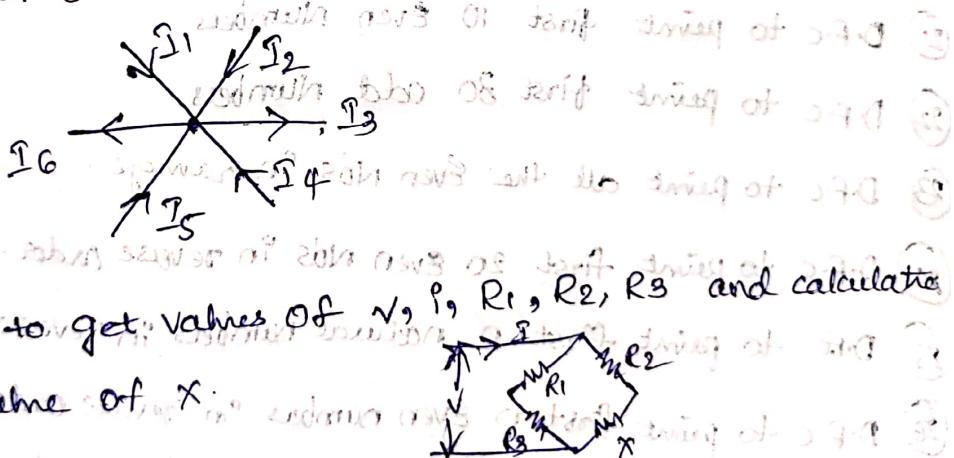


Questions: -

- ① Draw a flowchart for adding two numbers.
- ② D.F.C to print area of rectangle.
- ③ D.F.C to print perimeter of square.
- ④ D.F.C to print area of square.
- ⑤ D.F.C to print the average of three numbers.
- ⑥ D.F.C to print the sum of 5 subjects of student.
- ⑦ D.F.C to print the value of resistance when voltage and current values are provided.
- ⑧ D.F.C to print the perimeter of a circle.
- ⑨ D.F.C to take value of $I_1, I_2, I_3, I_4, I_5, I_6$ current values flowing from the point and to the point and calculate sum of current.
- ⑩ D.F.C to get values of V, I, R_1, R_2, R_3 and calculate the value of X .
- ⑪ D.F.C to read two numbers from the user and print bigger value.
- ⑫ D.F.C to print whether the given number is positive or negative.



- (14) D.F.C to read three numbers from the user and print the Biggest value.
- (15) D.F.C to get marks of 5 subjects of a student and print grade A is above 80%, B is above 60%, C is 40%, D is below 40%.
- (16) D.F.C to check whether the values of flowchart No(10) follows Kirchoff's law.
- (17) D.F.C to get age of a person to print whether he is eligible for DL or not?
- (18) D.F.C to get age of a person to print greeting message.
if age \leq 5稚孩, age \leq 10, nice kid, age \leq 15 teenager
if age \leq 25 young dynamic, age \leq 50 middle age, age $>$ 50 old.
- (19) D.F.C to get whether the given no is even or odd.
- (20) D.F.C to print first 20 Natural Numbers.
- (21) D.F.C to print first 10 Even Numbers.
- (22) D.F.C to print first 30 odd Numbers.
- (23) D.F.C to print all the Even Nos in range.
- (24) D.F.C to print first 20 Even Nos in reverse order.
- (25) D.F.C to print first n natural numbers in reverse order.
- (26) D.F.C to print first n Even numbers in reverse order.
- (27) D.F.C to print the series of 5, 10, 15, ... - n. nos.
- (28) D.F.C to print given series of nos 2, 4, 4, 8, 6, 12, 8, 16, 10, 20.
- (29) D.F.C to print multiplication table of 3.
- (30) D.F.C to print first n multiplication table from 2.

Q) D.F.C to print the matrix of rows and columns:

Part 1: * * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *

0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0
0 0 0 0 0

Q) D.F.C to print the given pattern 2:

X
X X
X X X
X X X X

Q) D.F.C to print given pattern 3:

A A A A A
A A A A
A A A
A A A
A (A and B) are given to print 3rd row of Q3

Q) D.F.C to print given pattern 4:

B B B B B
B B B B
B B B B
B B B B
B B B B

Q) D.F.C to print given pattern 5:

A A A A A B B B B B
A A A A B B B B B
A A A B B B
A A B B
A B.

(1) D.F.C to print given pattern 6.

(2) A B
A A B B
A A A B B B
A A A A B B B B
A A A A A B B B B B.

(3) D.F.C to print factorial of given no.

(4) D.F.C to print factors of given no.

(5) D.F.C to print whether the given no is prime or not.

(6) D.F.C to print reverse of a given no.

(7) D.F.C to print fibonacci Series

(8) D.F.C to find GCD of 2 No's using 3.

(9) D.F.C to print bill of shopping items, quantity, unit price to be Entered.

(10) D.F.C to check whether the given no is palindrome or not.

(11) D.F.C to print BCD value of given no (4-bit GCD).

(12) D.F.C to print hexa value of given no.

(13) D.F.C to print decimal value of a hexanumber.

(14) D.F.C to get 10 no's from the user and print the $(A[0])_{10}$.

(15) D.F.C to get n no's from the user ask the user to enter any number from those number, write a logic to find make that position zero.

(16) D.F.C to check if a given year is a leap year or not.

* Programs

1) Write a program for adding two numbers.

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

```
int main()
```

```
{
```

```
int a=5, b=10, c;
```

```
c=a+b;
```

```
printf("Sum of two numbers is: %d\n", c);
```

```
return 0;
```

```
}
```

* from user input

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

```
int main()
```

```
{ int a, b, c;
```

```
printf("Enter any two numbers\n");
```

```
scanf("%d%d", &a, &b);
```

```
c=a+b;
```

```
printf("Sum of two numbers is: %d\n", c);
```

```
return 0;
```

```
q.
```

Q. Write a program for calculating area of a rectangle.

Ans. To calculate area of a rectangle we need its length and width.

Output: -

sum of two numbers is 15.

* Output: - `printf("A/B" or start to executing")` printed

Enter any two numbers

10

30

Sum of two numbers is: 40.

② WAP to print area of rectangle.

→ #include <stdio.h>

int main()

{

float l, b;

} float Area;

printf("Enter the length and breadth.\n");

scanf("%f,%f", &l, &b);

Area = l * b;

printf("Area of rectangle is %f\n", Area);

return 0;

}

* Output:-

Enter the length and breadth

10

2.3

Area of rectangle is 23.000000

③ WAP to print perimeter of a circle.

→ #include <stdio.h>

int main()

{

float pi = 3.14, perimeter, r;

printf("Enter the radius of circle.\n");

scanf("%f", &r);

Perimeter = 2 * pi * r;

printf("Perimeter of circle is %f\n", Perimeter);

return 0;

}

Enter the radius of circle

5

Perimeter of circle
is 31.400000

Q) WAP to print perimeter of square.

→ #include <stdio.h>

int main()

{

 printf("Enter the length of square\n");

 scanf("%d", &s);

 Perimeter = 4 * s;

 printf("perimeter of square is %d\n", Perimeter);

 return 0;

}

* Output:-

Enter the length of square

3
perimeter of square is 12.

Q) WAP to print Area of square.

→ #include <stdio.h>

int main()

{

 printf("Enter the length of

 side of square\n");

 scanf("%d", &s);

 Area = s * s;

 printf("area of square

 is %d\n", Area);

 return 0;

}

⑥ WAP to print average of three numbers.

→ #include <stdio.h>

```

int main()
{
    float a, b, c;
    float Avg;
    printf("Enter 3 numbers(n)");
    scanf("%f,%f,%f", &a, &b, &c);
    Avg = (a+b+c)/3;
    printf("average of 3 numbers
is %.2f", Avg);
    return 0;
}

```

* Output

Enter 3 numbers
5
8

average of 3 numbers
is 6.333333.

⑦ WAP to print the sum of 5 subjects of student.

→ #include <stdio.h>

```

int main()
{

```

```

    int sum, S1, S2, S3, S4, S5;

```

```

    printf("Enter 5 subjects marks of student(n)");

```

```

    scanf("%d,%d,%d,%d,%d", &S1, &S2, &S3, &S4, &S5);

```

```

    sum = S1+S2+S3+S4+S5

```

printf("Sum of 5 subjects marks of student is %.d",
sum);

```

    return 0;
}

```

* Output:-

Enter 5 subjects marks of student

87 90 98 75 45

Sum of 5 subjects marks of student is 395.

⑧ NAP to print the value of resistance when voltage
and current is provided by the user

→ #include <stdio.h>
int main()

{

int v = 50, i = 2, resistance;

$$\text{resistance} = v / i;$$

printf("resistance value is %d\n", resistance);

return 0;

3

* Output:- resistance value is 25.

⑨ NAP to print the power when the current and
resistance is provided

→ #include <stdio.h>

int main() {

int i = 10, r = 2, power;

$$\text{power} = i * r * r;$$

printf("power is %d\n", power);

return 0;

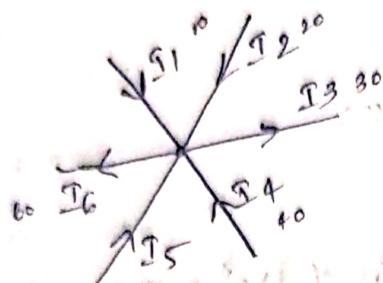
3

* Output:-

Power is 200.

⑩ WAP to take values of i_1, i_2, i_3, i_4, i_5 & i_6 current values flowing from the point and to the point and calculate the sum of current.

fig:-



→ #include <stdio.h>

int main ()

{ int $i_1, i_2, i_3, i_4, i_5, i_6, \text{sum};$

Pointf ("Enter the values of current of n"); // n is 6
scanf ("%d %d %d %d %d %d", & $i_1, &i_2, &i_3, &i_4, &i_5, &i_6$);

$\text{sum} = i_1 + i_2 - i_3 + i_4 + i_5 - i_6;$

Pointf ("Sum of current is %d\n", sum);

return 0;

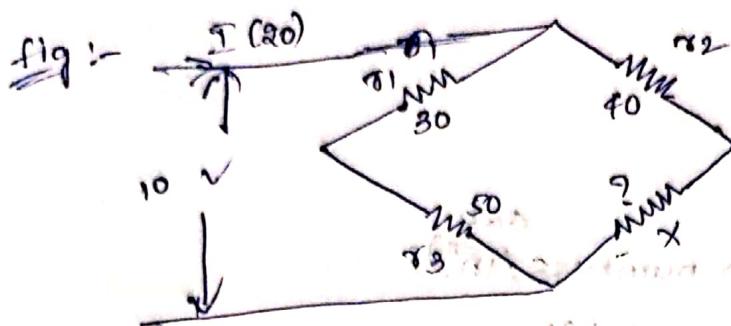
* Output:-

Enter the Values of current

10 20 30 40 50 60

Sum of current is 30.

① Map to get values of v , i , τ_1 , τ_2 , τ_3 and calculate the value of x .



maths, here for balanced Wheatstone bridge

$$\frac{\tau_1}{\tau_3} = \frac{\tau_2}{x}$$

$$\frac{\tau_2}{x} = \frac{\tau_1}{\tau_3}$$

$$x = \left(\frac{\tau_1}{\tau_3} \right) * \tau_2$$

#include <stdio.h>

int main()

{

int v, i, r1, r2, r3;

float x;

printf("Enter the values of v, i, r1, r2, r3\n");

scanf("%d %d %d %d %d", &v, &i, &r1, &r2, &r3);

x = (r1 * r3) * r2;

printf("Value of x is %f\n", x);

return 0;

}

* Output:-

Enter the values of v, i, r1, r2, r3.

10 20 30 40 50

Value of x is 0.000000.

⑫ DAP to read two numbers from the user and print the biggest value.

→ #include <stdio.h>

int main()

```
{  
    int a, b;  
    a&b;
```

```
    printf("Enter two numbers:\n");
```

```
    scanf("%d%d", &a, &b);
```

```
    if(a>b)
```

```
{  
    Point C "a is the biggest value\n";
```

```
}
```

```
else  
{  
    Point C "b is the biggest value\n";
```

```
}  
else  
{  
    Point C "Both are equal\n";
```

```
return 0;
```

```
}
```

* Output:-

Enter two numbers: a&b

10 30

b is the biggest value.

Q) WAP to print whether the given number is positive or negative.

```
#include <stdio.h>
int main()
{
    int a;
    printf("Enter the number: ");
    scanf("%d", &a);
    if (a < 0)
        printf("%d is negative number", a);
    else
        printf("%d is positive number", a);
    return 0;
}
```

* Output:-

Enter the number:

-3

-3 is negative number.

QUESTION ANSWERED

ANSWERED BY SRIKANTH

Q) Write a program to find the bigger value from three numbers entered by user.

```

→ #include <stdio.h>
int main()
{
    int a, b, c;
    printf("Enter three numbers: ");
    scanf("%d %d %d", &a, &b, &c);
    if (a > b)
    {
        if (a > c)
            printf("%d is the bigger value\n");
        else
            printf("%d is the bigger value\n");
    }
    else
    {
        if (b > c)
            printf("%d is the bigger value\n");
        else
            printf("%d is the bigger value\n");
    }
    return 0;
}

```

* Output:-

Enter three numbers:

1 3 2

b is the bigger value.

Q6) WAP to get marks of 5 subjects of a student and
 print grade A above 80%, B above 60%, C above 40%.
 D i.e below 40%.

→ If include <stdio.h>
 int main()

```

  {
    float marks[5];
    float total = 0;
    int per;
    printf("Enter marks of 5 subjects English, Maths,  

    Social, Science, C\n");
    for(int i=0; i<5; i++)
    {
      printf("Enter marks of %d ", i+1);
      scanf("%f", &marks[i]);
      total = total + marks[i];
    }
    per = (total / 5) * 100;
    if(per >= 80)
    {
      printf("Grade A\n");
    }
    else if (per >= 60)
    {
      printf("Grade B\n");
    }
    else if (per >= 40)
    {
      printf("Grade C\n");
    }
    else
    {
      printf("Grade D\n");
    }
    return 0;
  }
  
```

* Output:-
 Enter marks of
 5 subjects English,
 Maths, Social,
 Science, C
 Enter marks 1: 80
 Enter marks 2: 90
 Enter marks 3: 75
 Enter marks 4: 85
 Enter marks 5: 90
 Grade B.

suppose for the same question if I want to use range from (0 to 100) then the code is as follows.

Program:-

```
#include <stdio.h>
int main()
{
    float marks[5];
    float total=0, per;
    printf("Enter marks for 5 subjects: \n");
    for (int i=0; i<5, i++)
    {
        printf("Enter marks for subject %d: ", i+1);
        scanf("%f", &marks[i]);
        if (marks[i]>0 && marks[i]<=100)
            total=total+marks[i];
        else
            printf("Invalid input! marks should be b/w 0&100\n");
    }
    per=(total/500)*100;
    if (per>80)
        printf("Grade A\n");
    else if (per>60)
        printf("Grade B\n");
    else if (per>40)
        printf("Grade C\n");
    else
        printf("Grade D\n");
    return 0;
}
```

(16) WAP to check whether the program(i) follows Kirchhoff's law or not?

```
#include < stdio.h >

int main()
{
    int i1, i2, i3, i4, i5, i6;
    int sumofEntering, sumofleaving;
    printf("Enter sum of current Entering values: \n");
    scanf("%d %d %d %d", &i1, &i2, &i4, &i5);
    printf("Enter sum of leaving current values: \n");
    scanf("%d %d", &i2, &i6);

    SumofEntering = i1 + i2 + i4 + i5;
    Sumofleaving = i2 + i6;

    if (SumofEntering == Sumofleaving)
    {
        printf("Kirchhoff's law satisfied \n");
    }
    else
    {
        printf("Kirchhoff's law not satisfied \n");
    }

    return 0;
}
```

* Output:-

Enter sum of Entering current values:
10 20 40 50

Enter sum of leaving current values:
30 60

Kirchhoff's law not satisfied.

Q) WAP to get age of a person & to judge whether he is eligible for driving license or not?
 #include <stdio.h>

```
int main()
{
    int age;
    printf("Enter the age\n");
    scanf("%d", &age);
    if (age >= 18)
    {
        printf("Eligible for driving license\n");
    }
    else
    {
        printf("Not eligible for driving license\n");
    }
    return 0;
}
```

* Output:-

Enter the age

50

Eligible for driving license.

Enter the age

16

Not Eligible for driving license.

Q18. Write a program to get age of person and print greeting message
if age ≤ 5 childhood, > 10 old kid, age ≤ 15 teenagers,
 ≥ 25 young dynamic, age ≤ 50 middle age, age > 50 old.

```
#include <stdio.h>
int main()
{
    int age;
    printf("Enter the age\n");
    scanf("%d", &age);

    if (age <= 5)
    {
        printf("nice kid\n");
    }
    else if (age <= 10)
    {
        printf("nice child\n");
    }
    else if (age <= 15)
    {
        printf("teenager\n");
    }
    else if (age <= 25)
    {
        printf("young dynamic\n");
    }
    else if (age <= 50)
    {
        printf("middle age\n");
    }
    else
    {
        printf("old age\n");
    }
    return 0;
}
```

* Output:-

Enter the age

50

middle age

⑨ WAP to get whether the given no is even or odd.

→ #include <stdio.h>

```

int main()
{
    int a;
    printf("Enter the number\n");
    scanf("%d", &a);
    if (a%2 == 0)
    {
        printf("Even number\n");
    }
    else
    {
        printf("Odd number\n");
    }
    return 0;
}

```

* Output:-

Enter the number
52
Even number.

⑩ WAP to print first 20 natural numbers

→ #include <stdio.h>

```

int main()
{
    int n=1;
    while (n<=20)
    {
        printf("%d\n", n);
        n=n+1;
    }
    return 0;
}

```

* Output:-

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

(2) WAP to print first 10 even numbers.

→ #include <stdio.h>

```
int main()
{
    int N=2;
    while (N<=20)
    {
        printf("%d\n", N);
        N=N+2;
    }
    return 0;
}
```

* Output:-

```
2
4
6
8
10
12
14
16
18
20
```

(2) WAP to print first 80 odd numbers.

→ #include <stdio.h>

```
int main()
{
    int N=1;
    while (N<=80)
    {
        printf("%d\n", N);
        N=N+2;
    }
    return 0;
}
```

(Odd numbers)

odd numbers starting from 1

(1, 3, 5, 7, 9, ...)

(80 -> 40) times

(1, "odd numbers") times;

* Output:-

```
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39
41 43 45 47 49 51 53 55 57 59.
```

(@) WAP to print all the even numbers in range.

→ #include <stdio.h>

int main()

{

int N1, N2;

scanf("%d %d", &N1, &N2);

printf("Enter the range\n");

scanf("%d %d", &N1, &N2);

while (N1 < N2)

{ if (N1 % 2 == 0)

{

printf("%d", N1);

y

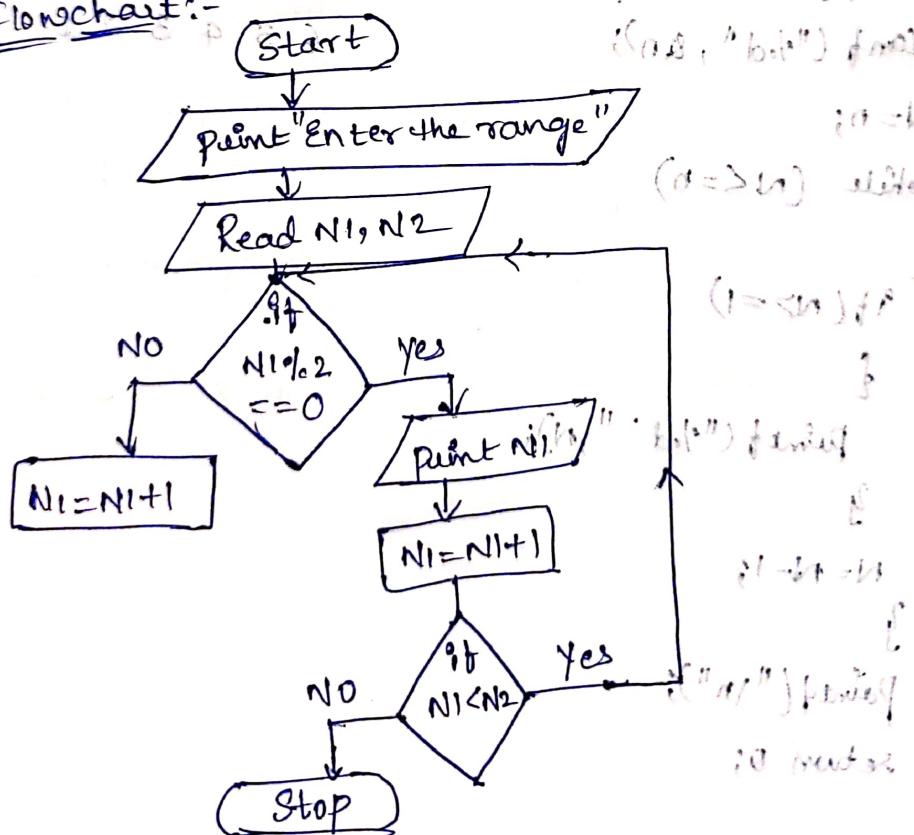
when $N1 = N1 + 1$ is working because it is basic logic of while

y
printf("\n");

return 0; // for exit

} // program ends

* Flowchart:-



(24) WAP to print first 10 even numbers in reverse order.

```
#include <stdio.h>
int main()
{
    int N=40;
    while (N>0)
    {
        printf("%d\n", N);
        N=N-2;
    }
    printf("\n");
    return 0;
}
```

* Output:-

40 38 36 34 32 30
28 26 24 22 20 18
16 14 12 10 8 6 4 2.

(25) WAP to print first n natural numbers in reverse order.

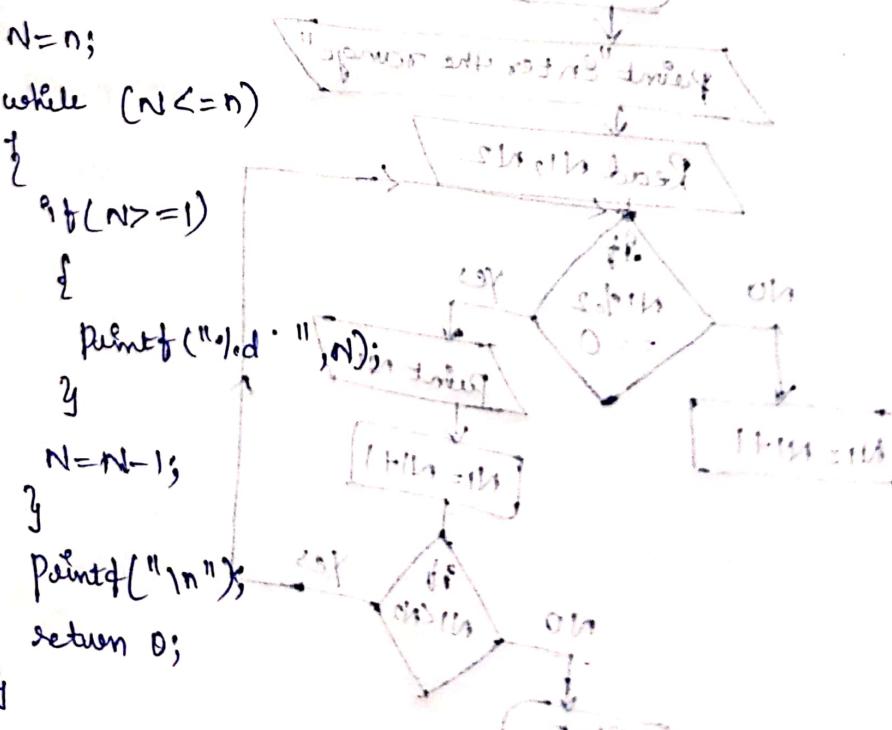
```
#include <stdio.h>
{
    int N, n;
    printf("Enter range(n)");
    scanf("%d", &n);
    N=n;
    while (N<=n)
    {
        if (N>=1)
        {
            printf("%d\n", N);
        }
        N=N-1;
    }
    printf("\n");
    return 0;
}
```

* Output:-

Enter the range

6

6 5 4 3 2 1



(26) WAP to print first n even nos. to print in reverse order.

```
#include <stdio.h>
int main()
{
    int n;
    printf("Enter the range(n)");
    scanf("%d", &n);
    n = n * 2;
    while (n >= 0)
    {
        if (n >= 2)
        {
            printf("%d ", n);
        }
        n = n - 2;
    }
    return 0;
}
```

* Output:-

Enter the range

10

20 18 16 14 13 12 10 8 6 4

(27) WAP to print the series of 5, 10, 15, 20, 25.

```
#include <stdio.h>
int main()
{
    int range, count;
    printf("Enter range\n");
    scanf("%d", &range);
    count = 1;
    while (count <= range)
    {
        printf("%d ", count * 5);
        count = count + 1;
    }
    printf("\n");
    return 0;
}
```

* Output:-

Enter range

5

5 10 15 20 25.

return 0;

(28) WAP to the Series of 2, 4, 4, 8, 6, 12, 8, 16, 10, 20.

```
#include <stdio.h>
int main()
{
    int range, count;
    printf("Enter range\n");
    scanf("%d", &range);
    count = 1;
    while (count <= range)
    {
        printf("%d %d ", count * 2,
               count * 3);
        count = count + 1;
    }
    printf("\n");
    return 0;
}
```

* Output:-

Enter range

5

2 4 4 8 6 12 8 16 10 20.

return 0;

(29) WAP to print multiplication table of 3 till 100

= #include <stdio.h>

```

int main()
{
    int count = 1;
    while (count <= 10)
    {
        printf("3 * %d = %d\n", count, 3 * count);
        count = count + 1;
    }
    return 0;
}

```

* Output:-

$3 * 1 = 3$	$3 * 2 = 6$	$3 * 3 = 9$	$3 * 4 = 12$	$3 * 5 = 15$
$3 * 6 = 18$	$3 * 7 = 21$	$3 * 8 = 24$	$3 * 9 = 27$	$3 * 10 = 30$

(30) WAP to print multiplication table from 1 to 10.

= #include <stdio.h>

```

int main()
{
    for (int num = 1; num <= 10; num++)
    {
        for (int count = 1; count <= 10; count++)
        {
            printf("%d * %d = %d\n", num, count, num * count);
        }
        printf("\n");
    }
    return 0;
}

```

* Output:-

$1 * 1 = 1$	$1 * 2 = 2$	$1 * 3 = 3$	$1 * 4 = 4$	$1 * 5 = 5$
$1 * 6 = 6$	$1 * 7 = 7$	$1 * 8 = 8$	$1 * 9 = 9$	$1 * 10 = 10$
$2 * 1 = 2$	$2 * 2 = 4$	$2 * 3 = 6$	$2 * 4 = 8$	$2 * 5 = 10$
$2 * 6 = 12$	$2 * 7 = 14$	$2 * 8 = 16$	$2 * 9 = 18$	$2 * 10 = 20$
$3 * 1 = 3$	$3 * 2 = 6$	$3 * 3 = 9$	$3 * 4 = 12$	$3 * 5 = 15$
$3 * 6 = 18$	$3 * 7 = 21$	$3 * 8 = 24$	$3 * 9 = 27$	$3 * 10 = 30$
$4 * 1 = 4$	$4 * 2 = 8$	$4 * 3 = 12$	$4 * 4 = 16$	$4 * 5 = 20$
$4 * 6 = 24$	$4 * 7 = 28$	$4 * 8 = 32$	$4 * 9 = 36$	$4 * 10 = 40$
$5 * 1 = 5$	$5 * 2 = 10$	$5 * 3 = 15$	$5 * 4 = 20$	$5 * 5 = 25$
$5 * 6 = 30$	$5 * 7 = 35$	$5 * 8 = 40$	$5 * 9 = 45$	$5 * 10 = 50$
$6 * 1 = 6$	$6 * 2 = 12$	$6 * 3 = 18$	$6 * 4 = 24$	$6 * 5 = 30$
$6 * 6 = 36$	$6 * 7 = 42$	$6 * 8 = 48$	$6 * 9 = 54$	$6 * 10 = 60$
$7 * 1 = 7$	$7 * 2 = 14$	$7 * 3 = 21$	$7 * 4 = 28$	$7 * 5 = 35$
$7 * 6 = 42$	$7 * 7 = 49$	$7 * 8 = 56$	$7 * 9 = 63$	$7 * 10 = 70$
$8 * 1 = 8$	$8 * 2 = 16$	$8 * 3 = 24$	$8 * 4 = 32$	$8 * 5 = 40$
$8 * 6 = 48$	$8 * 7 = 56$	$8 * 8 = 64$	$8 * 9 = 72$	$8 * 10 = 80$
$9 * 1 = 9$	$9 * 2 = 18$	$9 * 3 = 27$	$9 * 4 = 36$	$9 * 5 = 45$
$9 * 6 = 54$	$9 * 7 = 63$	$9 * 8 = 72$	$9 * 9 = 81$	$9 * 10 = 90$
$10 * 1 = 10$	$10 * 2 = 20$	$10 * 3 = 30$	$10 * 4 = 40$	$10 * 5 = 50$
$10 * 6 = 60$	$10 * 7 = 70$	$10 * 8 = 80$	$10 * 9 = 90$	$10 * 10 = 100$

(3) Draw a WAP to print the matrix of row and columns.

Pattern 1:

```
 * * * * *
  * * * *
  * * * *
  * * * *
  * * * *
```

```
#include <stdio.h>
int main()
{
    int row=1;
    while (row<=5)
    {
        for (int column = 1; column <=5; column++)
        {
            printf("* ");
        }
        printf("\n");
        row++;
    }
    return 0;
}
```

* Output:-

```
 * * * * *
  * * * *
  * * * *
  * * * *
  * * * *
```

Q) Map to print the problem 2nd part example given

X
X X
X X X
X X X X
X X X X X

A A A A A
A A A A
A A A A
A A A A
A

#include < stdio.h >

int main()

{

int rowCount=5, row=1, column; //initialization of variables

while (row <= rowCount)

{

for (column=1; column<=row; column++)

{

printf("X ");

g

row++;

printf("\n");

g

return 0;

g.

* Output:-

X
X X
X X X
X X X X
X X X X X

A A A A A
A A A A
A A A A
A A A A
A

Q. WAP to print the following pattern(B).

A A A A A
A A A A
A A A
A A
A.

X X
X X X
X X X X
X X X X X

```
#include<stdio.h>
int main()
{
    int row=5, column;
    while (row>0)
    {
        for (column=1; column<=row; column++)
        {
            printf("A ");
        }
        row--;
        printf("\n");
    }
    return 0;
}
```

* Output:-

A A A A A
A A A A
A A A
A A
A.

X X
X X X
X X X X
X X X X X

Q) Write a program to print the following pattern (4):

```
B B B B B  
B B B B  
B B B  
B B  
B
```

→ #include <stdio.h>

```
int main()
```

```
{  
    int row=1, rowcount=5, bcount, spcount;
```

```
    while (row<=5)
```

```
{  
    for (spcount=1; spcount<row; spcount++)
```

```
{  
    printf(" ");
```

```
}  
    for (bcount=1; bcount<=rowcount; bcount++)
```

```
{  
    printf("B");
```

```
}
```

```
    rowcount--;
```

```
    rowcount++;
```

```
    printf("\n");
```

```
}
```

```
return 0;
```

```
.
```

* Output:-

```
B B B B B  
B B B B  
B B B  
B B  
B.
```

1 (85) Write a program to print following pattern (5)

```
A A A A A B B B B B  
A A A A A B B B B B  
A A A A B B B B  
A A B B B  
A B B
```

→ #include <stdio.h>

```
int main( )
```

```
{
```

```
int row=1, rowcount=10, Scount, Acount, Bcount;
```

```
while (row<=5)
```

```
{
```

```
for (Scount=1; Scount<row; Scount++)
```

```
{
```

```
printf(" . ");
```

```
}
```

```
for (Acount=0; Acount<=(rowcount/2); Acount++)
```

```
{
```

```
printf(" A ");
```

```
}
```

```
for (Bcount=0; Bcount<=(rowcount/2); Bcount++)
```

```
{
```

```
printf(" B ");
```

```
}
```

```
printf("\n");
```

```
rowcount = rowcount-2;
```

```
row = row+1;
```

```
}
```

```
return 0;
```

```
}
```


Q. (37) WAP to print factorial of given number.

→ #include <stdio.h>

int main ()

{

int N, fact=1, count=1;

printf("Enter a number\n");

scanf("%d", &N);

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

for (count=1; count<=N; count++)

{

fact = fact * count;

}

printf("Factorial of %d is : %d", N, fact);

return 0;

Q. (38) WAP to print factors of given number.

→ #include <stdio.h>

int main ()

{

int N;

printf("Enter a number\n");

scanf("%d", &N);

printf("Factors of %d are : ", N);

for (int i=1; i<=N; i++) {

if (num % i == 0) {

printf("%d ", i);

}

printf("\n");

return 0;

}

* Output:-

N=5, fact count count<=N
1 1 1 1 &=5

fact*count count+=1

1*1 = 1 4+1=5

2*1 = 2 4+2=6

3*2 = 6 6+3=9

4*3 = 12 9+4=13

5*4 = 20 13+5=18

6*5 = 30 18+6=24

7*6 = 42 24+7=31

8*7 = 56 31+8=39

9*8 = 72 39+9=48

10*9 = 90 48+10=58

11*10 = 110 58+11=69

12*11 = 132 69+12=81

13*12 = 156 81+13=94

14*13 = 182 94+14=108

15*14 = 210 108+15=123

16*15 = 240 123+16=139

17*16 = 272 139+17=156

18*17 = 306 156+18=174

19*18 = 342 174+19=193

20*19 = 380 193+20=213

21*20 = 420 213+21=234

22*21 = 462 234+22=256

23*22 = 506 256+23=279

24*23 = 552 279+24=303

25*24 = 600 303+25=328

26*25 = 650 328+26=354

27*26 = 702 354+27=381

28*27 = 756 381+28=409

29*28 = 810 409+29=438

30*29 = 870 438+30=468

31*30 = 930 468+31=499

32*31 = 992 499+32=531

33*32 = 1064 531+33=564

34*33 = 1140 564+34=598

35*34 = 1220 598+35=633

36*35 = 1302 633+36=669

37*36 = 1380 669+37=706

38*37 = 1464 706+38=744

39*38 = 1552 744+39=783

40*39 = 1640 783+40=823

41*40 = 1732 823+41=864

42*41 = 1824 864+42=906

43*42 = 1916 906+43=949

44*43 = 2008 949+44=993

45*44 = 2100 993+45=1038

46*45 = 2196 1038+46=1084

47*46 = 2292 1084+47=1131

48*47 = 2392 1131+48=1179

49*48 = 2496 1179+49=1228

50*49 = 2590 1228+50=1278

51*50 = 2692 1278+51=1329

52*51 = 2796 1329+52=1381

53*52 = 2892 1381+53=1434

54*53 = 2990 1434+54=1488

55*54 = 3092 1488+55=1543

56*55 = 3196 1543+56=1599

57*56 = 3292 1599+57=1656

58*57 = 3390 1656+58=1714

59*58 = 3492 1714+59=1773

60*59 = 3590 1773+60=1833

61*60 = 3692 1833+61=1894

62*61 = 3792 1894+62=1956

63*62 = 3890 1956+63=2019

64*63 = 3992 2019+64=2083

65*64 = 4090 2083+65=2148

66*65 = 4192 2148+66=2214

67*66 = 4290 2214+67=2281

68*67 = 4392 2281+68=2349

69*68 = 4490 2349+69=2418

70*69 = 4592 2418+70=2488

71*70 = 4690 2488+71=2559

72*71 = 4792 2559+72=2631

73*72 = 4890 2631+73=2704

74*73 = 4992 2704+74=2778

75*74 = 5090 2778+75=2853

76*75 = 5192 2853+76=2929

77*76 = 5290 2929+77=3006

78*77 = 5392 3006+78=3084

79*78 = 5490 3084+79=3163

80*79 = 5592 3163+80=3243

81*80 = 5690 3243+81=3324

82*81 = 5792 3324+82=3406

83*82 = 5890 3406+83=3489

84*83 = 5992 3489+84=3573

85*84 = 6090 3573+85=3658

86*85 = 6192 3658+86=3744

87*86 = 6290 3744+87=3831

88*87 = 6392 3831+88=3919

89*88 = 6490 3919+89=4008

90*89 = 6592 4008+90=4198

91*90 = 6690 4198+91=4289

92*91 = 6792 4289+92=4381

93*92 = 6890 4381+93=4474

94*93 = 6992 4474+94=4568

95*94 = 7090 4568+95=4663

96*95 = 7192 4663+96=4759

97*96 = 7290 4759+97=4856

98*97 = 7392 4856+98=4954

99*98 = 7490 4954+99=5053

100*99 = 7592 5053+100=5153

101*100 = 7690 5153+101=5254

102*101 = 7792 5254+102=5356

103*102 = 7890 5356+103=5459

104*103 = 7992 5459+104=5563

105*104 = 8090 5563+105=5668

106*105 = 8192 5668+106=5774

107*106 = 8290 5774+107=5881

108*107 = 8392 5881+108=5989

109*108 = 8490 5989+109=6098

110*109 = 8592 6098+110=6208

111*110 = 8690 6208+111=6329

112*111 = 8792 6329+112=6441

113*112 = 8890 6441+113=6554

114*113 = 8992 6554+114=6668

115*114 = 9090 6668+115=6783

116*115 = 9192 6783+116=6909

117*116 = 9290 6909+117=7026

118*117 = 9392 7026+118=7144

119*118 = 9490 7144+119=7263

120*119 = 9592 7263+120=7383

121*120 = 9690 7383+121=7504

122*121 = 9792 7504+122=7626

123*122 = 9890 7626+123=7751

124*123 = 9992 7751+124=7875

125*124 = 10090 7875+125=8000

126*125 = 10192 8000+126=8126

127*126 = 10290 8126+127=8253

128*127 = 10392 8253+128=8381

129*128 = 10490 8381+129=8510

130*129 = 10592 8510+130=8640

131*130 = 10690 8640+131=8771

132*131 = 10792 8771+132=8903

133*132 = 10890 8903+133=9036

134*133 = 10992 9036+134=9170

135*134 = 11090 9170+135=9305

136*135 = 11192 9305+136=9441

137*136 = 11290 9441+137=9578

138*137 = 11392 9578+138=9716

139*138 = 11490 9716+139=9855

140*139 = 11592 9855+140=10005

141*140 = 11690 10005+141=10146

142*141 = 11792 10146+142=10288

143*142 = 11890 10288+143=10431

144*143 = 11992 10431+144=10575

145*144 = 12090 10575+145=10720

146*145 = 12192 10720+146=10866

147*146 = 12290 10866+147=11013

148*147 = 12392 11013+148=11161

149*148 = 12490 11161+149=11310

150*149 = 12592 11310+150=11460

151*150 = 12690 11460+151=11611

152*151 = 12792 11611+152=11763

153*152 = 12890 11763+153=11916

154*153 = 12992 11916+154=12070

155*154 = 13090 12070+155=12225

156*155 = 13192 12225+156=12381

157*156 = 13290 12381+157=12538

158*157 = 13392 12538+158=12696

159*158 = 13490 12696+159=12855

160*159 = 13592 12855+160=13015

161*160 = 13690 13015+161=13176

162*161 = 13792 13176+162=13348

163*162 = 13890 13348+163=13511

164*163 = 13992 13511+164=13675

165*164 = 14090 13675+165=13840

166*165 = 14192 13840+166=14006

167*166 = 14290 14006+167=14173

168*167 = 14392 14173+168=14341

Q) WAP to print whether is given number is prime or not?
 int n
 > #include < stdio.h >
 > int main()
 {
 int n, count = 1;
 printf("Enter a number above 2\n");
scanf("%d", &n);
for (int i = 2; i <= n / 2; i++)
{
if (n % i == 0)
{
count = 0;
break;
}
}
 if (count)
 {
 printf("%d is a prime number\n", n);
 }
 else
 {
 printf("%d is not a prime number\n", n);
 }
 return 0;
}
 Output:-
After entering number above 2
6
n is not a prime number.
 6 is divisible by 2

1. 2 <= 6/2 : 2 <= 3, 2 <= 0 : break
 2. 3 <= 6/2 : 3 <= 2, 3 <= 0 : break
 3. 4 <= 6/2 : 4 <= 1, 4 <= 0 : break
 5. 5 <= 6/2 : 5 <= 1, 5 <= 0 : break
 6. 6 <= 6/2 : 6 <= 0 : break
 7. 7 <= 6/2 : 7 <= 0 : break

Q10) WAP to print reverse of a given number.

→ #include <stdio.h>

```

int main()
{
    int n, rev=0;
    printf("Enter a number(n)");
    scanf("%d", &n);
    while(n>0)
    {
        rev = (rev*10)+(n%10);
        n = n/10;
    }
    printf("Reversed number: %d\n", rev);
    return 0;
}

```

* Output:-

Enter a number

n= 2 3 4 5

n > 0 item 2

2 3 4 5 2055>0, 5 0*10+5=5

23 4 23 450 4 5*10+4=54

23 23 23 23 3 54*10+3=543

2 2 2 2 2 543*10+2=542

0 0 0 0 0 0 loop terminates.

rev= 5432

0 0 0 0

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5432</p

(a) Write a program to find GCD of two numbers.

```
#include <stdio.h>
int main()
{
    int n1, n2, i, gcd;
    printf("Enter any two numbers\n");
    scanf("%d%d", &n1, &n2);
    for (i = 1; i <= n1 && i <= n2; i++)
    {
        if (n1 % i == 0 && n2 % i == 0)
            gcd = i;
    }
    printf("GCD of two numbers %d and %d is %d", n1, n2, gcd);
    return 0;
}
```

* Output:-

Enter any two numbers
25
30
GCD of two numbers
25 and 30 is 5.

Q. Write a program to check whether the given number is palindrome or not.

(b) WAP to check whether the given number is palindrome or not.

```
#include <stdio.h>
int main()
{
    int n, num, rev = 0;
    printf("Enter a number\n");
    scanf("%d", &num);
    n = num;
    while (n != 0)
    {
        rev = rev * 10 + n % 10;
        n = n / 10;
    }
    if (num == rev)
        printf("%d is palindrome\n", num);
    else
        printf("%d is not palindrome\n", num);
}
```

* Output:-

Enter a number
5295
5295 is palindrome.

Date: _____

Page No.: _____

Q1. (Q4) WAP to print bill of shopping items, quantity and unit price to be entered.

→ #include <stdio.h>

```

int main()
{
    int i=0, count=0, n, total=0;
    printf("Enter the no. of items\n");
    scanf("%d", &n);
    while (i<n)
    {
        int price[100], quantity[100];
        int c=i;
        int tempPrice = price[c]*quantity[c];
        total = total+tempPrice;
        printf("In shopping list : ");
        printf("In Item %d - price : %d, Quantity : %d, Total : %d\n",
            i+1, p[c], q[c], tempPrice);
        i++;
    }
    printf("Total cost : %d\n", total);
    return 0;
}

```

* Output:-

Enter the no. of Items: 3

Shopping list:

Item 1 - price: 10, Quantity: 2, Total: 20

Item 2 - price: 20, Quantity: 4, Total: 80

Item 3 - price: 8, Quantity: 3, Total: 24

Total cost: 124.

Q) WAP to print a 4bit BCD of a number.

#include <stdio.h>

int main()

{
int decimal=0, weight=1, rem, binary;

printf("Enter a binary number\n");

scanf("%d", &binary);

while(binary!=0)

{

rem = binary % 10;

decimal = decimal + rem * weight;

binary = binary / 10;

weight = weight * 2;

}

printf("The decimal value is : %d\n", decimal);

return;

.

Output:-

Enter a binary num

binary = 1001

The decimal value is 9.

Explanation:-

binary = 1001, decimal = 0, weight = 1 (while binary != 0).

$$\begin{aligned} \rightarrow \text{rem} &= 1001 \% 10 & \text{dec} &= \text{dec} + \text{rem} \times \text{weight} & b &= b \% 10 \\ &= 1001 \% 10 = 1 & &= 0 + 1 \times 1 = 1 & &= 1001 \% 10 = 100 \\ &\rightarrow \text{rem} && & &= 100 \% 10 = 10 \\ &= 100 \% 10 = 0 & & & &= 10 \% 10 = 1 \\ &\rightarrow \text{rem} && & &= 1 \% 10 = 0 \\ &= 10 \% 10 = 0 & & & &= 1 \% 10 = 1 \\ &\rightarrow \text{rem} && & &= 1 \% 10 = 0 \\ &= 1 \% 10 = 1 & & & &= 1 \% 10 = 1 \end{aligned}$$

Terminates.

$$\begin{aligned} \text{weight} &= \text{weight} \times 2 & & (100 = 0) \\ &= 1 \times 2 = 2 & & \\ &= 2 \times 2 = 4 & (100 = 0) & \\ &= 4 \times 2 = 8 & (100 = 0) & \\ &= 8 \times 2 = 16 & (100 = 0) & \\ & & & \times \end{aligned}$$

$$\begin{array}{r} 1 \quad 0 \quad 0 \quad 1 \\ \times \quad 2^3 \quad 2^2 \quad 2^1 \quad 2^0 \\ \hline 8 \quad + \quad 2 \quad 1 \\ \hline = 9. \end{array}$$