

# Assessment - 1

## C Level 1

- ① Get a number from the user, add 2 to that number, and print the result.

Sol #include <stdio.h>

```
int main()
```

```
{
```

```
    int a;  
    printf("Enter the number");  
    scanf("%d", &a);
```

```
a = a + 2;
```

```
printf("Result = %d", a);
```

```
return 0;
```

```
}
```

- ② Get a number from the user, subtract 5 from that number, and print the result.

Ex input 45, output: 40

Sol

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

```
int main()
```

```
{ int a;
```

```
    printf("Enter the number");
```

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

```
a = a - 5;
```

```
printf("Result = %d", a);
```

```
return 0;
```

```
}
```

③ Get a number from the user, multiply 3 by that number, and print the result.

Ex input: 45 output: 135

Sol #include <stdio.h>

int main()

```
{ int a;  
    printf("Enter the number");  
    scanf("%d", &a);  
    a = a * 3;  
    printf("Result=%d", a);  
    return 0;  
}
```

④ Get a number from the user, divide the number by 6, and print the result.

Ex input: 45 output: 7

Sol #include <stdio.h>

int main()

```
{ int a;  
    printf("Enter the number");  
    scanf("%d", &a);  
    a = a / 6;  
    printf("Result=%d", a);  
    return 0;  
}
```

⑤ Get a number from the user, divide that number by 8 and print the remainder.

Ex. Input: 45 Output: 5

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

```
{ int a;  
printf("enter the number");  
scanf("%d", &a);  
a = a % 8;  
printf("Result = %d", a);  
return 0;  
}
```

⑥ Get a two digit number from the user and print the ones digit

Ex. Input: 45 Output: 5

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

```
{ int a;  
printf("enter the number");  
scanf("%d", &a);  
a = a % 10;  
printf("Result = %d", a);  
return 0;  
}
```

⑦ Get a two digit number from the user and print the Tens digit.

Ex

Input: 45      output: 4

Sol

```
#include <stdio.h>
int main()
{
    int a;
    printf("enter the value");
    scanf("%d", &a);
    a = a / 10;
    printf("Result=%d", a);
    return 0;
}
```

⑧ Get a three digit number from the user and print the one's digit.

Ex

Input: 456      output: 6

Sol

```
#include <stdio.h>
int main()
{
    int a;
    printf("enter the Number");
    scanf("%d", &a);
    a = a % 10;
    printf("Result=%d", a);
    return 0;
}
```

⑨ Get a three digit number from the user and  
print the hundred's digit

ex input: 456 output: 4

ex input: 456 output:

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

```
{ int a;
printf("Enter a number");
scanf("%d", &a);
a = a / 100;
printf("Result=%d", a);
return 0;
```

⑩ Get a three - digit number from the user and  
print the tens' digit

ex input: 456 output: 5

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

```
{ int a;
printf("Enter the number");
scanf("%d", &a);
a = a / 10;
a = a % 10;
printf("Result=%d", a);
return 0;
```



- ⑪ Get a three digit number from the user and print the sum of the digits

Ex

input: 562      output: 13

#include <stdio.h>

int main()

{ int num, a, b, c;

printf("Enter the number");

scanf("%d", &num);

a = num % 10;

num = num / 10;

b = num % 10;

c = num / 10;

printf("Sum=%d", a+b+c);

return 0;

- ⑫ Get a two digit number from user and print the reverse of the number.

Ex    input: 56      output: 65

#include <stdio.h>

int main()

{ int num, a;

printf("Enter a number");

scanf("%d", &num);

a = (num % 10) \* 10;

num = num / 10

a = a + num;

printf("Reverse=%d", a);

return 0;

}

③ Get a three digit number from the user and print the reverse of the number.

Ex Input: 561      Output: 165

Sol

```
#include <stdio.h>
int main()
{ int num, a,b,c;
    printf("enter a number");
    scanf("%d", &num);
    a = (num / 100) * 100;
    num = num / 10;
    b = (num / 10) * 10;
    c = num / 10;
    a = a + b+c;
    printf("Reverse=%d", a);
    return 0;
}
```

④ Get a four digit number from user and only reverse the first two digits of the number, then print the number.

Ex Input: 9561      Output: 9516

Sol #include <stdio.h>

int main()

```
{ int num, a,b,c;
    printf("enter its number");
    scanf("%d", &num);
    a = (num / 100) * 100;
    b = (num / 10) * 10;
    num = num % 100;
    c = num / 10;
    a = a + b+c;
    printf("Result=%d", a);
    return 0;
}
```

⑯ Get a two digit number from the user, make the one's digit 0, then print it.

Ex Input = 95      output = 90.

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

```
{ int num, a;  
    printf("Enter a number");  
    scanf("%d", &num);  
    a = (num / 10) * 10;  
    printf("Result = %d", a);  
    return 0;  
}
```

---

⑰ Get a two digit number from the user & make the Tens digit is 1, and then print it.

Ex Input = 95      output = 15

Sol #include <stdio.h>  
int main()  
{ int num, a;  
 printf("Enter the number");  
 scanf("%d", &num);  
 a = (num / 10) + 10;  
 printf("Result = %d", a);  
 return 0;  
}

① Get a three digit number from the user, make the digit 2, and then print it.

$$\text{Input} = 695 \quad \text{Output} = 692$$

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

50 int main()

{ int num, Q; }

`printf("Enter a number");`

```
scanf("%d", &num);
```

$a = ((num / 10) * 10) + 2;$

```
printf("Result = %.d", a);
```

primitive means, - , *Leiden* 1894

return o;

卷之三

1) Get a number from user and subtract 5 from that number if the number is odd, then print the result  
do not use "if"

$$\text{Ex input} = 695 \quad \text{o/p} = 690$$

$$-182 \qquad b/p = 182$$

#include <stdio.h>

int mains()

{ int a num;

```
printf("enter a number ");
```

```
scanf("%d", &num);
```

$a = (\text{num} \% 2 == 0) ? \text{printf}(\%d", a) : \text{printf}(\%d", a - 1),$

$\alpha \equiv \text{v}_0$

YELUM 6;

⑯ Get a number from the user and subtract 5 from that number if the number's tens position digit is odd, then print the result. Do not use "If"

Ex       $i/p = 685 \quad o/p = 685$   
                 $= 89172 \quad o/p = 89167$

Sol

```
#include <stdio.h>
int main()
{ int a, number;
  printf("Enter a number");
  scanf("%d", &number);
  a = number / 10;
  a = number % 10;
  b = (a % 2 == 0) ? printf("%d", number) : printf("%d", number - 5);
  return 0;
}
```

⑰ Get a two digit number from user and subtract 5 from that if the sum of the digits of the number is odd, then print the result. Do not use "If"

Ex      input: 95      o/p = 95  
                : 72      o/p = 67

Sol:

```
#include <stdio.h>
int main()
{ int number, a, b;
  printf("Enter the number");
  scanf("%d", &number);
  a = number / 10;
  b = (number / 10) + a;
  a = (a % 2 == 0) ? printf("%d", number) : printf("%d", number - 5);
  return 0;
}
```

⑦ Get a Three digit number from the user and subtract five  
from that number if one's digit number and 100's digit  
number are odd then print the result. do not use  
"if"

$$\text{Ex} \quad i/p = 795 \quad o/p = 790 \\ \qquad \qquad \qquad = 372 \quad o/p = 372$$

S1 #include <stdio.h>  
int main()

```

{ int num, a, b;
printf("Enter a number "); // Prints "Enter a number "
scanf("%d", &num); // Stores user input in num

a = num / 10; // Divides num by 10
b = num % 100; // Divides num by 100
a = (a % 2 == b % 2) ? printf("%d", number) : printf("%d", number);

return 0;
}

```

3) Get a three digit number from user. If the sum of its digits is less than 10, then print the sum, otherwise add the digits of the sum. If the sum of the digits is less than 10, then print the sum, otherwise adds the digits of the sum and print the sum.

Note The result should always be a single digit only.

$$\underline{8K} \quad i/p = 122 \quad o/p = 6 \\ \quad \quad \quad = 149 \quad . \quad = 5$$

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

int main()

```
{ int num1, a, sum1, sum2, sum3 }
```

printf(" enter the number");

```
scanf("%d", &num);
```

$$a = \text{num}1 \% 10$$

Q7 the numi / 10/

$$a += (\text{num1} / 10) + (\text{num1} \% 10)$$

$$\text{Sum} = a$$

$$a = \text{sum}(\%10)$$

$$\text{Sum2} = (\text{Sum1}/10) + a$$

$$a = \text{sum}2 \% 10;$$

$$\text{sum}_3 = (\text{sum}_2 / 10) + a$$

```

a = (sum1 < 10) ? printf("%d", sum1) : ((sum1 < 10) ?
    printf("%d", sum2) : ((sum3 < 10) ? printf("%d", sum3) : 1))

return 0;
}

```

- (23) Get a three digit number from the user and make its tens digit as 0, then print it.

Ex      i/p = 695      o/p = 605

Sol      `#include <stdio.h>`

`int main()`

{ `int num, a;`

`printf("enter a number");`

`scanf("%d", &num);`

$a = ((num / 100) * 100) + (num \% 10);$

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

`return 0;`

- (24) Get a four digit number from user and only reverse the last two digits of the number, then print the number.

Ex      i/p = 9561      o/p = 5961

Sol      `#include <stdio.h>`

`int main()`

{ `int num, a, b;`

`printf("enter the number");`

`scanf("%d", &num);`

$a = num \% 100;$

$b = num / 100;$

$b = (num / 10) * 100 + (num \% 10) * 1000;$

$b = a;$

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

`return 0;`

}

① Get a two digit number from the user and prints the sum of its digits

Ex i/p = 56 o/p = 11.

Sol #include <stdio.h>

int main()

{ int num;

printf("Enter a number");

scanf("%d", &num);

num = (num % 10) + (num / 10);

printf("Result=%d", num);

return 0;

### Assessment - 2

Note

Don't use if, for, while, arrays, pointers, strings etc.

### C Level 2

① Get a number from the user and check if the number equals 50. If yes, then print 1, otherwise print 0.

Ex

i/p = 50, o/p = 1

i/p = 45, o/p = 0

Sol

#include <stdio.h>

int main()

{ int num;

printf("Enter the number");

scanf("%d", &num);

num = (num == 50)? printf("%d", 1): printf("%d", 0);

return 0;

```
a = (sum1 < 10) ? printf("%d", sum1) : ((sum1 < 10) ?  
printf("%d", sum2) : ((sum3 < 10) ? printf("%d", sum3) : 1))  
return 0;
```

- (23) Get a three digit number from the user and make its tens digit as 0, then print it.

Ex      i/p = 695    o/p = 605

Sol      #include <stdio.h>

int main()

{ int num, a;

printf("Enter a number");

scanf("%d", &num);

a = ((num / 100) \* 100) + (num % 10);

printf("%d", a);

return 0;

- (24) Get a four digit number from user and only reverse the last two digits of the number, then print the number.

Ex      i/p = 9561    o/p = 5961

Sol      #include <stdio.h>

int main()

{ int num, a, b;

printf("Enter the number");

scanf("%d", &num);

a = num / 100;

b = num / 100;

b = (num / 10) \* 100 + (num % 10) \* 1000;

b = a;

printf("%d", b);

return 0;

3



① Get a two digit number from the user and print the sum of its digits

Ex i/p = 56 o/p = 11.

Sol #include <stdio.h>

```
int main()
{ int num;
    printf("Enter a number");
    scanf("%d", &num);
    num = (num%10) + (num/10);
    printf("Result=%d", num);
    return;
```

---

### Assessment - 2

Note don't use if, for, while, arrays, pointers, strings etc.

### C Level 2

① Get a number from the user and check if the number equals 50. if yes, the print 1, otherwise, print 0.

Ex i/p = 50 , o/p = 1  
i/p = 45 , o/p = 0

Sol #include <stdio.h>

```
int main()
{ int num;
    printf("Enter the number");
    scanf("%d", &num);
    num = (num==50)? printf("%d", 1): printf("%d", 0);
    return;
```

② Get a number from the user and check if the number is not equal to 50, if yes, then print 1; otherwise print 0

Ex i/p : 50 o/p = 0

Sol #include <stdio.h>  
int main()  
{ int num;  
printf("enter a number");  
scanf("%d", &num);  
num(num == 50) ? printf("%d", 1) : printf("%d", 0);  
return 0;  
}

③ Get a number from the user and check if the number is less than 50, if yes, then print 1; otherwise print 0

Ex i/p = 45, o/p = 1.

Sol #include <stdio.h>  
int main()  
{ printf("enter a number");  
scanf("%d", &num);  
num((num < 50)) ? printf("%d", 1) : printf("%d", 0);  
return 0;  
}

④ Get a number from the user and check if the number is greater than 50, if yes, then print 1; otherwise print 0.

Ex i/p = 45 o/p = 0

Sol #include <stdio.h>  
int main()  
{ printf("enter a number");  
scanf("%d", &num);  
num((num > 50)) ? printf("%d", 1) : printf("%d", 0);  
return 0;  
}

⑤ Get a number from the user and check if the number is less than or equal to 50. If yes, then print 1; otherwise print 0.

Ex    i/p = 45    o/p = 1

Sol

```
#include <stdio.h>
int main();
{ int num;
  printf("enter a number");
  scanf("%d", &num);
  num == (num == 50) ? printf("%d", 1) : printf("%d", 0);
  return 0;
}
```

⑥ Get a number from the user and check if the number is greater than or equal to 50, if yes, then print 1; otherwise, print 0.

Ex    i/p = 45    o/p = 0.

Sol

```
#include <stdio.h>
int main();
{ int num;
  printf("enter a number");
  scanf("%d", &num);
  num == (num >= 50) ? printf("%d", 1) : printf("%d", 0);
  return 0;
}
```

⑦ Get a two digit number from the user and check if the digit 0 and digit 1 are identical. If yes print 1; otherwise print 0.

Ex    i/p = 55    o/p = 1

Sol

```
#include <stdio.h>
int main();
{ int num;
  printf("enter a number");
}
```



```
scanf("%d", &num);
num = (num%10) == (num/10)? printf("%d", 1): printf("%d", 0);
return 0;
```

- 
- ① Get a two digit number from the user and check if the digits & digit 1 are not identical, if yes print 1 else print 0

Ex i/p = 55 o/p = 0

Sol #include <stdio.h>

```
int main()
```

```
{ int number;
```

```
printf("Enter a number");
```

```
scanf("%d", &num);
```

num = (num%10) != (num/10)? printf("%d", 1): printf("%d", 0);

```
return 0;
```

y

- 
- ② Get a two digit number from the user and check if the digit 0 is less than the digit 1. if yes print 1 else print 0.

Ex i/p = 54 o/p = 1

Sol #include <stdio.h>

```
int main()
```

```
{ int num;
```

```
printf("Enter a number");
```

```
scanf("%d", &num);
```

num = (num%10) < (num/10)? printf("%d", 1): printf("%d", 0);

```
return 0;
```

y

⑩ Get a two digit number from the user and check if its digit 1 is less than or equal to the digit 0, if yes print 1; otherwise, print 0.

ex i/p=66 o/p=1

```
#include <stdio.h>
int main()
{
    int num;
    printf("enter a number");
    scanf("%d", &num);
    num = (num/10) <= (num%10)? printf("%d", 1): printf("%d", 0);
    return 0;
}
```

⑪ Get a four digit number from the user and check if the digit 1 and digit 0 are the same and if digit 1 and digit 0 are different. if yes, print 1; otherwise print 0

ex i/p=4988 o/p=1

```
#include <stdio.h>
int main()
{
    int num, a;
    printf("enter a number");
    scanf("%d", &num);
    a = num%10;
    num = num/10;
    a = (a == num%10)? printf("%d", 1): printf("%d", 0);
    return 0;
}
```



⑫ Get a four digit number from the user and check if the first 2 digits and last 2 digits are same. If yes, print 1; otherwise, print 0.

Ex

i/p = 1919 o/p = 1

Sol

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

```
int main()
```

```
{ int num;
```

```
printf("Enter a number");
```

```
scanf("%d", &num);
```

```
num = (num / 100) == (num / 100); printf("%d", o);
```

```
return 0;
```

3

### Assessment - 3 [use only if or else]

① Get a number from the user and check if the number equals 50 : if yes, then print "Success", otherwise print "Failure".

Ex

i/p = 50 o/p = Success

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

```
int main()
```

```
{ int num;
```

```
printf("Enter the number");
```

```
scanf("%d", &num);
```

```
if (num == 50)
```

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

```
y
```

```
else printf("Failure");
```

```
return 0;
```

3

② Get a number from the user and check if the number is less than or equal to 50, if yes, then print "success" otherwise, print "Failure".

ex i/p = 45 o/p = success

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

```
{ int num;  
printf("enter a number");  
scanf("%d", &num);  
if (num <= 50) printf("success");  
else printf("failure");  
return 0;
```

y

③ Get a two digit number from the user and check if the digit 0 and digit 1 are identical if yes, print "success" otherwise print "Failure".

ex i/p = 55 o/p = failure

sol #include <stdio.h>

int main()

```
{ int num;  
printf("enter a number");  
scanf("%d", &num);  
if ((num%10) == (num/10)) printf("failure");  
else printf("success");  
return 0;
```

y



④ Get a two-digit number from the user and check if the digit 1 is less than or equal to the digit 0, if yes print "success" otherwise print failure

Ex

$i/n = 66$  o/p = success

Sol

#include <stdio.h>

int main()

{ int num;

printf("Enter a number");

scanf("%d", &num);

if((num/10) <= (num%10)) printf("success");

else printf("failure");

return 0;

}

⑤ Get a four digit number from the user and check if the first 2 digits and last 2 digits are the same if yes, print success otherwise print failure

Ex  $i/n = 1919$  o/p = success

Sol

#include <stdio.h>

int main()

{ int num;

printf("Enter a number");

scanf("%d", &num);

if((num/100) == (num/100)) printf("success");

else printf("failure");

return 0;

}

Note don't use for, while, arrays, pointer, string etc.

### Template

```
#include < stdio.h>
int main()
{ int x;
// code
loop: if (x < 6)
{
    // code
    goto loop
}
```

- ④ write a loop program to print 1 to 5 on screen one by one.

Ex 1  
2  
3  
4  
5

Sol #include < stdio.h>

```
int main()
{ int x;
printf("Enter a number");
scanf("%d", &x);
int i=1;
loop: if(i <= x)
{
    printf("%d\n", i);
    i++;
    goto loop
}
return 0;
}
```

(2) Write loop program to print 5 to 1 one by one

One

Ex

```
#include <stdio.h>
int main()
{
    int x=5;
    loop: if(x>=1)
    {
        printf("%d\n", x);
        x--;
        goto loop;
    }
    return 0;
}
```

(3)

write a loop program to print sum of 1 to 5

Ex

```
#include <stdio.h>
int main()
{
    int sum=0, i=1;
    loop: if(i<=5)
    {
        sum = sum + i;
        i++;
        goto loop;
    }
    return 0;
}
```

(4) write a loop program to print sum of 6 to 1

A) 21

Sol

```
#include <stdio.h>
int main()
{
    int x=6;
    loop: if(x>=1)
    {
        sum = sum + x--;
        goto loop;
    }
}
```

⑤ Write a loop program to print odd numbers between 1 & 9.

Ex

1  
3  
5  
7  
9

Sol #include <stdio.h>

int main()

{ int x=1;

Loop: if ( $x \leq 9$ ) {

if ( $x \% 2 == 0$ )

{ printf("%d\n", x); }

}

x++;

goto loop;

y

return 0;

y

⑥ write a loop program to print the two digit odd numbers, who's sum of digits are 7.

Ex  
29  
43  
61

Sol #include <stdio.h>

int main()

{ int x=10, sum=0;

Loop: if ( $x \leq 99$ )

{

if ( $x \% 2 == 0$ )

{

sum = ( $x / 10$ ) + ( $x / 10$ );

if ( $sum == 7$ )

{

printf("%d\n", sum);

,

}

}

return 0;

}



7) write a loop program to print the sum of two digit odd numbers, whose ten's digit is 7.

A) Same as previous

8) write a program to get a number from user print the total number of digits in that numbers

Ex i/p = 123, 4 o/p = 4

i/p = 789 o/p = 3

Sol

```
#include<stdio.h>
int main()
{ int num, count=0;
  printf("enter a number");
  scanf("%d", &num);
  Loop: if(num!=0)
```

{ num=num/10;

count++;

goto loop;

printf("digit=%d", count);

return;

y

9) write a program to get a number from user and print the sum of all digits.

Ex i/p = 123456 o/p = 21  
- 678 o/p = 18

Sol

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

```
int main()
```

```
{ int num, sum=0;
```

printf("enter a number");

scanf("%d", &num);

Loop: if(num!=0)

{ sum+= num % 10;

num=num/10;

y goto loop;



```
printf("sum = %.d", sum);  
return 0;
```

- Q) write a program to get a number from user and print  
the reverse of that number.

Ex i/p = 1234 o/p = 4321

Sol #include <stdio.h>

```
int main()
```

```
{ int Rev=0, R, num; // Rev = reverse of num
```

```
printf("enter a number"); // num = num - taking input
```

```
scanf("%d", &num); // Rev = Rev * 10 + R
```

```
Loop: if (num != 0)
```

```
{ R = num % 10; // Rev = Rev * 10 + R
```

```
Rev = Rev * 10 + R; // Rev = Rev * 10 + R
```

```
num = num / 10; // num = num / 10
```

```
goto loop; // loop = loop + 1
```

y

```
printf("Reverse = %.d", Rev); // Rev = Rev + 1
```

```
return 0;
```

y

- Q) write a program to get a number from user  
and interchange the first and last digits and print  
the result.

Ex i/p = 12345 o/p = 52341

Sol #include <stdio.h>

```
#include <math.h>
```

```
int main()
```

```
{ int num;
```



```

printf("Enter a number\n");
scanf("%d", &num);

int last_digit = num % 10;
int digits_count = 0;
int temp = num;

Loop: if (temp != 0)
    { count++; digits_count++;
      temp = temp / 10;
      goto loop;
    }

int first_digit = num / (int)pow(10, digits_count - 1);
int without_first = num / pow(10, digits_count - 1);
int middle_part = without_first / 10;
int new_num = last_digit * (int)pow(10, digits_count - 1)
            + middlepart * 10 + first digit;
printf("number = %.d", new_num);
return;
}

```

(12) Write a program to get a number from user and if the last digit of the number is given even print the same number  
 → if its last digit is odd, then subtract 1 from the last digit and print the number (Note last digit msb)

Ex: I/p = 675, O/p = 575

Sol:

```

#include <csdio.h>
#include <math.h>
int main()
{
    int num;
    printf("Enter a number\n");
    scanf("%d", &num);
}

```



```

int digits = 0;
int temp = num;
loop: if (temp != 0)
    {
        digits++;
        temp = temp / 10;
        goto loop;
    }
int first_digit = num / (int) pow(10, digit_count - 1);
if (first_digit % 2 == 0)
{
    printf("number = %.d", num);
}
else {
    first_digit--;
    first_digit = first_digit * pow(10, digit_count - 1);
    int remain = num % (int) pow(10, digit_count - 1);
    int new = first_digit + remain;
    printf("Result = %.d", new);
    return;
}
return;

```

(13) Write a program get number from user print whether that number is prime or not.

Ex       $1/p = 3$        $0/p = \text{prime}$

Sol

```

#include <stdio.h>
int main()
{
    int num;
    printf("enter a number = ");
    scanf("%d", &num);

```



```

int prime = 1;
int x = 2;
loop: if (x < num)
    {
        if (num % x == 0) prime = 0;
        x++;
        goto loop;
    }
    y
    if (prime) printf(" prime");
    else printf(" Not prime");
    return 0;
}

```

### Assessment - 5

→ use "for statements"  
~~Note~~ don't use arrays, pointers, structures  
 Write a program to get a number from user, then print whether that is prime, and sum of digits is even or odd.

i/p = 59 o/p = prime & sum of digits is 14.

#include <stdio.h>

int main()

```

    int num=10;
    for(num=10; num<=100; num++)
    {
        sum = (num/10) + (num%10);
        if (sum == 14)
            printf(" sum=%d", sum);
        if (num%7 == 0)
            printf(" prime");
        else printf(" not prime");
    }
}

```



- ② write a program to get number from user  
print whether that number's first two digits are  
and third digit is prime.

Ex  $i/n = 359$   $o/p = \text{prime}$

```
Sol
#include <csdlib.h>
#include <math.h>
int main()
{ int count=0;
```

```
    int num;
```

```
    printf("Enter a number\n");
    scanf("%d", &num);
```

```
    int temp = num;
```

```
    for(;; temp = temp / 10)
```

```
    { count++
```

```
y
```

```
    int first = temp / (int) pow(10, count - 1);
```

```
    int second = temp / (int) pow(10, count - 2);
```

```
    second = second % 10;
```

```
    int prime1 = 1, prime2 = 1;
```

```
    if (first != 2){
```

```
        for (int i = 2; i < first; i++)
            if (first % i == 0)
                prime1 = 0;
```

```
y
```

```
        for (int j = 2; j < second; j++)
            if (second % j == 0)
                prime2 = 0;
```

```
        if (prime1 & prime2) printf("prime = %d\n", temp);
        else printf("not prime");
    }
    return 0;
}
```



④ write a program get number from user print the total number of two digit odd numbers in the number

Ex i/p = 987531 o/p = 4

Sol

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

```
int main()
```

```
{ int num;
```

```
printf("Enter a number");
```

```
scanf("%d", &num);
```

```
int count=0;
```

```
for( ; num!=0; num=num/10){
```

```
int digits = num%10;
```

```
if(digits%2==0) count++;
```

```
y = digits * 10;
```

```
printf("Total = %d", count);
```

```
return 0;
```

}

④ write a program get number from user print the total number of single digit perfect square numbers in the number

Ex i/p = 987531 o/p = 2

Sol

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

```
#include <cmath.h>
```

```
int main()
```

```
{ int num;
```

```
int check, count=0;
```

```
printf("Enter a number");
```

```
scanf("%d", &num);
```

```
for( ; num!=0; num=num/10)
```

```
{ check = num%10;
```

```
if( (int)sqrt(check) == (double)sqrt(check) )
```

```
{ count++;
```

```
y = num - "x.d", count);
```



⑤ Write a program get number from user print the total number of two digit perfect square numbers in As number.

Ex  $1/p = 364925 \quad 0/p = 4$

Sol

```
#include <stdio.h>
#include <math.h>
int main()
{
    int num;
    int check, cout = 0;
    printf("Enter a number:");
    scanf("%d", &num);
    for( ; num != 0 ; num = num / 10)
    {
        check = num % 100;
        if(sqrt((int)check) == (double)sqrt(check))
        {
            cout++;
        }
        printf("Result = %d", cout);
    }
    return 0;
}
```

⑥ Write a program to print biggest 4 digit number which is divisible by 7 6 9

Sol

```
#include <stdio.h>
int main()
{
    int num = 1111;
    int biggest = 0;
    for( ; num <= 9999 ; num++)
    {
        if( num % 7 == num % 9 ) biggest = num;
    }
    printf("big = %d", biggest);
    return 0;
}
```

(Q1)

```
#include <stdio.h>
int main()
{
    int upto=0;
    int num1=7;
    int num2=9;
    upto = num1 * num2;
    int Lcm;
    for( int i=2; i<=upto; i++)
    {
        if ((i%7==0) && (i%9==0))
            Lcm=i;
        break;
    }
    printf("Lcm=%d", (9999/Lcm)*Lcm);
}
```

Algorithm

take no 7 6 9

Lcm = 63

bigg =  $\left(\frac{9999}{63}\right) \times 63$ ,

- ① write a program to print the total count of numbers which are less than 100,000 and whose sum of digits is 14.

```
#include <stdio.h>
int main()
{
    int num=10;
    int count=0;
    for( ; num<100000; num++)
    {
        int sum=0;
        int temp=num;
        for( ; temp!=0; temp=temp/10)
        {
            sum=sum+temp%10;
        }
        if (sum==14) count++;
    }
    printf("Total=%d", count);
}
```



⑧ Write a program to get two numbers from user  
and print the HCF of those numbers.

sol #include <stdio.h>

int main()

{ int num1;

int num2;

printf("Enter two numbers ");

scanf("%d %d", &num1, &num2);

int HCF=0;

for( ; num1!=0 ; )

int a=num1;

int b=num2;

int temp,c;

for( ; b!=0 ; )

{ c =  $\frac{a}{b}$  ;

temp=b;

b=c;

a=temp

}

printf("HCF=%d", a);

y

## Assessment - 6

don't use arrays, pointers, strings  
or any if & while

- Q write a loop program to print the two digit odd numbers, whose sum of digits are 7

sol

```
#include <stdio.h>
int main()
{
    int num=10;
    int sum;
    while(num<=99)
    {
        if(num%2!=0)
        {
            sum= num/10 + num%10;
            if(sum==7) printf("%d",num);
        }
        num++;
    }
}
```

- Q write a program to get a n digit number from user  
print whether that numbers middle two digits (100s & 10's digit)  
are prime.

sol

```
#include <stdio.h>
int main()
{
    int num;
    printf("Enter number");
    scanf("%d", &num);
    int prime=1;
    num= num/1000;

    num= num/10;
    for(i=2; i<=sqrt(num); i++)
    {
        if(num%i==0) prime=0;
    }
    if(prime) printf("prime");
    else printf("Not prime")
```

### Assessment - 7

Note use function with not return values

- ① write a program to get a number from user and print the reverse of that number.

sol #include <stdio.h>

```
Void disp_Rev(int);  
int main()
```

```
{ int num;  
printf("Enter a number");  
scanf("%d", &num);  
disp_Rev(num);  
return 0;
```

```
}
```

```
Void disp_Rev(int a)
```

```
{ int Rev=0;  
while(a!=0)  
{ int Rem = a%10;  
Rev=Rev*10+Rem;
```

```
a=a/10;
```

```
}
```

```
printf("Reverse=%d", Rev);
```

```
}
```

- ② write a program to get two numbers from user and print the HCF of those numbers.

sol #include <stdio.h>

```
Void disp_HCF2(int, int);
```

```
int main()
```

```
{ int num1, num2;
```

```
printf("Enter a two numbers");
```

```
scanf("%d %d", &num1, &num2);
```

```
disp_HCF2(num1, num2);
```

```
return 0;
```

```
}
```



disp - HCF2( int a, int b)

{ while c b != 0 )

{ int temp = b;

b = a % b;

a = temp;

}

printf( " HCF = %d ", a );

}

### Assessment - 8

With return values

previous answer just add return variable

that's it

### Assessment - 9

Q) Get 5 numbers from user and print sum of all numbers.

Sol #include < stdio.h >

#include < stdio.h >

{ int a[5];

for ( int i=0; i <= 5; i++ )

{ printf( " enter a[%d] " ), i );

scanf( "%d", &a[i] );

}

for ( int i=0; i <= 5; i++ )

{ printf( "%d ", a[i] );

}



② Get 5 numbers from user and print the smallest number.

Sol #include <stdio.h>  
int main()  
{ int a[5];  
for(int i=0; i<5; i++)  
{ printf("Enter a[%d]: ", i);  
scanf("%d", &a[i]);  
}  
int small=a[0];  
for(int i=0; i<5; i++)  
{ if(a[i] < small) small=a[i];  
}  
printf("smallest = %d", small);  
}

③ Get 5 numbers from the user and print them in ascending order and print the same.

Sol #include <stdio.h>  
int main()  
{ int a[5];  
for(int i=0; i<5; i++)  
{ printf("Enter a[%d]: ", i);  
scanf("%d", &a[i]);  
}  
for(int i=0; i<5; i++)  
{ for(int j=0; j<i; j++)  
{ if(a[j] > a[j+1])  
{ int temp=a[j];  
a[j]=a[j+1];  
a[j+1]=temp; } } }

```
FOR (int i=0; i<5; i++)
{
    printf("%d\n", a[i]);
}
return 0;
}
```

Q) Get 5 numbers from user, remove the odd numbers and create a new array then print the same.

~~#include <stdio.h>~~

int main()

```
{ int a[5];
int b[5];
FOR (int i=0; i<5; i++)
{
    printf("Enter %d = ", i);
    scanf("%d", &a[i]);
}
```

```
int j=0;
FOR (int i=0; i<5; i++)
{
    if (a[i] % 2 == 0)

```

```
    {
        b[j]=a[i];
        j++;
    }
}
```

```
FOR (int i=0; i<=j; i++)
{
    printf("Even %d = %d\n", i, b[i]);
}
```

return 0;

}

⑤ Get 5 numbers from the user, remove the prime numbers, and create a new array, then print it same.

Sol #include <stdio.h>

int main()

{ int a[5];

int b[5];

FOR( int i=0; i<5; i++ )

{ printf("Enter %d = ");

scanf("%d", &a[i]);

}

int j=0;

int prime=1;

FOR( int k=0; k<5; k++ )

{ int temp=a[k];

FOR( int i=0; sqrt(temp); i++ )

{ if( temp % i == 0 )

{ prime=0;

break;

}

if( prime==0 )

{ b[j]=a[k];

j++;

}

int i=0;

FOR( int i=0; i<5; i++ )

while( b[i] != '\0' )

{ printf("%d ", b[i]);

i++;

return 0;

g

6) Get 5 numbers from the user, remove its prime numbers  
and create a new array, then print the same

sd

```
#include<stdio.h>
#include<math.h>
int main()
{
    int a[5];
    int b[5];
    for(int i=0; i<5; i++)
    {
        printf("Enter = %d", i);
        scanf("%d", &a[i]);
    }
    int prime = 1;
    int k=0;
    for(int i=0; i<5; i++)
    {
        int temp = a[i];
        for(int j=2; j<=sqrt(temp); j++)
        {
            if(temp % j == 0)
            {
                prime = 0;
                break;
            }
        }
        if(prime == 0)
        {
            b[k] = a[i];
            k++;
            prime = 1;
        }
    }
    for(int i=0; i<(k-1); i++)
    {
        printf("%d", b[i]);
    }
}
```

7) Get 5 numbers from the user reverse each number  
create a new array and print the sum of all  
numbers in the new array.

sd

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



```

int ac[5];
int b[5];
FOR( int i=0; i<5; i++)
{
    printf("Enter %d = ", i);
    scanf("%d", &ac[i]);
}
FOR( int i=0; i<5; i++)
{
    b[i] = Rev(ac[i]);
}
int sum=0;
FOR( int i=0; i<5; i++)
{
    sum+=b[i];
}
printf("sum=%d", sum);
int Rev( int a)
{
    int Reverse=0;
    while(a!=0)
    {
        int Rem=a%10;
        Reverse=Reverse*10+Rem;
        a=a/10;
    }
    return Reverse;
}

```

- ⑧ Get multiple numbers from the user and store them in an array, stop when the numbers is '0' print the number entered by the user, and print the sum of numbers.

```

#include <cs50.h>
int main()
{
}

```

```

Get / put a[10];
Put K<10; int k=0;
FOR(put, i=0; i<10; i++)
{
    printf("enter the element");
    int temp;
    scanf("%d", &temp);
    if (temp == 0) break;
    a[k] = temp;
    k++;
}
printf("total numbers = %d", k);
int sum = 0;
FOR( int i=0; i<k; i++)
{
    printf("%d ", a[i]);
    sum = sum + a[i];
}
printf("sum=%d", sum);

```

④ Get multiple numbers from the user and store them in an array, stop getting numbers when the numbers is 0, if 4 numbers are entered and the first and last numbers are equal, printf "success" else "failure"

Sol

Same above code upto total numbers printing  
after that

```

if (a[0] == a[k-1]) printf("success");
else printf("failure");

```

⑩ Get multiple int numbers from the user and store them in an array. Stop getting numbers when the number '0' if the total numbers is odd then print the middle number, otherwise print the average of the middle two numbers.

Sol Same code upto taking & checking zero.

```
if (c % 2 == 0)
{
    int avg = a[(K/2)] + a[(K/2)-1];
    printf("avg = %.d", avg);
}
else
{
    int temp = a[K/2];
    printf("%.d", Temp);
}
```

⑪ Get multiple numbers from the user and store them in an array. Stop getting numbers when the number is 0. Add each number's digits and put them in a new array and arrange the new array in ascending order and print same.

Sol upto taking & checking zero same code

```
for (int i=0; i<14; i++)
{
    int num = a[i];
    int sum = 0;
    while (num != 0)
    {
        sum = sum + num % 10;
        num = num / 10;
    }
}
```

$b[i] = \text{sum};$

8

For (int i=0; i< k; i++)

{ For (int j=0; j< i; j++) {

if ( $b[j] > b[j+1]$ )

{ last temp =  $b[j]$ ;

$b[j] = b[j+1]$ ;

$b[j+1] = \text{temp}$ ;

}

for (int i=0; i< k; i++)

{ printf("%d", b[i]); }

}

⑫ Adjust the carry in an integer array. i.e., convert  
the 2-digit number into single digits and add the  
carry to the next number.

30

#include <stdio.h>

int main()

{ int arr[] = { 10, 34, 58, 78, 13 };

for (int i=0; i<5; i++)

{ int num = arr[i];

int sum = 0;

while (num != 0)

{ int rem = num % 10;

sum += rem;

num /= 10;

if (sum > 9)



```

    {
        int temp = sum / 10;
        a[i] += sum / 10;
        a[i] = sum % 10;
    }
    else a[i] = sum;
}
if (a[n] > 9)
{
    a[n] = a[n] / 10;
}
for (int i=0; i<5; i++)
{
    printf("%d", a[i]);
}
return 0;

```

### Assessment - 10 (Don't use structures)

① Get an alphabet and print its ASCII value.

```

Sol
#include <stdio.h>
int main()
{
    char a;
    printf("Enter alphabet ");
    scanf("%c", &a);
    printf("%c ASCII val=%d", a, a);
}

```

② Get a single number and print its ASCII value.

```

Sol
#include <stdio.h>
int main()
{
    int a=1;
    printf("%c ASCII val=%d", a, a);
}

```

③ Get a string and print the same.  
#include <stdio.h>  
int main()  
{ int a[20];  
printf("Enter a string");  
scanf("%s", &a);  
printf("%s", a);  
}

④ Get a number as a string and print the integer value of the string

#include <stdio.h>  
#include <stdlib.h>  
int main()  
{ char a[10];  
scanf("%s", a);  
int b = atoi(a);  
printf("int = %d", b);  
return 0;

⑤ Get an integer and print it as a string

#include <stdio.h>  
#include <stdlib.h>  
int main()  
{  
int a;  
printf("Enter a num");  
scanf("%d", &a);  
char b[10];  
sprintf(b, "%d", a);  
printf("Enter str = %s", b);  
}

\* Get a string and find the length of the string

sol

```
#include  
int main()  
{  
    char a[ ] = "Amwar Amwar";  
    int count = 0;  
    while(a[count] != '\0')  
    {  
        count++;  
    }  
    printf("length=%d", count);  
}
```

\* Get a string of numbers up to 50 digits and validate the number.

sol

```
#include <stdio.h>  
int main()  
{  
    char a[51];  
    printf("enter a string upto 50 digits");  
    scanf("%s", a);  
    int prime_valid = 1;  
    for(int i = 0; i <= 50; i++)  
    {  
        if(a[i] < '0' || a[i] > '9')  
        {  
            prime = 0;  
            valid = 0;  
            break;  
        }  
    }  
    if(prime) printf("valid number");  
    else printf("not valid number");  
}
```

get a string of numbers up to 50 digits.

remove all leading zeros.

Sol

```
#include <stdio.h>
int main()
{
    char ac[50];
    char bc[50];
    printf("Enter a string up to 50 digits:");
    scanf("%50s", ac);
    int j=0;
    for(int i=0; i<50; i++)
    {
        if(ac[i]!='\0')
        {
            bc[j]=ac[i];
            j++;
        }
    }
    bc[j]='\0';
    printf("String=%s", bc);
}
```

---

\* Get a number up to 50 digits and Reverse it

Sol

```
#include <stdio.h>
#include <string.h>
int main()
{
    char ac[50];
    char b[50];
    printf("Enter a string upto 50:");
    scanf("%50s", ac);
    int start = 0;
    int end = strlen(ac) - 1;
    while(start <= end)
    {
        char temp = ac[start];
        ac[start] = ac[end];
        ac[end] = temp;
        start++;
        end--;
    }
}
```

a[8\*5] = temp;

}

printf(" Rev=%s");

}

\* Get a number string up to 50 digits and convert it to an integer array;

#include <stdio.h>

int main()

{ char a[50];

int b[50];

printf("Enter upto 50 digits");

scanf("%s", a);

for (int i=0; i<50; i++)

{ a[i] = a[i] - 48;

}

for (int i=0; i<50; i++)

{ printf("%d", a[i]);

}

\* Convert an integer array of up to 50

digits to a character array and print using

printf("%s", ...);

Sol.

#include <stdio.h>

int main()

{ int temp;

char a[50];

for (int i=0; i<50; i++)

{ printf("Rev=%s", i);

scanf("%d", &a[i]);

scanf("%d", &temp);

}

$a[50] = '10';$

printf("%c", a);

Assessment - 1)

use pointers

- ① Get a number from user and print the same  
change the value without directly changing it and  
print the same.

#include <stdio.h>

int main()

{ int a

int \*b = &a;

printf("Enter number: ");

scanf("%d", &a);

printf("Entered value = %d", a);

\*b = 10;

printf("Changed a = %d", a);

return;

- ② pass an integer array to a function and increment  
each array element inside the function

#include <stdio.h>

void inc(int a[], int);

void main()

{ int a[] = {1, 2, 3, 5};

int l = sizeof(a) / sizeof(a[0]);

inc(a, l);

for (int i=0; i<l; i++)

{

```

printf("%d\n", a[i]);
}
y
}

void inc(int *b, int len)
{
    printf();
    for (int i=0; i<length; i++)
    {
        *b = *b + 1;
        b++;
    }
}

```

③ write a loop program to print 1 to 5 one by one, write a function and print its result.

In a main function.

```

#include <stdio.h>
Void arrange-ascend(void);
Void main()
{
    arrange-ascend();
}

Void arrange-ascend()
{
    int a=1;
    for (a; a<=5; a++)
    {
        printf("%d\n", a);
    }
}

better for this
topic in this about

```

```

Void hello()
{
    int a=1;
    for (a; a<=5; a++)
    {
        printf("%d\n", a);
    }
}

Void main()
{
    void (*ptr)();
    ptr = &hello;
    ptr();
}

```

\* write a function to find the two digit odd numbers whose sum of digits is prime. Print the result in main function.

```

#ifndef include <stdio.h>
void find_2digit_odd_sum(int a, int b);
void main()
{
    int a[10];
    int count;
    find_2digit_odd_sum(a, &count);
    for (int i=0; i<count; i++)
        printf("%d", a[i]);
}

```

---

```

void find_2digit_odd_sum(int *a, int *b)
{
    *a=0;
    for (int i=10; i<=99; i++)
    {
        int tens = i/10;
        int ones = i%10;
        if ((i%2==0) && (sum==7))
        {
            *a=a+1;
            (*a)[*b]=i;
            (*b)++;
        }
    }
}

```

- ⑤ write a function to copy integers from one location to another location.

```

#ifndef include <stdio.h>
void memcpy(int *a, int *b, int size);
void main()
{
    int a[10]={1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
    int b[10];
    int size=10;
    memcpy(a, b, size);
}

```

```

for (int i=0; i<size; i++)
{
    printf("%d\n", b[i]);
}
}

void memcpy (int *s, int *t, int size)
{
    for (int i=0; i<size; i++)
    {
        D[i] = S[i];
    }
}

```

① write a function to copy a string to another

Sol

```

#include <csdio.h>
void strcpy (char *src, char *dst);
void strcpy (char *src, char *dst);

void main()
{
    char a[10] = "Anmol - Anmol";
    char b[10];

    strcpy(a, b);
    printf ("%s", b);
}

```

Void strcpy (char \*src, char \*dst) {

int i = 0;

while (\*src != '\0')

{

src

dst[i] = src[i];

} i++;

dst[i] = '\0';

}



① write a function to compare a set of ~~set~~ of integers.

print success or failure;

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

```
int memcomp(int *src, int *dst, int size);
```

```
void main()
```

```
{ int a[5]={1,2,3,4,5}; }
```

```
int b[5]={1,2,4,5};
```

```
int size=5;
```

```
if( memcomp(a, b, size) )
```

```
    printf("success");
```

```
else    printf("failure");
```

```
}
```

```
int memcomp(int *src, int *dst, int size).
```

```
{
```

```
for(int i=0; i<size; i++)
```

```
{ if( src[i] != dst[i] ) return 0;
```

```
}
```

```
return 1;
```

```
}
```

② write a function to compare two strings print success or failure.

Sol

same as above just char a[s], char b[s]

in checking just use as

```
while(c src[i] != '\0')
```

remaining all same.

Q. Write a function to concatenate two integer arrays into a single array:

```
sol #include <stdio.h>
void intcon(int *src1, int size1, int *src2, int size2, int *dst);
void main()
{
    int a[5] = {1, 2, 3, 4, 5};
    int b[5] = {6, 7, 8, 9, 10};
    int size1 = sizeof(a) / sizeof(a[0]);
    int size2 = sizeof(b) / sizeof(b[0]);
    int size3 = size1 + size2;
    int c[size3];
    intcon(a, size1, b, size2, c);
    for (int i = 0; i < size3; i++)
    {
        printf("%d\n", c[i]);
    }
}

void intcon(int *src1, int size1, int *src2, int size2,
            int *dst)
{
    int i = 0;
    for (; i < size1; i++)
    {
        dst[i] = src1[i];
    }
    for (int j = 0; j < size2; j++)
    {
        dst[i] = src2[j];
        i++;
    }
}
```

⑩ write a function to concatenate two strings to another.

Sol same as above code.  
just change array from int to char

like

char a[10];

char b[10];

char c[20];

pass to func then

int i=0;

int j=0;

while (src1[j] != '\0')

{ dst[i] = src1[j];

j++;

i++;

j=0;

while (src2[j] != '\0')

{ dst[i] = src2[j];

i++;

j++;

dst[i] = '\0';

}

## Assessment - 12

- ① Get a string and a character from the user, find all the positions where the character is present, and print it.

Sol:

```
#include <stdio.h>
#include <string.h>
void find(char *x, char y);
void main()
{
    char a[30] = "Helloatalvisleading";
    char c = 'l';
    find(a, c);
}

void find(char *x, char y)
{
    int i=0;
    while(x[i]!='\0')
    {
        if(x[i]==y)
            printf("%d", (i+1));
        i++;
    }
}
```

- ② Get a main string and substring. check the sub-string in the main string and print the position.

Sol:

```
#include <stdio.h>
void findidx(char *x, char y, int size)
```

```

int i=0;
while (x[i] != '\0')
{
    int j=0;
    for (; j < size; j++)
    {
        if (x[i+j] == y[j]) break;
        if (j == size-1) printf("idx=%d\n", i+1);
        i++;
    }
}
int void main()
{
    char a[] = "Hello EtalvisLearning";
    char b[] = "etal";
    int Len = sizeof(b)/sizeof(Cb[0]);
    findidx(a, b, len);
}

```

- ③ Get a string using gets function and count all the words in it.

Sol

```

#include < stdio.h>
void find (char *x)
{
    int i=0;
    int count=0;
    while (x[i] != '\0')
    {
        if (x[i] == ' ') count++;
        i++;
    }
    printf("Total words=%d", count);
}

```

```
int void main()
{
    char a[50];
    printf("Enter below 50 character sentence");
    gets(a);
    findwords(a);
}
```