

Write a program to find the largest two numbers using if and conditional operator.

Ans :

```
/* C Program to Find Largest of Two numbers */
#include <stdio.h>
int main() {
int a, b;
printf("Please Enter Two different values\n");
scanf("%d %d", &a, &b);
if(a > b)
{
printf("%d is Largest\n", a);
}
else if (b > a)
{
printf("%d is Largest\n", b);
}
else
{
printf("Both are Equal\n");
}

return 0;
}
```

Recd

Output :

```
Please Enter Two different values
34 23
34 is largest
```

Write a program to calculate arithmetic operations of two numbers using switch.

Ans :

```
#include<stdio.h>
#include<conio.h>
void main()
{
inta,b;
int op;
//clrscr();
printf(" 1.Addition\n 2.Subtraction\n 3.Multiplication\n 4.Division\n");
```

```

printf("Enter the values of a & b: ");
scanf("%d %d",&a,&b);
printf("Enter your Choice : ");
scanf("%d",&op);
switch(op)
{
case 1 :
printf("Sum of %d and %d is : %d",a,b,a+b);
break;
case 2 :
printf("Difference of %d and %d is : %d",a,b,a-b);
break;
case 3 :
printf("Multiplication of %d and %d is : %d",a,b,a*b);
break;
case 4 :
printf("Division of Two Numbers is %d : ",a/b);
break;
default :
printf(" Enter Your Correct Choice.");
break;
}
getch();
}

```

Output :

1. Addition
2. Subtraction
3. Multiplication
4. Division

Enter the values of a & b : 20 15

Enter your Choice : 1

Sum of 20 and 15 is : 35

3. Write a C program to print the reverse of a given number.

Ans :

```

#include <stdio.h>
int main()
{
int n, reversedNumber = 0, remainder;
printf("Enter an integer: ");
scanf("%d", &n);

```

```

while(n != 0)
{
remainder = n%10;
reversedNumber = reversedNumber*10 + remainder;
n /= 10;
}
printf("Reversed Number = %d", reversedNumber);
return 0;
}

```

Output :

Enter an interger : 123
Reversed Number = 321

4. Write a program to print whether the given number is a prime or not.

Ans :

```

#include <stdio.h>
main() {
int n, i, c = 0;
printf("Enter any number n:");
scanf("%d", &n);
/*logic*/ for (i = 1; i <= n; i++) {
if (n % i == 0) {
c++;
}
}
if (c == 2) {
printf("n is a Prime number");
}
else {
printf("n is not a Prime number");
}
return 0;
}

```

Output :

Enter any number n : 21
n is not a Prime number
Enter any number n : 17
n is a Prime number

5. Write a program to find largest and smallest elements in a given list of numbers

Ans :

```

#include <stdio.h>
int main()

```

```

    int a[50],i,n,large,small;
    printf("How many elements:");
    scanf("%d",&n);
    printf("Enter the Array:");
    for(i=0;i<n;++i)
        scanf("%d",&a[i]);
    large=small=a[0];
    for(i=1;i<n;++i)
    {
        if(a[i]>large)
            large=a[i];
        if(a[i]<small)
            small=a[i];
    }
    printf("The largest element is %d",large);
    printf("\nThe smallest element is %d",small);
    return 0;
}

```

Output

```

How many elements:5
Enter the Array:1 8 12 4 6
The largest element is 12
The smallest element is 1

```

6. Write a program to find the sum of two matrices.

Ans :

```

#include <stdio.h>
int main(){
int r, c, a[100][100], b[100][100], sum[100][100], i, j;
printf("Enter number of rows (between 1 and 100): ");
scanf("%d", &r);
printf("Enter number of columns (between 1 and 100): ");
scanf("%d", &c);
printf("\nEnter elements of 1st matrix:\n");
for(i=0; i<r; ++i)
for(j=0; j<c; ++j)
{
printf("Enter element a%d%d: ",i+1,j+1);

```

```

scanf("%d",&a[i][j]);
}
printf("Enter elements of 2nd matrix:\n");
for(i=0; i<r; ++i)
for(j=0; j<c; ++j)
{
printf("Enter element a%d%d: ",i+1, j+1);
scanf("%d", &b[i][j]);
}
// Adding Two matrices
for(i=0; i<r; ++i)
for(j=0; j<c; ++j)
{
sum[i][j]=a[i][j]+b[i][j];
}
// Displaying the result
printf("\nSum of two matrix is: \n\n");
for(i=0; i<r; ++i)
for(j=0; j<c; ++j)
{
printf("%d ",sum[i][j]);
if(j==c-1)
{
printf("\n\n");
}
}
return 0;
}

```

Output

```

Enter number of rows (between 1 and 100) : 2
Enter number of columns (between 1 and 100) : 3
Enter elements of 1st matrix :
Enter element a11 : 2
Enter element a12 : 3
Enter element a13 : 4
Enter element a 21 : 5
Enter element a 22 : 2
Enter element a 23 : 3
Enter elements of 2nd matrix :
Enter element a 11 : - 4
Enter element a 12 : 5
Enter element a 13 : 3

```

Enter element a 21 : 5

Enter element a 22 : 6

Enter element a 23 : 3

Sum of two matrix is :

-2 8 7

10 8 6

7. Write a program to find the product of two matrices.

Ans :

```
#include <stdio.h>
int main()
{
int a[10][10], b[10][10], result[10][10], r1, c1, r2, c2, i, j, k;
printf("Enter rows and column for first matrix: ");
scanf("%d %d", &r1, &c1);
printf("Enter rows and column for second matrix: ");
scanf("%d %d", &r2, &c2);
// Column of first matrix should be equal to column of second matrix and
while (c1 != r2)
{
printf("Error! column of first matrix not equal to row of second.\n\n");
printf("Enter rows and column for first matrix: ");
scanf("%d %d", &r1, &c1);
printf("Enter rows and column for second matrix: ");
scanf("%d %d", &r2, &c2);
}
// Storing elements of first matrix.
printf("\nEnter elements of matrix 1:\n");
for(i=0; i<r1; ++i)
for(j=0; j<c1; ++j)
{
printf("Enter elements a%d%d: ", i+1, j+1);
scanf("%d", &a[i][j]);
}
// Storing elements of second matrix.
printf("\nEnter elements of matrix 2:\n");
for(i=0; i<r2; ++i)
for(j=0; j<c2; ++j)
{
printf("Enter elements b%d%d: ", i+1, j+1);
scanf("%d", &b[i][j]);
}
```

```

    }
// Initializing all elements of result matrix to 0
for(i=0; i<r1; ++i)
for(j=0; j<c2; ++j)
{
result[i][j] = 0;
}
// Multiplying matrices a and b and
// storing result in result matrix
for(i=0; i<r1; ++i)
for(j=0; j<c2; ++j)
for(k=0; k<c1; ++k)
{
result[i][j] += a[i][k]*b[k][j];
}
// Displaying the result
printf("\nOutput Matrix:\n");
for(i=0; i<r1; ++i)
for(j=0; j<c2; ++j)
{
printf("%d ", result[i][j]);
if(j == c2-1)
printf("\n\n");
}
return 0;
}

```

Output :

Enter rows and column for first matrix : 3

2

Enter rows and column for second matrix : 3

2

Error! column of first matrix not equal to row of second.

Enter rows and column for first matrix : 2

3

Enter rows and column for second matrix : 3

2

Enter elements of matrix 1 :

Enter elements all : 3

Enter elements a 12 : -2

Enter elements a 13 : 5

Enter elements a 22 : 0

Enter elements a 23 : 4

Enter elements of matrix 2 :

Enter elements b 11 : 2

Enter elements b 12 : 3

Enter elements b 21 : -9

Enter elements b 22 : 0

Enter elements b 31 : 0

Enter elements b 32 : 4

Out Matrix :

24 29

6 25

8. Write a program to print the reverse of a given string.

Ans :

```
#include <stdio.h>
#include <string.h>
int main() {
    char str[100], temp;
    int i, j = 0;
    printf("\nEnter the string :");
    gets(str);
    i = 0;
    j = strlen(str) - 1;
    while (i < j) {
        temp = str[i];
        str[i] = str[j];
        str[j] = temp;
        i++;
        j--;
    }
    printf("\nReverse string is :%s", str);
    return (0);
}
```

Output

Enter the string : hello

Reverse string is : olleh

9. Write a program to find the factorial of a positive integer using iteration and recursion.

Ans :

```
#include <stdio.h>
// Iterative function to find factorial of a number using for loop
unsigned long factorial(int n)
{
    unsigned long fact = 1;
    int i;
    for (i = 1; i <= n; i++)
        fact = fact * i;
    return fact;
}
// Program to find factorial of a number
int main()
{
    int n = 5;
    printf("The Factorial of %d is %lu", n, factorial(n));
    return 0;
}
```

Output :

The factorial of 5 is 120

10. Write a program to find the GCD of two positive integers using iteration and recursion.

Ans :

```
* C program to find GCD (HCF) of two numbers using recursion
*/
```

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

```
/* Function declaration */
```

```
intgcd(int a, int b);
```

```
int main()
```

```
{
```

```
int num1, num2, hcf;
```

```
/* Input two numbers from user */
```

```
printf("Enter any two numbers to find GCD: ");
```

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

```
hcf = gcd(num1, num2);
```

```
printf("GCD of %d and %d = %d", num1, num2, hcf);
```

```
return 0;
```

```
}
```

```
/**
```

approach of euclidean algorithm to find GCD of two numbers

```

*/
intgcd(int a, int b)
{
if(b == 0)
return a;
else
returngcd(b, a%b);
}

```

Output :

Enter the two numbers to find their GCD : 100 70
The GCD of 100 and 70 is 10.

11. Write a program to demonstrate the call by value and the call by reference concept

Ans :

Call by value

```

#include<stdio.h>
#include<conio.h>
void swap(int a, int b)
{
int temp;
temp=a;
a=b;
b=temp;
}
void main()
{
int a=100, b=200;
clrscr();
swap(a, b); // passing value to function
printf("\nValue of a: %d",a);
printf("\nValue of b: %d",b);
getch();
}

```

Output

Value of a: 200

Value of b: 100

Call by reference

```

#include<stdio.h>
#include<conio.h>
void swap(int*a,int*b)
{

```

```
int temp;
temp=*a;
*a=*b;
*b=temp;
}
void main()
{
int a=100, b=200;
clrscr();
swap(&a,&b);// passing value to function
printf("\nValue of a: %d",a);
printf("\nValue of b: %d",b);
getch();
}
```

Output

Value of a: 200

Value of b: 100

Output :

Value of a : 200

Value of b : 100

12. Write a program to illustrate the use of Enumeration data type.

Ans :

// program to create enumerated data type for 7 days and display their values in integer constants.

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

```
int main()
```

```
{
```

```
enum week{Sun, Mon, Tue, Wed, Thu, Fri, Sat};
```

```
printf("Sun = %d", Sun);
```

```
printf("\nMon = %d", Mon);
```

```
printf("\nTue = %d", Tue);
```

```
printf("\nWed = %d", Wed);
```

```
printf("\nThu = %d", Thu);
```

```
printf("\nFri = %d", Fri);
```

```
printf("\nSat = %d", Sat);
```

```
return 0;
```

```
}
```

Copy

Sample Output:

```
Sun = 0
```

```
Mon = 1
```

```
Tue = 2
```

```
Wed = 3
```

```
Thu = 4
```

```
Fri = 5
```

```
Sat = 6
```

Output :

```
Sun = 0
```

```
Mon = 1
```

```
Tue = 2
```

```
Web = 3
```

```
Thu = 4
```

```
Fri = 5
```

```
Sat = 6
```

13. Write a program to illustrate the use of structure concept.

Ans :

Example: Store Information in Structure and Display it

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

```
struct student
```

```
{
```

```
char name[50];
```

```
int roll;
```

```
float marks;
```

```
}s[10];
```

```
int main()
```

```
{
```

```
int i;
```

```
printf("Enter information of students:\n");
```

```
// storing information
```

```
for(i=0; i<10; ++i)
```

```
{
```

```
s[i].roll = i+1;
```

```
printf("\nFor roll number%d,\n",s[i].roll);
```

```
printf("Enter name: ");
scanf("%s",s[i].name);
printf("Enter marks: ");
scanf("%f",&s[i].marks);
printf("\n");
}
printf("Displaying Information:\n\n");
// displaying information
for(i=0; i<10;+ +i)
{
printf("\nRoll number: %d\n",i+1);
printf("Name: ");
puts(s[i].name);
printf("Marks: %.1f",s[i].marks);
printf("\n");
}
return 0;
}
```

Output

Enter information of students:

For roll number1,

Enter name: Tom

Enter marks: 98

For roll number2,

Enter name: Jerry

Enter marks: 89

Displaying Information:

Roll number: 1

Name: Tom

Marks: 98

14. Write a program to illustrate the use of union concept.

Ans :

```

/* Write a C program to illustrate the concept of unions*/
#include <stdio.h>
#include <conio.h>
void main()
{
union number
{
int n1;
float n2;
};
union number x;
clrscr() ;
printf("Enter the value of n1: ");
scanf("%d", &x.n1);
printf("Value of n1 =%d", x.n1);
printf("\nEnter the value of n2: ");
scanf("%d", &x.n2);
printf("Value of n2 = %d\n",x.n2);
} /* End of main() */
/*_____

```

Output

```

Enter the value of n1: 2
Value of n1 =2
Enter the value of n2: 3
Value of n2 = 0

```

15. Write a program to write content into a file and display contents of a file.

Ans :

```

#include <stdio.h>
int main()
{
FILE *fp; /* file pointer*/
char fName[20];
printf("\nEnter file name to create :");
scanf("%s", fName);
/*creating (open) a file*/
fp=fopen(fName,"w");
/*check file created or not*/
if(fp==NULL)

```

```

    {
    printf("File does not created!!!");
    exit(0); /*exit from program*/
    }
    printf("File created successfully.");
    /*writing into file*/
    putc('A',fp);
    putc('B',fp);
    putc('C',fp);
    printf("\nData written successfully.");
    fclose(fp);
    /*again open file to read data*/
    fp=fopen(fName,"r");
    if(fp==NULL)
    {
    printf("\nCan't open file!!!");
    exit(0);
    }
    printf("Contents of file is :\n");
    printf("%c",getc(fp));
    printf("%c",getc(fp));
    printf("%c",getc(fp));
    fclose(fp);
    return 0;
    }

```

Output

Enter file name to create : ok.txt
 File created successfully.
 Data written successfully.
 Contents of file is :
 ABC

16.) Write a program to copy content of one file into another file and display the content of new file.

Ans :

```

#include <stdio.h>
#include <stdlib.h> // For exit()
intmain()
{
FILE*fptr1, *fptr2;
charfilename[100], c;
printf("Enter the filename to open for reading \n");
scanf("%s", filename);
// Open one file for reading
fptr1 = fopen(filename, "r");

```

```
if(fp1 == NULL)
{
printf("Cannot open file %s \n", filename);
exit(0);
}

printf("Enter the filename to open for writing \n");
scanf("%s", filename);
// Open another file for writing
fp2 = fopen(filename, "w");
if(fp2 == NULL)
{
printf("Cannot open file %s \n", filename);
exit(0);
}

// Read contents from file
c = fgetc(fp1);
while(c != EOF)
{
fputc(c, fp2);
c = fgetc(fp1);
}

printf("\nContents copied to %s", filename);
fclose(fp1);
fclose(fp2);
return 0;
}
```

Output:

Enter the filename to open for reading
a.txt
Enter the filename to open for writing
b.txt
Contents copied to b.txt