within a range.

: ");

* : ");

Q Write a Program to Print all numbers (natural) from 1 to n. using loop.

```
# Include <stdio.h>
 int main() {
 int i, j, max ;
 Printf ("Enter maximum number : ");
 scanf ("%d", &max);
 for (i=1 ; i<=max ; i++) {
 Printf ("%d ", i);
 }
 return 0;
 }
```

Output

```
Enter maximum number : 7
1 2 3 4 5 6 7
```

Q WAP in C to Print all odd numbers bet^n 1 to 100.

```
# include <stdio.h>
 int main () {
 int i, n=100;
 for (i=1 ; i<=100; i++) {
 if (i%2 != 0)
 Printf ("%d ", i);
 }
 return 0;
 }
```

Q WAP to Print the Prime numbers within a range.

```
# include <stdio.h>
int main( )
{
  int i, j, min, max, count ;
  Printf (" Enter minimum number : ");
  Scanf ("%d", &min);
  Printf ("Enter maximum number : ");
  Scanf ("%d" &max);
  for (i=min ; i<=max ; i++){
      count = 0 ;
   for (j=1 ; j<=i ; j++){
     if (i%j == 0){
        count ++ ;
      }
     if (count == 2)
     Printf ("%d ", i);
   }
   return 0 ;
  }
```

output

Enter minimum number : 5

Enter maximum number : 22

5 7 11 13 17 19

```
#include <stdio.h>
int main() {
int n, sum, rd;
printf ("Enter a number :");
scanf ("%d", &n);
sum = 0;
rd = 0;
while (n != 0) {
rd = n%10;
sum = sum + rd;
n = n/10;
}
printf ("The sum of digits is %d", sum);
return 0;
}
```

Output

Enter a number : 593

The sum of digits is 17.

2 WAP in C to find Power of a number using for loop.

```
#include <stdio.h>
int main() {
int a,b,i,n=1;
printf (" Enter base : ");
scanf ("%d", &a);
```

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 61 63 65 67 69 71 73 75 77
79 81 83 85 87 89 91 93 95 97 99

Q WAP in c to count number of digits in a number.

```
# include <stdio.h>
 int main () {
 int i, n, count = 0;
 Printf ("Enter a number :");
 scanf ("%d", &n);
 while (n != 0) {
  n /= 10 ;
   count ++ ;
  }
  Printf ("The digits of number is %d", count);
  return 0;
 }
```

Output

Enter a number : 269
The digits of number is 3.

Q WAP in c to calculate sum of digits of number

```
#include <stdio.h>
#include <math.h>
int main() {
int principal, time;
float rate, amount, ci, si;
Printf ("Enter Principal value : ");
scanf ("%d", &Principal);
Printf ("Enter Annual rate : ");
scanf ("%f", &rate);
Printf ("Enter time in years : ");
scanf ("%d", &time);
 si = (Principal * rate * time) / 100;
Printf ("simple Interest is %f", si);
amount = Principal * Pow (1+ rate/100), time);
  Ci = amount - Principal;
Printf ("Compound Interest is %f", ci);
 return 0;
 }
```

OUTPUT

Enter Principal value :

Enter Annual rate :

Enter time in years :

Simple Interest is

Compound interest is

1. WAP to identify a year as a leap year using ternary operators.

Implementation

```
#include <stdio.h>
int main()
{
    int y;
    Printf ("Enter the year :");
    scanf ("%d", &y);
    ((y%4==0 && y%400==0)) || (y%100!=0))?
    Printf ("leap year") : Printf ("Not leap year");
    return 0;
}
```

output 1 Enter the year 1800
Not leap year

output 2 Enter the year 2020
leap year

2. WAP to identify a year as a leap year using nested loops.

Implementation

```
#include <stdio.h>
int main()
{
    int y;
    Printf ("Enter year");
    Scanf ("%d", &y);
```

```
if (y%4 == 0) {
  if (y%400 == 0 || y%100 != 0)
    printf ("leap year"); }
else printf ("not leap year");
return 0;
}
```

output 1 Enter year 2000
leap year

(3) WAP to find sum of first 10 numbers. using Ref.

```
# include <stdio.h>
int main ()
{ int i, sum;
  int sum = 0;
  for (i=1; i<=10; i++) {
    sum = sum + i; }
  printf ("%d", sum);
return 0;
}
```

output - 55

Q WAP to find Simple Interest and Compound Interest. Take the Principal, rate & time as input from user.

(iv)

```
# include <stdio.h>
  int main ()
{
  int i,j ;
  for (i=0 ; i<=4 ; i++){
  for (j=0 ; j<=4 ; j++){
  if (j< n-i)
  Printf (" ");
  else
  Printf ("*");
  }
   Printf ("\n"); }
   return 0;
  }
```

(v)

```
# include <stdio.h>
  int main ( ) }
  int i,j ;
  for (i=1; i<=4; i++){
  for (j=1; j<=i ; j++){
   Printf ("*");
  }
   Printf ("\n");
  }
   return 0;
  }
```

Q. WAP to input the 3 sides of triangle & print its corresponding type.

```
else
Printf ("Not a Prime number");
return 0;
}
```

Output

```
Enter a number : 41
It's a Prime number.
```

Q WAP in C to check whether a number is armstrong number or not

```
#include <stdio.h>
  int main () {
  int n,n, c=0;
  Printf ("Enter the number : ");
  Scanf ("%d", &n);
  int k=n;
  while (n!=0) {
     n= n%10;
     c+= n*n*n;
     n/=10;
   }
  If (k==c)
 Printf ("It's an armstrong number.");
  else
 Printf ("It's not an armstrong number.");
 Return 0;
 }
```

Output

Enter the number : 675

It is not an armstrong number.

(9) write a c Program to Print alphabets from a to z using while loop.

```
# include <stdio.h>
  int main ( ) {
  char c = 'a' ;
  while ( c <= 'z' ) {
  Printf ("%c", c);
      c++ ;
  }
      return 0;
  }
```

Output

a b c d e f g h i j k l m n o p q r
s t u v w x y z

(10) write a c Program to Print Pascal Triangle upto n rows.

```
Printf ("Enter Power : ");
scanf ("%d", &b);
for (int i=1; i<=b; i++){
 n = n*a ;
}
Printf ("%d to the Power %d is %d", a,b,n);
return 0;
}
```

Output

Enter base : 3
Enter Power : 4

3 to the Power 4 is 81.

Q WAP in C to check whether a number is Prime number or not

```
#include <stdio.h>
 int main ( ) {
 int i, n, count = 0;
 Printf ("Enter a number : ");
 Scanf ("%d", &n);
  for (i=1; i<=n; i++){
    if (n%i == 0)
     count ++;
   }
   if (count == 2)
  Printf ("It's a Prime number");
```

```
else
Printf (
return
}
Output
Enter
It's
```

Q WAP
numb

```
#inc
 int
 int
 Prin
 Scan
 int
 whi
 }
 if
 Print
 Pri
 Prin
 Retu
}
```

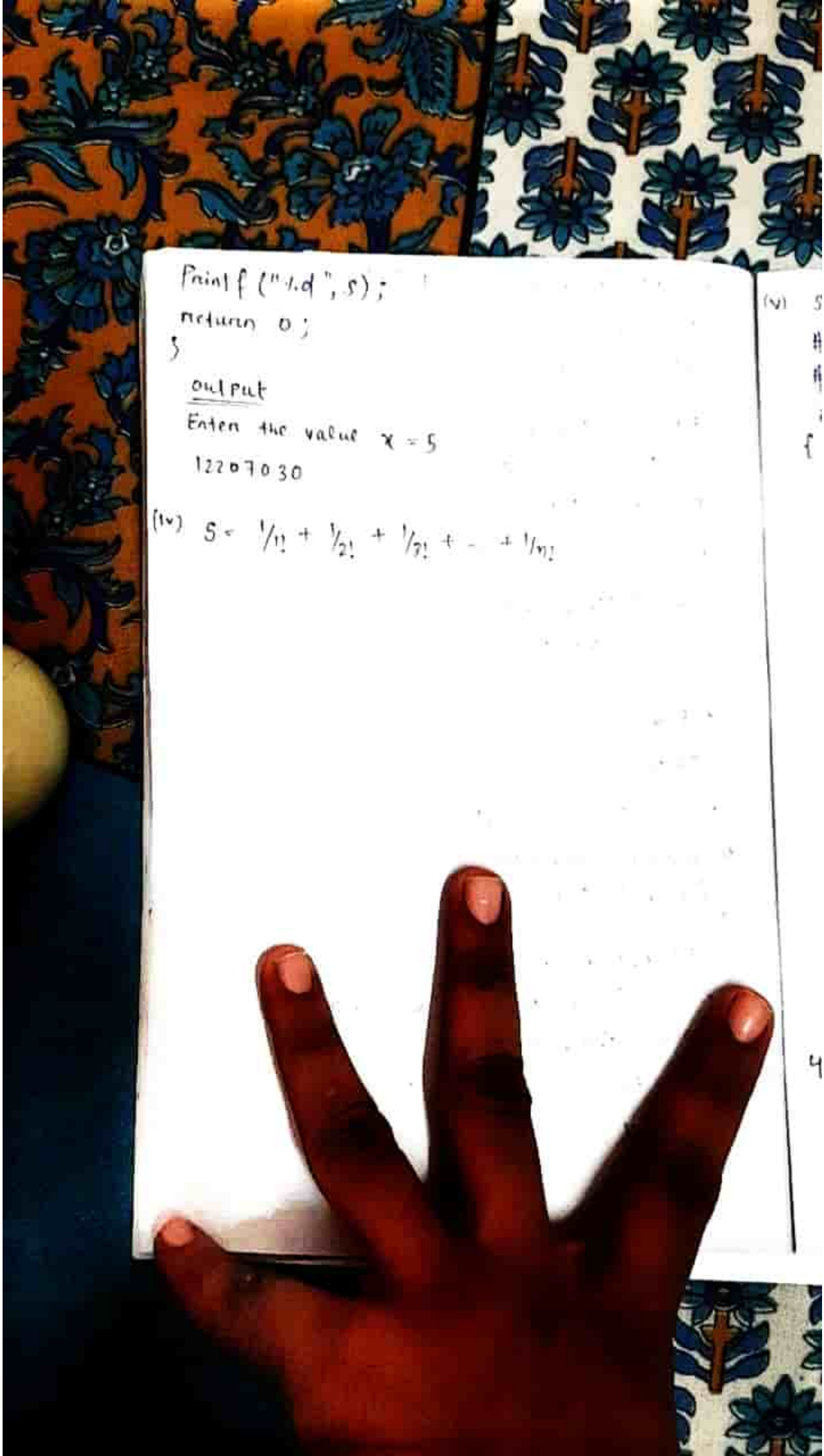
```
Printf ("%d", s);
return 0;
}
```

output

Enter the value x = 5

12207030

(iv) $S = 1/1! + 1/2! + 1/3! + \ldots + 1/n!$



(2) WAP to input the name of salesman & Total sales made by him. calculate & print the comission carried.

Total sales	Rate of comission
1 - 1000	3%
1001 - 4000	8%
4001 - 6000	12%
6001 - above	15%

```
# include <stdio.h>
int main ()
{
  char name [] = " ";
  float S, C ;
  Printf (" Enter the names and sales man
     of the salesman");
  scanf ("%.S %f", &name, &S);
  if (S>0 && S<=4000)
   C = (3 * S)/100 ;
  else if ( S>1000 && S<=4000)
    C = (8* S)/100;
  else if (S>4000 && S<=6000)
  C=(12* S)/100;
  else if (S> 6000)
   C = (15* S)/100;
```

```
Printf ("The comission of %s is %f", name, c);
return 0;
```

Out put

Enter the name and sales of the salesman :
George 5078
the comission of George is 609.359985.

3. WAP to Print following series

(i) $S = 1 + 1/2 + 1/3 + \dots + 1/10$

```
# include <stdio.h>
int main ()
{
int i;
float q=0, s=0;
for (i=1; i<=10; i++){
  q = 10/i ;
  s += q ;
}
  Printf ("%f", s);
  return 0;
}
```

output

Q WAP in C to Print the following Pattern

(i)
```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

```
#include <stdio.h>
int main()
{
  int i,j;
  for(i=1;i<6;i++){
  for(j=1;j<=i;j++){
    Printf("%d",i);
  }
    Printf("\n");
  }
  return 0;
}
```

(ii)
```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

```
#include <stdio.h>
int main()
{
  int i,j;
  for(i=1;i<=5;i++){
  for(j=1;j<=5;j++){
    Printf("%d",j);
  }
    Printf("\n");
  }
```

(iii)
```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

```
#include <stdio.h>
int main(){
  int i,j,k=1;
  for(i=1;i<=5;i++){
  for(j=1;j<=5;j++){
    k++;
  }
  Printf("\n");
  }
  return 0;
}
```

(iv)

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

(v)

Q

```c
# include <stdio.h>
int main ( )
{
 Int x, y, z ;
 Printf (" Enter three sides of triangle : ");
 Scanf ("%d %d %d", &x, &y, &z);
 If ( x*x = y*y + z*z || y*y = x*x + z*z ||
    z*z = x*x + y*y)
   Printf ("it's a right angle triangle");
   else if (x==y && y==z)
   Printf (" Equilateral triangle");
   else if (x!=y && y!= z && z!=x)
   Printf ("scalen triangle");
   else
    Printf ("isosceles triangle");
    return 0;
 }
```

output

Enter three sides of triangle : 6 8 10
it's a right angle triangle

```
Printf ("enter the digit");
scanf ("%d", &d);
  c++;
  n/= 10;
}
Printf ("the frequency of %d is %d", d, c);
return 0;
}
```

output

enter the number 556456

enter the digit 6

the frequency of 6 is 2.

(v) $S = 1 + x + \frac{x^2}{2} + \ldots + \frac{x^n}{n}$

```
# include <stdio.h>
# include <math.h>
int main ( )
{
  int x, n, i ;
  float S = 0 ;
  Printf ("Enter the value of x : ");
  Scanf ("%d", &x);
  Printf ("enter the value of n : ");
  Scanf ("%d", &n);
  for (i=1 ; i<=n ; i++){
   S += Pow (x,i)/i ;
  }
    Printf ("%f", S+1);
   return 0 ;
  }
```

Output

Enter the value of x : 2
enter the value of n : 3

7.666667

4. write a C Programme to Print fibonacci Series

```
# include <stdio.h>
  int main ( )
{
  int m=0, n=1, x, i, j;
  Printf ("enter the number of elements : ");
  scanf ("%d", &x);
  Printf ("0 1 1");
  for (i=1; i<=x-3 ; i++) {
  c = m+n;
   m = n;
   n = c;
   Printf ("%d", m+n);
  }
   return 0;
  }
```

output

enter the number of elements : 6

0, 1 1 2 3 5

(5) WAP in C to find frequency of each digit in given number.

```
# include <stdio.h>
  int main ( )
{
   int n, r, d, c;
   Printf (" enter the number");
   scanf ("%d", &n);
```

is %f " name, c);

a salesman :

609-35 9985.

(ii) $P = (1*2) + (2*3) + \ldots + (9*10)$

```
# include <stdio.h>
  int main ( )
{
  int q = 0, i, P = 0;
  for (i=1; i<=10; i++) {
  q = i * (i+1) ;
  P += q ;
 }
  Printf ("%d", P);
  return 0 ;
}
```

Out put-

330

(iii) $S = x + x^2 + \ldots + x^{10}$

```
# include <stdio.h>
  int main ( )
{
  int x, i, n=1, S = 0;
  Printf ("enter the value of x : ");
  Scanf ("%d", &x);
  for (i=1; i<=10; i++) {
   n *= x;
   S += n;
  }
```