Ex. No: 1 **Date: 12.08.24**

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Basic C Programming

1.a.

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

Algorithm:

DECLARE a, b, temp as INTEGER

READ a

READ b

// Swap values of a and b

temp = a a = b b = temp

PRINT a, b

Program:

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

```
temp=a; a=b;

b=temp; printf("%d

%d",a,b);

}
```

Output:

	Input	Expected	Got	
✔	10 20	20 10	20 10	✔

Passed all tests! ✔

PROGRAM 2:

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

Marks in Math >= 65

Marks in Physics >= 55 [or] Total in all subjects >=180 Marks in Chemistry >= 50

ALGORITHM:

Step 1: Initialize m as math, p as physics, c as chemistry all as int datatype. Step 2: Input 3 numbers out of 100 from the user.

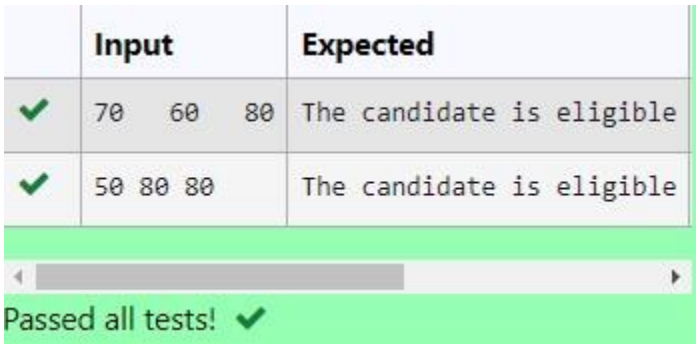
Step 3: Check if m>=65 and p>=55 and c>=50 →Then display “the candidate is eligible” Or check if m+p+c>=180 → Then display “the candidate is eligible”

Else → Display “the candidate is not eligible”

PROGRAM:

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

OUTPUT:



RESULT: Thus, the program is executed successfully.

PROGRAM

3:

AIM: Malini goes to Best save hyper market to buy grocery items. Bestsave hypermarket provides 10% discount on the bill amount B whenever the bill amount B is more than Rs. 2000. The bill amount B is passed as the input to the program and it must print the final amount payable by Malini.

ALGORITHM:

Step 1: Initialize the payment and the discount as integer data types. Step 2: Take an input for payment from the user.

Step 3: Check if payment > 2000, → calculate discount as payment*0.10 and subtract it from the original payment amount.

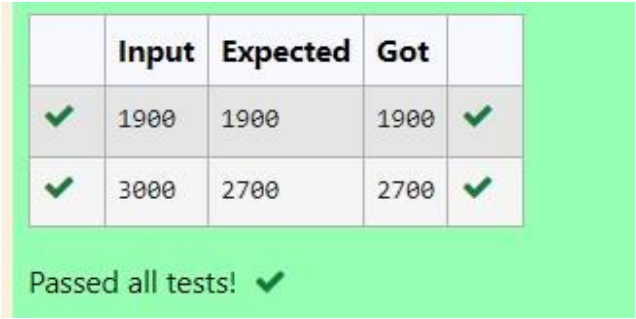
Display the new payment.

Step 4: Else → display the payment amount.

PROGRAM:

```
#include<stdio.h> int main()

{

int pay,disc; scanf("%d",&pay); if (pay>2000){ disc=pay*0.10;

pay=pay-disc; printf("%d",pay);

}else{ printf("%d",pay);

}

}
```

OUTPUT:



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

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

PROGRAM

_____4:

AIM: Baba is very kind to beggars and every day Baba donates half of the amount he has whenever 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 at the beginning of the day.

ALGORITHM:

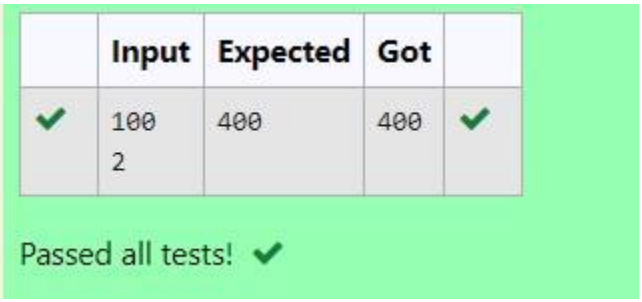
Step 1: Initialize m and n as integer data types symbolizing the money and the number of beggars.

Step 2: Take an input from the user for the number of beggars and the money amount. Step 3: Initialize the for loop until n, and multiply the money as money=money * n Step 4: Outside the loop display the amount m symbolizing the money in hand.

PROGRAM:

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

OUTPUT:



	Input	Expected	Got	
✔	100 2	400	400	✔

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

PROGRAM

_____5:

AIM: 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 [starting from Monday through Saturday] he will be awarded Rs. 200 more than the previous day as “Punctuality incentive”. Incentive for starting day is passed as input and the number of days N is also passed. The program is to calculate the “Punctuality incentive” P of the employee.

ALGORITHM:

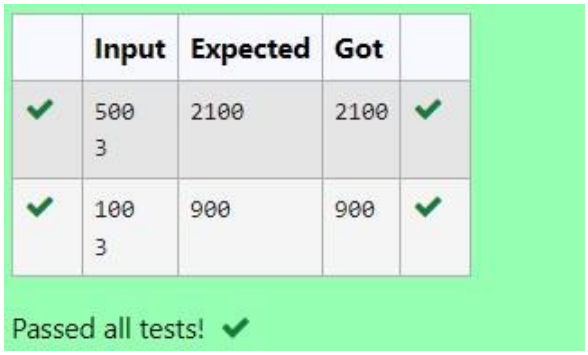
Step 1: Initialize incentive i, n number of days and sum as integer datatype Step 2: Take an input from the user for incentive and number of days i and n. Step 3: initialize the sum as i, and initiate a for loop till n-1;

Within this for loop, calculate incentive as incentive + 200 and the sum + incentive. Step 4: Outside the loop, display the sum.

PROGRAM:

```
#include<stdio.h> int main()

{

int i,n,sum; scanf("%d%d",&i,&n); sum=i;

for (int j=1;j<n;j++){ i=i+200; sum+=i;

}printf("%d",sum);

}
```

OUTPUT:



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

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

PROGRAM

_____6:

AIM: Two numbers a and b are passed as the input. A number x is also passed as the input. The program must print the numbers divisible by x from b to a range inclusive of a and b.

ALGORITHM:

Step 1: Initialize the numbers as a, b, c as integer data types. Step 2: Take an input for a, b and c from the user.

Step 3: In a for loop, >=a, decrementing the value, Check if i%c==0, → Display the number i Else →

continue

PROGRAM:

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

OUTPUT:

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

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

PROGRAM

_____7:

AIM: Write a program to find the quotient and remainder of the given integers.

ALGORITHM:

Step 1: Initialize the 2 numbers a and b.

Step 2: Take an input for a and b from the user. Step 3: Display a/b and a%b.

PROGRAM:

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

OUTPUT:

	Input	Expected	Got	
✔	12 3	4 0	4 0	✔

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

PROGRAM

_____8:

AIM: Write a program to find the biggest number out of the 3 given integers.

ALGORITHM:

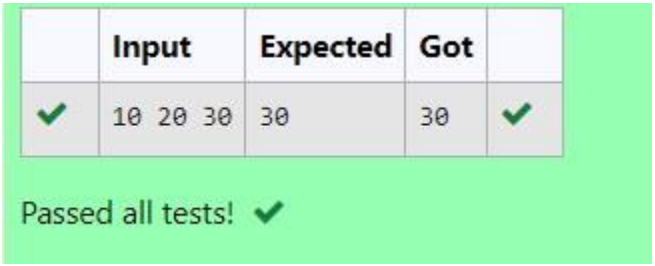
Step 1: Initialize the 3 numbers as a, b, c as integer data types. Step 2: Take an input from the a, b, c.

Step 3: Check if a>b and a>c → Display a Else check if b>a and b>c → Display b Else check if c>a and c>b → Display c

PROGRAM:

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

OUTPUT:



	Input	Expected	Got	
✔	10 20 30	30	30	✔

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

PROGRAM 9:

program to find

AIM: Write a C

ALGORITHM:

whether the given number is odd or even.

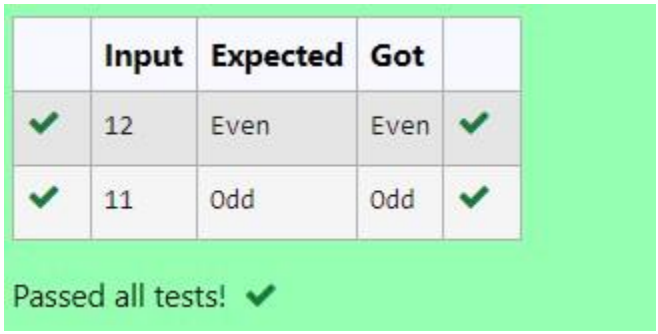
Step 1: Initialize a number M as integer data type. Step 2: Take an input from the user.

Step 3: Check if m%2==0 → Display even Else → Display odd.

PROGRAM:

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

OUTPUT:



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

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

11:

PROGRAM

AIM: Write a C program to find the factorial of a number N.

ALGORITHM:

Step 1: Initialize x , i and factorial=1 as integer data type. Step 2: Take an input for x.

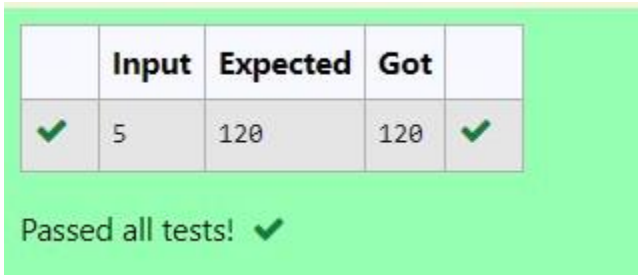
Step 3: In a for loop, as i=1, and i<=x Calculate fact*=i Step 4:

Display the factorial.

PROGRAM:

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

OUTPUT:



RESULT: Thus, the program is executed successfully.

AIM: Write a C

ALGORITHM:

sum of first N natural.

Step 1: Initialize x and sum=0 as integer data type. Step 2: Take an input for x from the user.

Step 3: In a for loop, i=1, i<=x, Calculate sum+=i Step 4: Display sum.

PROGRAM:

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

OUTPUT:

PROGRAM 13:

program to find the

	Input	Expected	Got	
✔	3	6	6	✔

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

12:

AIM: Write a C

ALGORITHM:

Nth term in the fibonacci series.

Step 1: Initialize n, f0=0, f1=1, f2 and z=0, o=1 as integer data type. Step 2: Take an input for n.

Step 3: Check if n==0, → Display z Else if n==1 → Display 0

Else calculate f2=f1+f0, f0=f1 and f1=f2 within a for loop Step 4: Display f2.

PROGRAM:

```
#include<stdio.h> int main()
{
int n,f0=0,f1=1,f2,z=0,o=1; scanf("%d",&n);
if(n==0) printf("%d",z); else if(n==1)
printf("%d",o); else{ for(int i=1;i<n;i++){
f2=f1+f0; f0=f1; f1=f2;
}printf("%d",f2);
}}
```

OUTPUT:

PROGRAM

program to find the

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

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

13:

AIM: Write a C powers of integers.

ALGORITHM:

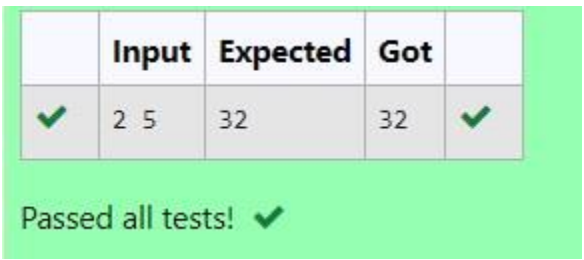
Step 1: Initialize y, x and p as integers.

Step 2: Take an input from the user for x and y. Step 3: calculate p as p=pow(x,y) and display p.

PROGRAM:

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

OUTPUT:



RESULT: Thus, the program is executed successfully.

PROGRAM 14:

PROGRAM

program to find the

AIM: Write a C program to find whether the integer is prime or not.

ALGORITHM:

Step 1: Initialize m as integer. Step 2: Take an input for m.

Step 3: Check if m%2!=0 and m%3!=0 and m%5!=0 → Display prime Else → display not prime.

PROGRAM:

```
#include<stdio.h> int main()
{
int m; scanf("%d",&m); if (m%2!=0
&& m%3!=0 && m%5!=0)
{
printf("Prime");
}
else
{
printf("No Prime");
}
}
```

OUTPUT:

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

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.

PROGRAM 15:

AIM: Write a C program to find reverse of integer

ALGORITHM:

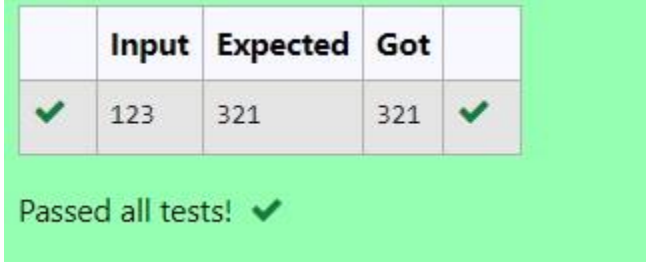
Step 1: Initialize m, rev=0 and rem as integers. Step 2: Take an input for m

Step 3: While m!=0 → rem=n%10 rev=rev*10+rem and m/=10 Step 4: Display rev

PROGRAM:

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

OUTPUT:



	Input	Expected	Got	
✔	123	321	321	✔

Passed all tests! ✔

RESULT: Thus, the program is executed successfully.