Beginners Must Do Programs

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BEGINNERS MUST DO PROGRAMS

1. Get feet wet - Simple Programs

1.1. Write a c program to compute the sum of digits of a given three digits integer number

```
int a  = 426
Print the output as 4 + 2 + 6 = 12

NOTE:  Write only sequential program without using 'if-else', 'for', 'while'
and 'do-while'

clue(s)
c = a % 10 --> Results 6 in 'c'
a = a /10 --> Results 'a' to become 42
```

1.2. Write a program to print reverse number of the 3 digits integer

```
ex: int a = 426
Print the output as 624

NOTE:  Write only sequential program without using 'if-else', 'for', 'while'
and 'do-while'

clue(s)
c = (c * 10) + (a % 10) --> Results 6 in 'c' (If c initial value is 0)
```

1.3. Write a program to find the given 3 digits integer is a palindrome?

```
ex: int a = 626
Print the output as : Yes, because reverse of 626 is also 626

NOTE:  Write only sequential program without using 'for', 'while' and 'do-
while'
```

1.4. What is the output of the following expressions?

```
10 % 3?
3 % 10?
25 / 10?
```

1.5. Write a program to print promotion status "promoted/Not promoted" in a given three subjects marks.

```
The ideal output of the program for bellow examples are
Is Subjects S1, S2 and S3 marks are 40, 50, 70 respectively → Promoted
Is Subjects S1, S2 and S3 marks are 25, 34, 70 respectively → Not Promoted
Is Subjects S1, S2 and S3 marks are 24, 34, 20 respectively → Not Promoted

Note1: Print "Promoted" only if all 3 subjects got >= 35 marks
Note2: Don't use any logical operators like '&&' and '||'
Note3: Avoid writing printf that prints "Not promoted" multiple times
```

2. Take a dip - Guess the output of the below program

What is the output of below programs? How many iterations each program takes?

2.1.

```
main()
{
	int i = 0;
	int n = 7;

	for (i = 1; i <= n; i++)
	{
		printf("%d\r\n", i);
	}
	printf("%d", i);
}
```

2.2.

```
main()
{
	int i = 0;
	int n = 7;
	for (i = 0; i < n; i++)
	{
		printf("%d\r\n", i);
	}
	printf("%d", i);
}
```

2.3.

```
main()
{
	int i = 0;
	int n = 5;

	for (i = 5; i < n; i++)
	{
		printf("%d\r\n", i);
	}
	printf("%d", i);
}
```

2.4.

```
main()
{
	int i = 0;
	int n = 5;

	for (i = -3; i < n-1; i++)
	{
		printf("%d\r\n", i);
	}
	printf("%d", i);
}
```

2.5.

```
main()
{
	int i = 0;
	int n = 5;

	for (i = 0; i >= n; i++)
	{
		printf("%d\r\n", i);
	}
	printf("%d", i);
}
```

2.6.

```
main()
{
	int n = 5;

	for (; n > 0; n--)
	{
		printf("%d\r\n", n);
	}

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

2.7.

```
main()
{
      int i = 0;
      int n = 5;
      for (; i < n; )
      {
            printf("%d\r\n", i);
      }

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

2.8.

```
main()
{
      int i = 0;
      int n = 5;
      for (; i < n; i++)
      {
            printf("%d\r\n", i);
      }
      printf("%d", i);
}
```

2.9.

```
main()
{
      int i = 0;
      int n = 10;

      for (; i < n; i=i+2)
      {
            printf("%d\r\n", i);
      }

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

2.10.

```
main()
{
    int i;
    for (i = 1; i <= 10; i++)
    {
      printf("%d", i);
      if (i%5 == 0)
          i = i + 4;
    }
    printf("i :%d\r\n", i);
}
```

2.11.

```
main()
{
    int i;

    for (i = 1; i <= 10; i++)
    {
        printf("%d", i);

        if (i >= 5)
            break;
    }
    printf("i :%d\r\n", i);
}
```

2.12.

```
main()
{
    int i;
    for (i = 1; i <= 10; )
    {
      printf("%d", i);

      if (i <= 7)
          i += 2;
    }
    printf("i :%d\r\n", i);
}
```

2.13.

```
main()
{
    int i, j;

    for (i = 1; i <= 5; i++)
    {
      printf("%d", i);
      for (j = 1; j <= 5; j++)
      {
          printf("%d", j);
      }
    }
    printf("i :%d, j :%d\r\n", i, j);
}
```

2.14.

```
main()
{
    int i, j;

    for (i = 1; i <= 5; i++)
    {
      printf("%d", i);
      for (j = 0; j <= 5; j++)
      {
          printf("%d", j);
          if (j%2)
            i += 2;
      }
    }
    printf("i :%d, j :%d\r\n", i, j);
}
```

3. Let's swim - Printing series

Print below series up to 'n' terms.

3.1.

```
Sum of n terms of Fibonacci series?
```

3.2.

```
Factorial value of n?
```

3.3.

```
How to check whether given number 'n' is prime or not?
```

3.4.

```
Print first 'n' prime numbers?
```

3.5.

```
Print sum of first 'n' prime numbers?
```

3.6.

```
Print values of 1! 2! 3! 4! .....n!
```

3.7.

```
Sum of 'n' terms of above series of above Question?
```

3.8.

```
2!/1! +3!/2! +4!/3!+ ....+ (n+1)!/n! ?
```

3.9.

```
x!/y! + (x+1)!/(y+1)! +(x+2)!/(y+2)!+------+(x+n)!/(y+n)!?
```

3.10.

```
1 2 3 4 5 4 3 2 1
```

3.11.

```
12345
1234
123
12
1
z
```

3.12.

```
12345
 1234
  123
   12
    1
```

3.13.

```
1
12
123
1234
12345
```

3.14.

```
    1
   12
  123
 1234
12345
```

3.15.

```
123454321
1234 4321
123   321
12     21
1       1
```

3.16.

```
1       1
12     21
123   321
1234 4321
123454321
```

3.17.

```
    A
  A B C
A B C D E
  A B C
    A
```

3.18.

```
ABCBA
AB BA
A   A
AB BA
ABCBA
```

3.19. Print the Pascal triangle up to ‘n’ terms

```
          1
        1   1
      1   2   1
    1   3   3   1
  1   4   6   4   1
1   5   10  10  5   1
```

4. Cross The River - Putting logic, algorithm and programming and together

4.1.

```
Write a program which replaces all duplicate elements with '0' in a single dimensional integer array
```

4.2.

```
Write a program to remove all duplicate elements in a single dimensional integer array
```

4.3.

```
Write a program to sort 'n' integer values in a single dimensional array
```

4.4.

```
Write a program for addition of two matrices (a and b) of size m x n and store in matrix 'c' (using double dimensional array)
```

4.5.

```
Write a program for multiplication of two matrices (a and b) of size m x n and store in matrix 'c' (using two dimensional array)
```

4.6.

```
Write a program which populates the  magic squire on any odd matrix (refer https://www.youtube.com/watch?v=XEVNYisghbg)
```