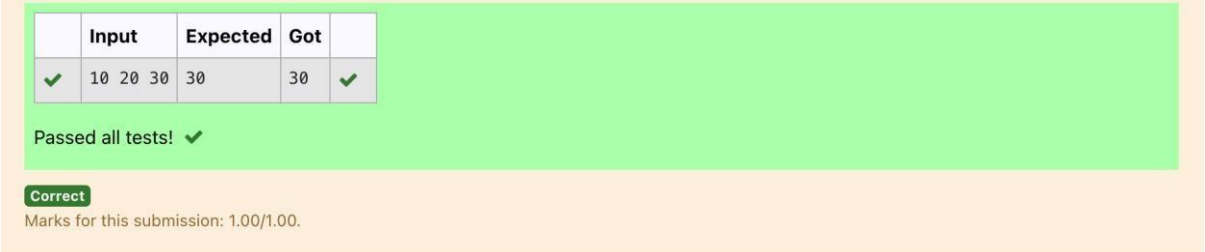
For example:

Input	Result
10 20 30	30

CODE:

```
int main()
{
   int a,b,c,result;
   scanf("%d %d %d",&a,&b,&c);
   if(a>b && a>c)
   {
      result=a;
   }
   else if(b>c)
   {
      result=b;
   }
   else
   {
      result=c;
   }
   printf("%d",result);
}
```

OUTPUT:



9)

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

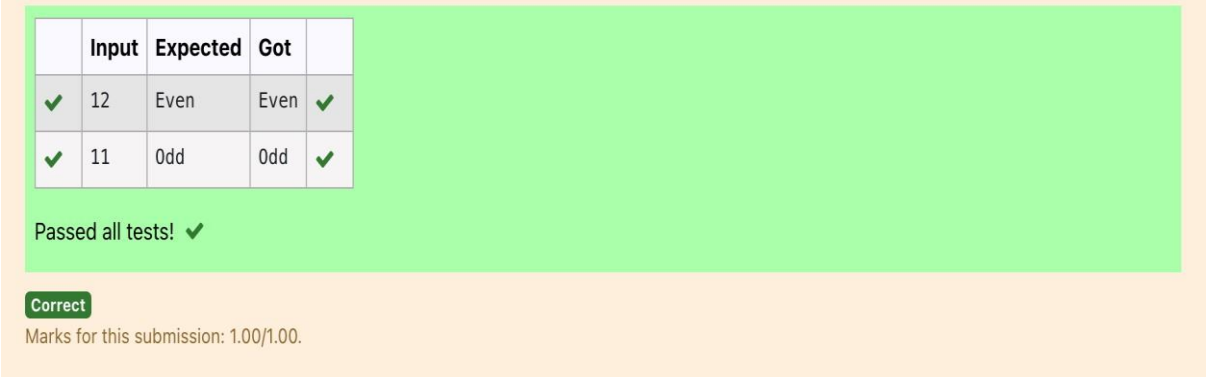
For example:

Input	Result
12	Even
11	Odd

CODE:

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

OUTPUT:



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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

10)

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

For example:

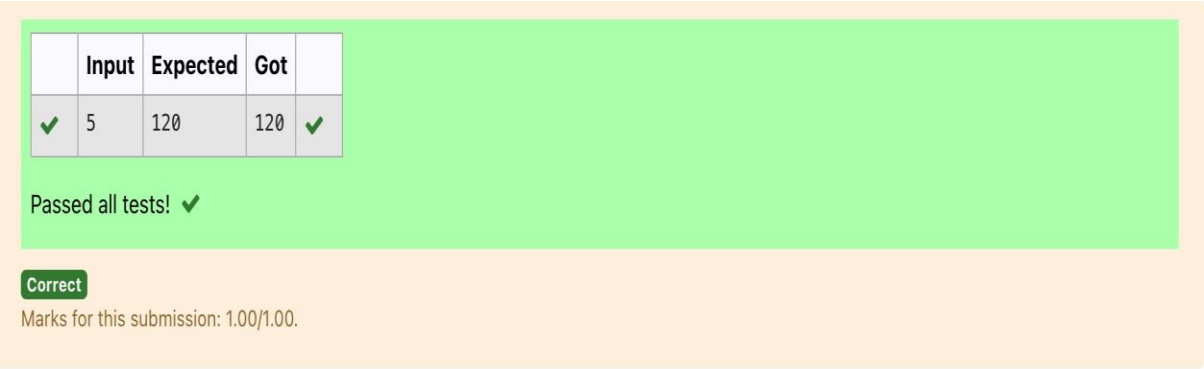
Input	Result
5	120

CODE:

```
#include<stdio.h>

int main()
{
   int a,i,fact=1;
scanf("%d",&a);
for(i=a;i>=1;i--)
fact*=i;
printf("%d",fact);
}
```

OUTPUT:



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

11)

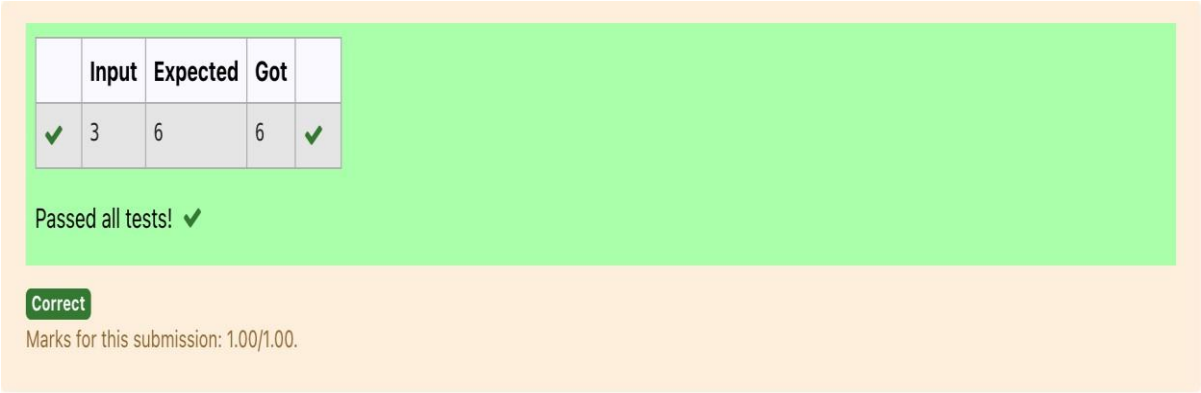
For example:

Input	Result
3	6

CODE:

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

OUTPUT:



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

12)

For example:

Input	Result
0	0
1	1
4	3

CODE:

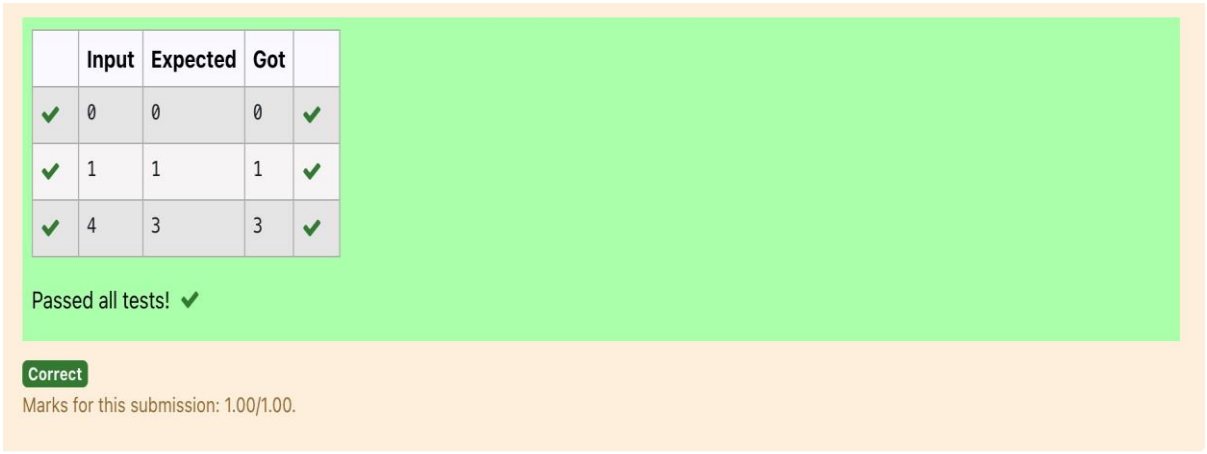
```
#include<stdio.h>
int main()
{
   int n,c,a=1,b=1,i;
scanf("%d",&n);
if(n==0)
   {
      printf("0");
   }
   if (n==1 || n==2)
   {
      printf("1");
   }
   if(n>=3)
   {
      for(i=3 ; i<=n;i++)
      {
         c=a+b;
a=b;          b=c;
      }
```

13)

```
printf("%d",c);
```

```
    }
}
```

OUTPUT:



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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

Write a C program to find the power of integers.

input: a
b

13)

output: a^b
value

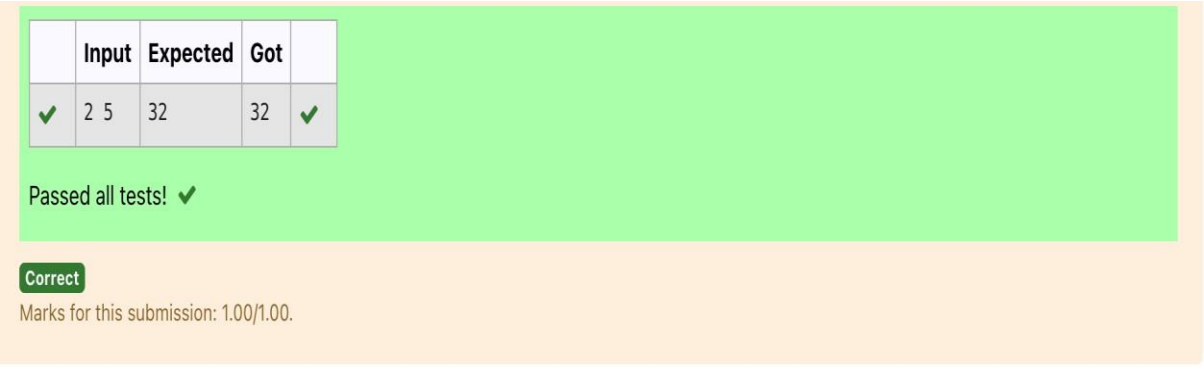
For example:

Input	Result
2 5	32

CODE:

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

OUTPUT:



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

For example:

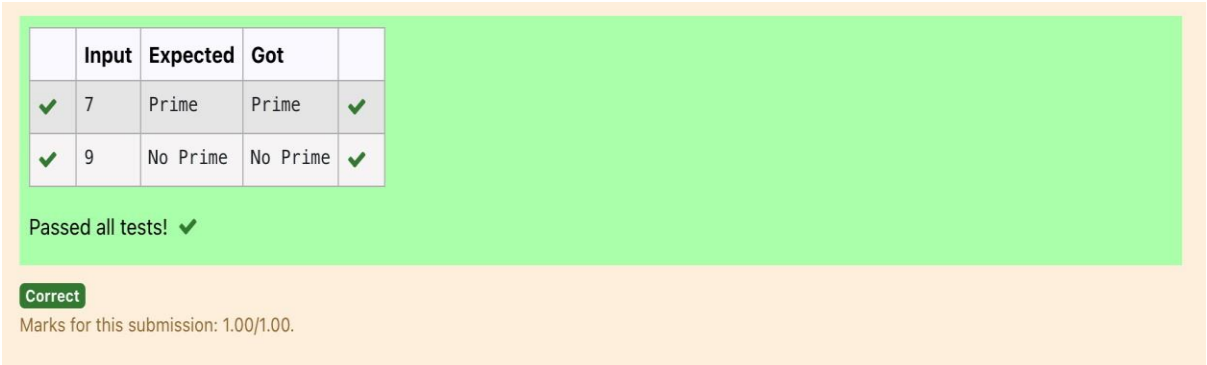
14)

Input	Result
7	Prime
9	No Prime

CODE:

```
#include<stdio.h>
int main()
{
   int a,i,count=0;
scanf("%d",&a);
   for(i=2;i<a;i++)
   {
      if(a%i==0)
         count++;
   }
   if(count==0)
printf("Prime");
else
      printf("No Prime");
}
```

OUTPUT:



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

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

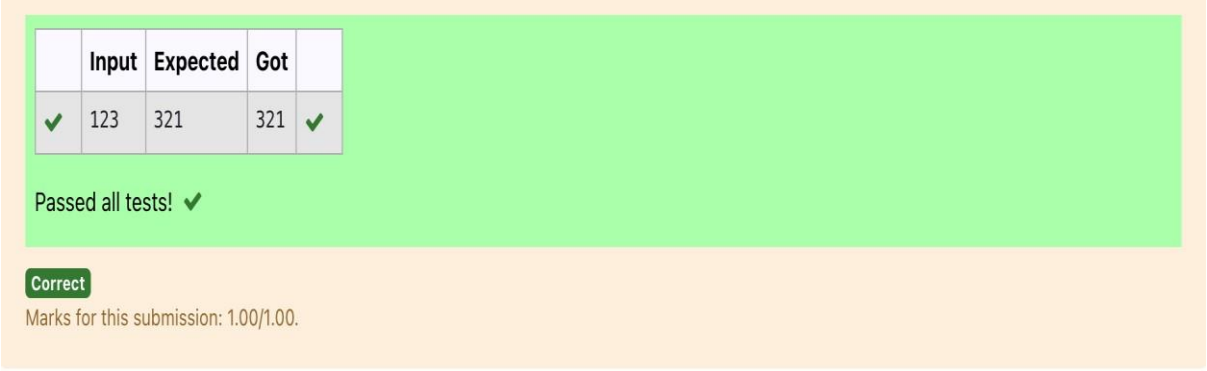
Write a C program to find the reverse of the given integer?

15)

CODE:

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

OUTPUT:



	Input	Expected	Got	
✔	123	321	321	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.