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Computer Journal

CERTIFICATE

SEMESTER 'I' UID No. _____

Class FYBSc Roll No. 1803 Year 2019 - 2020

This is to certify that the work entered in this journal is the work of Mst. / ~~Ms.~~ Hemant Sau

who has worked for the year 2019 - 2020 in the Computer Laboratory.

Ashish 5-10-19
Teacher In-Charge

THAKUR COLLEGE OF SCIENCE & COMMERCE Kandivali (E)

Head of Department

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Examiner

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CODE:

```
// Basic datatypes
#include <stdio.h>
#include <conio.h>
void main()
{
  int roll_no;
  char name[20], mobile_no[10];
  float percentage;
  clrscr();
  printf("Enter student's name: \n");
  scanf("%s", &name);
  printf("%d", &roll_no);
  printf("Enter student's roll no: \n");
  scanf("%d", &roll_no);
  printf("Enter student's mobile no: \n");
  scanf("%s", &mobile_no);
  printf("Enter student's percentage: \n");
  scanf("%f", &percentage);
  printf("Student's name: %s \n", name);
  printf("Student's roll no: %d \n", roll_no);
  printf("Student's mobile no: %s \n", mobile_no);
  printf("Student's percentage: %f \n", percentage);
  getch();
```


PRACTICAL - 1

Aim:- Write a C program to understand basic datatypes & I/O.

Theory:-

Q.) Write a program to display student's name, roll no., mobile no & percentage

Algorithm:-

Step 1:- Declare a variable name roll no as integer, also declare name, mobile no. as characters & percentage as float.

Step 2:- Use printf function to print questions for user in order to give input.

Step 3:- Use scanf function to read user's input & store in the allocated memory.

Step 4:- Again use printf function to display the output.

Conclusion:-

The given program gives idea about how built in datatypes work in C & also about how user can give input & display output.

OUTPUT:-

```
Enter student's name:
Andy
Enter student's roll no:
1803
Enter student's percentage:
85.69
Enter student's mobile no:
8282521309
student's name : Andy
student's roll no : 1803
student's mobile : 8282521309
student's percentage : 85.69
```

13.

Code:-

```
// ternary operator.
# include <stdio.h>
# include <conio.h>
void main ()
{
    int a, b, x;
    clrscr();
    a=5;
    b=15;
    x=(a>b) ? a:b;
    getch();
}
```

Output:-

15

PRACTICAL-2

Q1> Write a program in C to explain ternary operator.

Algorithm:-

Step 1:- Declare variable a, b & x as integers.

Step 2:- Store the value of a as 5 & store the value of b as 15.

Step 3:- Now to compare between who is greater use ternary operator ? to find.

Step 4:- Use printf function to display function output.

Conclusion:- These programs help us in having better understanding about operators & Expressions.

9 8) Aim:- Write a C program on operator & expression.

Theory:

→ Write a program to create a dynamic Calculator.

Algorithm:-

Step 1:- Declare a variable name for first & second numbers as integer.

Step 2:- Now, we scanf function to receive input from user.

Step 3:- Now to add two numbers given by user, use the expression num1 + num2

Step 4:- Now, to subtract two numbers given by user, use expression num1 - num2

Step 5:- Again use expression num1* num2 if user wishes to multiply the two inputs

Step 6:- Use expression num1/num2 if user wishes to divide the two inputs

Step 7:- Now we printf function to display output.

Code:-

```
// dynamic Calculator
#include <stdio.h>
#include <conio.h>
void main
{ int num1, num2;
  float add, sub, mult, div;
  clrscr();
  printf("Enter first number:\n");
  scanf("%d", &num1);
  printf("Enter second number\n");
  scanf("%d", &num2);
  add = num1 + num2;
  sub = num1 - num2;
  mult = num1 * num2;
  div = num1 / num2;
  printf("Addition of %d and %d is %f\n", num1, num2, add);
  printf("Subtraction of %d and %d is %f\n", num1, num2, sub);
  printf("Multiplication of %d is %f\n", num1, num2, mult);
  printf("Division of %d is %f\n", num1, num2, Div);
  getch();
```

a) CODE:-

```
// if statement
#include <stdio.h>
#include <conio.h>
void main()
{ int i = 20;
  clrscr();
  if (i>15)
  { printf("20 is less than 15 \n");
  }
  printf("I am not in if \n");
  getch();
}
```

OUTPUT:-

I am not in if.

b) CODE:-

```
// if else statement
#include <stdio.h>
#include <conio.h>
{   int i=20;
    clrscr();
    if (i<15)
    { printf("20 is smaller than 15 \n");
    }
    else
    {printf("20 is greater than 15 \n"); }
    getch();
}
```

OUTPUT:-

20 is greater than 15.

PRACTICAL - 3

Aim:- Write a program in C on decision statement (if, if else, nested if).

Theory:-

a) Write a program in C to explain if statement.

Algorithm:-

Step 1:- Declare a variable as integer and assign its value ie 20.

Step 2:- Now to compare whether 20 is greater than 15 use if statement.

Step 3:- If the condition is true, print 20 is greater than 15 and if its not false then print 20 is not greater than 15.

b) Write a program in C to explain if else statement.

Step 1:- Declare a variable as integer and assign its value ie 20.

Step 2:- Now to Compare the given value if its greater or not use if else conditional statement.

Step 3:- If Condition is true the print 20 is less than 15 or if Condition is false then print 20 is greater than 15.

Q) Write a program in C to explain nested if statement.

Algorithm:-

Step 1:- Declare a variable as integer & assign value ie 20.

Step 2:- Now, we nested if logic to Compare if given no is greater or not.

Step 3:- If first Condition is true then go to Second Condition.
If Second Condition is also true then print that 20 is greater than 15 & 12.

Step 4:- If one of the Condition are not true then skip the part & print 20 is greater than 15 & 12.

Conclusion:- These programs help us to understand the working of if else & nested if Conditional Statements.

Q) CODE:-

```
// nested if
#include <stdio.h>
#include <conio.h>
void main()
{
    int i = 20;
    clrscr();
    if (i <15)
    {
        if (i<12)
        {
            printf ("20 is less than 15 & 12 \n");
        }
    }
    else:
    {
        printf ("20 is greater than 15 & 12 \n");
    }
getch();
}
```

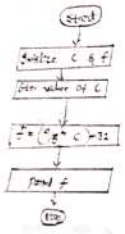
14/01/2020

OUTPUT:-

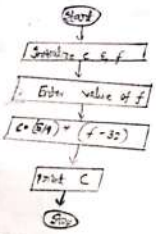
20. is greater than 10 & 12.

OUTPUT:-

→ Enter the value of celsius: 5
Fahrenheit : 37.400002



→ Enter the value of Fahrenheit :80
Celsius: 26.666666



PRACTICAL - 1

BASIC INPUT & OUTPUT AND DATATYPES.

→ Program 1) Convert temperature from Celcius to Fahrenheit.

```
#include <stdio.h>
#include <conio.h>
void main()
{
  clrscr();
  float c,f;
  printf("Enter the value of celsius:");
  scanf("%f", &c);
  f= (c*9/5)+32;
  printf("Fahrenheit:%f", f);
  getch();
}
```

→ Program 2) Convert temperature from fahrenheit to celcius.

```
#include <stdio.h>
#include <conio.h>
void main()
{ float c,f;
  clrscr();
  printf("Enter the value of fahrenheit:");
  scanf("%f", &f);
  c= (5.0/9.0)*(f-32);
  printf("Celcius:%f", c);
  getch();
}
```

→ Program to check if the entered year is a leap year or not.

```
#include <stdio.h>
#include <conio.h>
void main()
{
  clrscr();
  int y;
  printf("\n Enter the year:-");
  scanf("%d", &y);
  if (y%4==0)
  printf("\n %d is a leap year", y);
  else
  printf("\n %d is not a leap year", y);
  getch();
}
```

OUTPUT -
Enter the year: 2001
2001 is not a leap year
Enter the year: 2004
2004 is a leap year.

→ Program to check whether alphabet is a vowel or Constant.

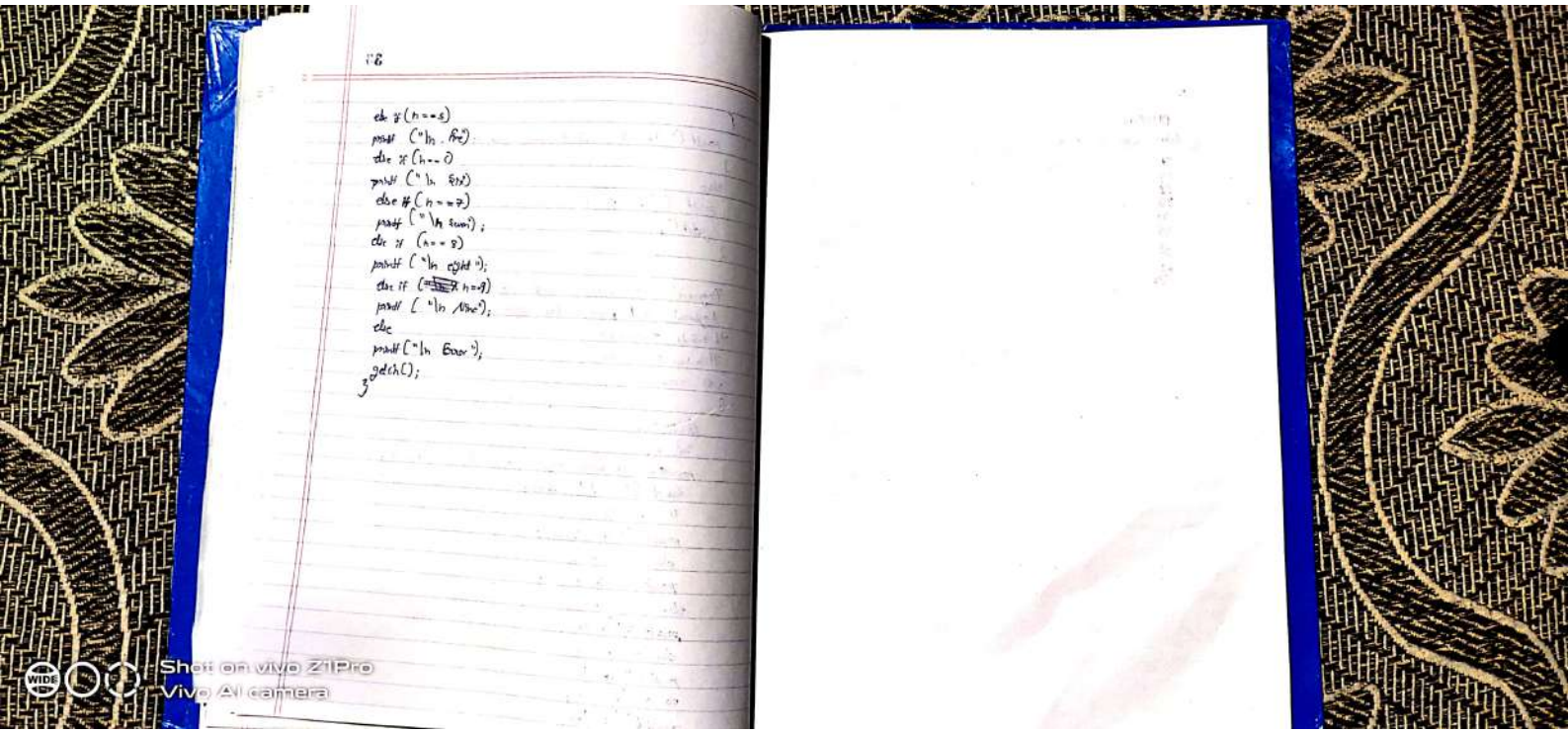
```
#include <stdio.h>
#include <conio.h>
void main()
{
  clrscr();
  char ch;
  printf("\n Enter the alphabet");
  ch=getche();
  if(ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u'||ch=='A'||
  ch=='E'||ch=='I'||ch=='O'||ch=='U');
```

OUTPUT -
Enter the alphabet : i
i is a vowel
Enter the alphabet : g
g is a constant.

```
{
  printf("\n %c is a vowel", ch);
}
 else
  printf("\n %c is a consonant", ch);
  getch();
}
```

→ Program to enter single digit decimal number from keyboard and print that digit in word form.

```
#include <stdio.h>
#include <conio.h>
void main()
{
   clrscr();
   int n;
   printf("\n Enter single digit decimal no:");
    scanf("%d", &n);
    if (n==0)
    printf("\n Zero");
     else if (n==1)
    printf("\n One");
   else if (n==2)
    printf("\n two");
     else if (n==3);
    printf("\n three");
    else if (n==4);
    printf("\n four");
```



OUTPUT -

Enter value of n: 70

7
14
21
35
42
49
56
63
70

1 PRACTICAL-4

LOOPING STRUCTURE.

→ Program to print number between 1 to n with one digit 7.

```
#include <stdio.h>
#include <conio.h>
void main()
{
 clrscr();
 int i,n,r;
 printf("\n Enter value of n:");
  scanf("%d", &n);
   i=1;
  while(i<=n)
 {
   r=i%10;
  if (r==7)
 {
  printf("\n%d", i);
 }
  i++;
 }
 getch();
}
```

10

→ Program to obtain the following output :-

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

```
#include <stdio.h>
#include <conio.h>
void main()
{
  clrscr();
  int i,k;
  i=1;
  while (i<=5)
  {
  k=1;
  while (k<=i);
  {
  printf("%d", k);
  ++k;
  }
  printf("\n");
  i++;
  }
getch();
}
```

OUTPUT :-

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

Output -

→ For loop -

→ Program to obtain the following output -

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

→

```
#include <stdio.h>
#include <conio.h>
void main()
{
  clrscr();
  int i,k;  for (i=1 ; i<= 5, i++)
{ for (k= 1, k<=i , k++)
{
  printf ("*");
}
  printf ("\n");
}
getch ();
}
```

18

→ Fibonacci series of first 20 terms

```
#include <stdio.h>
#include <conio.h>
void main()
{
clrscr();
int a, b, i, f;
printf("\n Fibonacci Series :\n");
a=1;
b=0;
printf("\n %d", b);
for (i=3, i<=20; i++);
{
f = a+b;
printf("\n %d", f);
a=b;
b=f;
}
getch();
}
```

OUTPUT :-

Fibonacci Series :

0
1
1
2
3
5
8
13
21
34
55
89
144
233
377
610
987
1597
2584

OUTPUT :-

Enter 10 data of array :

1 2 3 4 5 6 7 8 9 10

largest = 10 .

PRACTICAL - 5

Aim :- Understand the Concept of Array.
Program to find the largest number in an array of 10 numbers.

```
#include <stdio.h>
#include <conio.h>
void main()
{
  clrscr();
  int i, l, a[10];
  printf("\n Enter 10 data of array :");
  for (i=0; i<10; i++)
  {
    scanf("%d", &a[i]);
  }
    l= a[0];
    for (i=1; i<=10 ; i++)
  {
    if (l<a[i])
    {
      l= a[i];
    }
}
printf("\n largest is : %d ", l)
  getch();
}
```

→ Program to find how many the no of negative number present in an array of 10 elements.

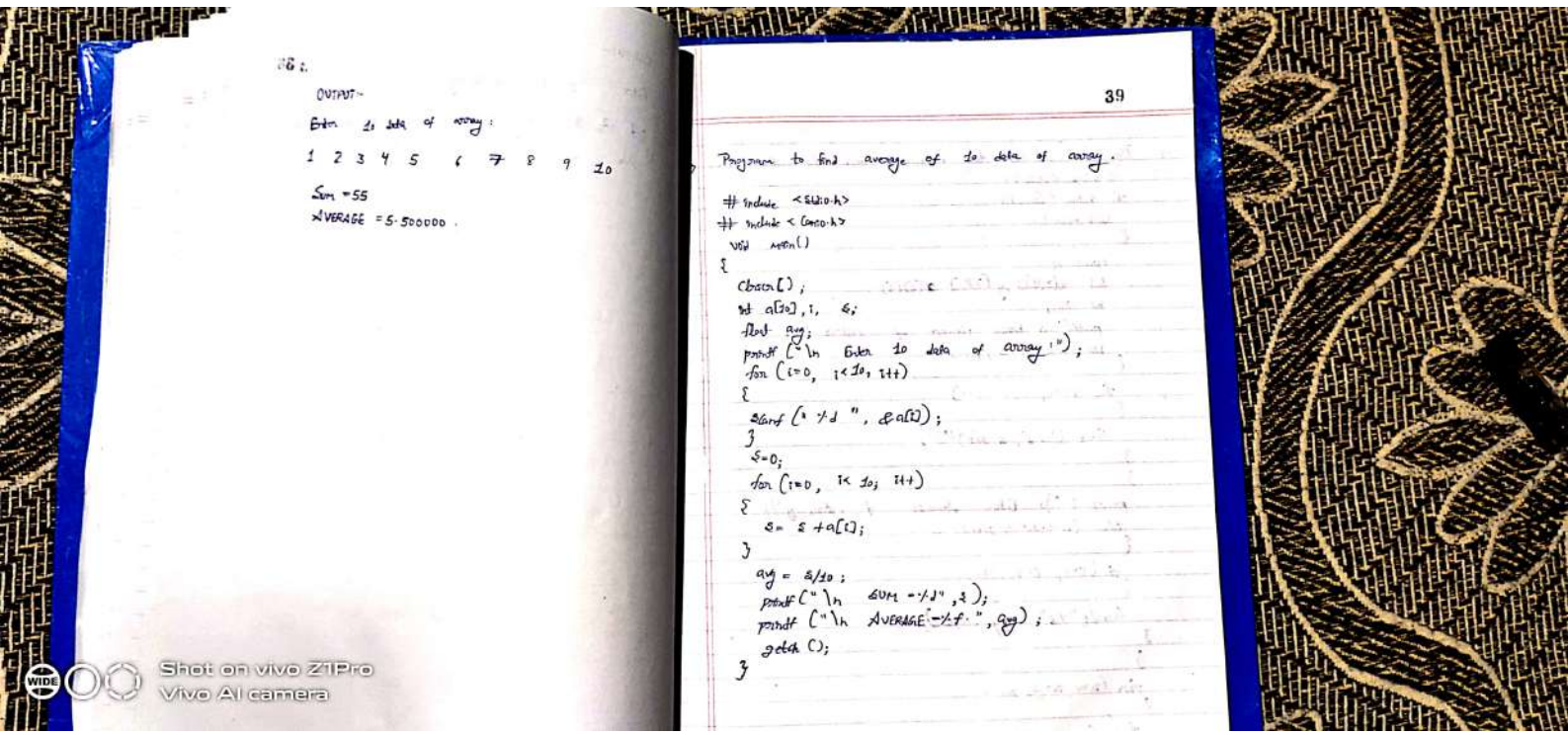
```
#include <stdio.h>
#include <conio.h>
void main()
{
 clrscr();
 printf("\n Enter 10 data of array:");
 for (i=0; i<=10; i++).
 {
  scanf("%d", &a[i]);
 }
 c=0;
 for (i=0, i<10, i++)
 {
  if (a[i]<0)
  {
   c=c+1;
  }
 }
 printf("\n No of negative no= %d", c);
 getch();
}
```

OUTPUT—

Enter 10 data of array:

-1 2 3 4 -5 -6 -7 8 9 -10

No of negative no=5



Q2.

OUTPUT -

Enter 10 data of array :

1 2 3 4 5 6 7 8 9 10

Sum = 55

AVERAGE = 5.500000

Program to find average of 10 data of array.

```
#include <stdio.h>
#include <conio.h>
void main()
{
clrscr();
int a[10], i, s;
float avg;
printf("\n Enter 10 data of array:");
for (i=0; i<10; i++)
{
scanf ("%d", &a[i]);
}
s=0;
for (i=0; i<10; i++)
{
  s= s+a[i];
}
  avg = s/10;
  printf("\n SUM = %d", s);
  printf("\n AVERAGE = %f.", avg);
  getch();
}
```

→ Program to add two matrix each of order 3x3

```
#include <stdio.h>
#include <conio.h>
void main ()
{
  clrscr();
  int x[3][3], y[3][3], z[3][3]
  int i,j;
  printf("\n Enter elements of matrix x:");
  for (i=0; i<3; i++)
  {
  for (j=0; j<3; j++)
  {
  scanf ("%d", &x[i][j]);
  }
  }
  printf ("\n Enter elements of matrix y:");
  for (i=0; i<3; i++)
  {
  for(j=0; j<3; j++)
  {
  scanf("%d", &y[i][j]);
  }
  }
  for (i=0; i<3; i++)
  {
  for(j=0; j<3; j++)
```


OUTPUT:-

Enter elements of matrix x: 1 2 3 4 5 6 7 8 9

Enter elements of matrix y: 1 2 3 4 5 6 7 8 9

Matrix z: 30 36 42
66 81 96
102 126 150.

```
z[n][c] = x[n][c] + y[n][c];
}
}
printf("\n Matrix z:");
for (n=0; n<3; n++)
{
for (c=0; c<3; c++)
{
printf("\t %d", z[n][c]);
}
printf("\n");
}
getch();
}
```

Program to do matrix multiplication:

```
#include <stdio.h>
#include <conio.h>
void main()
{
clrscr();
int x[3][3], y[3][3], z[3][3];
int n,c,k,t;
printf("\n Enter elements of matrix :");
for (n=0; n<3; n++)
{
for (c=0; c<3; c++)
```

OUTPUT:-

Enter elements of matrix x: 1 2 3 4 5 6 7 8 9

Enter elements of matrix y: 1 2 3 4 5 6 7 8 9

Matrix z:

30	36	42
66	81	96
102	126	150

```
{ t=0
  for (k=0; k<3; k++)
  {
   t = t + z[n][k] * y[k][c];
  }
  z[n][c] = t
 }
 }
   printf("\n Matrix z: ");
 for (n=0; n<3; n++)
 {
  for (c=0; c<3; c++)
 {
 printf("%t %d", z[n][c]);
 }
 printf("\n");
 }
 getch();
```

OUTPUT:-

Enter text of word: My name is Harsh.

word 1 = My

word 2 = name

word 3 = is

word 4 = Harsh.

OUTPUT:-

Enter line of text : Hello World

Hello World.

```
7
a
n
i
s
```


PRACTICAL - 6

Aim:- Program using String functions.

→ Program 1: To read string of words using scanf() :-

```
#include <string.h>
#include <stdio.h>
#include <conio.h>
void main()
{
  clrscr();
  char w1[20], w2[20], w3[20], w4[20];
  printf("\n Enter text of word:");
  scanf("%s %s %s %s", &w1, &w2, &w3, &w4);
  printf("\n word1 = %s", w1);
  printf("\n word2 = %s", w2);
  printf("\n word3 = %s", w3);
  printf("\n word4 = %s", w4);
  getch();
}
```

→ Program 2:- Read a line of text using put char :-

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

```
void main()
{
  clrscr();
  char obj[5] = "Java";
  int k;
  for (k=0; k<5; k++)
  {
    putchar (obj[k]);
  printf ("\n");
  }
  getch();
}
```

Q3.

→ Program to read line of text using gets().

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
  clrscr();
  char s[20];
  printf ("\n Enter line of text:");
  gets(s);
  puts(s);
}
getch();
```

Output:-

Enter line of text: Hello World

Hello World.

OUTPUT:-

Enter line of text: My name is Elliot.

My name is Elliot.

Program 4- Read line of text using getchar().

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
  clrscr();
  char l[80], *p;
  int k=0;
  printf("\n Enter line of text:");
  do {
      p=getchar();
      l[k]=*p;
      ++k;
  }
  while (p!='\n');
  --k;
  l[k]='\0';
  printf("\n %s", l);
  getch();
}
```

Program:- Reverse a string using strrev();

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
  clrscr();
  char h[20];
  printf("\n Enter string :");
  gets(h);
  strrev(h);
  printf("\n Reverse string :%s",h);
  getch();
}
```

OUTPUT:-

Enter string : Hello

Reverse string : olleH