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Q.1 Write a program to find Sum and average of three number.

```
#include <stdio.h>

int main()
{
  int a, b, c, sum, average;
  float average;

  Printf("Program for finding Sum and average of 3 no\n");
  Printf("Enter 1st no, 2nd no, 3rd no\n");
  Scanf("%d %d %d", &a, &b, &c);
  // for finding Sum of 3 no
  sum = a+b+c;
  Printf("The sum of 3 no is %d\n", Sum);
  // for finding average of 3 no
  average = (a+b+c)/3;
  Printf("The average of 3 no is %f\n", average);

  return 0; }
```

2. Write a program to find the largest among three numbers using If else statement.

```
#include<stdio.h>
int main(){
int a, b, c;
Printf("Program for finding largest of 3 using if else statement\n
        Enter the value of 1st no, 2nd no, 3rd no\n");
Scanf("%d%d%d", &a&b&c);

If(a>b&&a>c){
   Printf("the no %d is greater than %d and %d\n",a,b,c);
                }
else If(b>a&&b>c){
   Printf("the no %d is greater than %d and %d\n",b,a,c);
                }
else If(c>a&&c>b){
   Printf("the no %d is greater than %d and %d\n",c,b,a);
                }
else{
   Printf("the no is equal or invaild\n");}
return 0;}
```

3. Write a program to check whether given no is Armstrong no or not

```
#include<stdio.h>
#include<math.h>
int main(){
  int num, orignalno, rem, n=0;
  float result=0.0; Printf("Program for finding nois Armstrongor no\n");
Printf("Enter an integer\n");
  Scanf("%d",&num);
  Orignalno=num;

for(orignalno=num; orignalno!=0; n++){
    orignalno/=10; }
for(orignalno=num; orignalno!=0; orignalno/=10){
    rem=orignal%10;
     result+=pow(rem,n); }

If((int)result==num){
  Printf("%d is an armstrongno\n", num); }
else{
    Printf("%d is not an armstrongno\n", num);
    }
return 0; }
```

4. Write a program to perform arithmetic operation Using Switch Statement.

```
#include<stdio.h>
#include<math.h>
int main(){
  int a, b, sum, sub, mul, div, choice;
Printf("Program for performing arthmatic operation using
      Switch Statement\n1: Addition\n2: Substraction
      3: Multiplication\n 4: divide\n");
Printf("Enter the value of first and Second no\n");
Scanf("%d %d", &a, &b);
Printf("Enter the operation You want to perform\n");
Scanf("%d", &choice);

Switch(choice){
    Case 1:
      Sum = a+b;
      Printf("\n Sum of %d and %d is %d", a, b, Sum);
      Break;
   Case 2:
     Sub = a-b;
   Printf("The difference Between %d and %d is %d\n", a, b, sub);
     Break;
   Case 3:
    mul = a x b;
   Printf("The product of %d and %d is %d", a, b, mul);
   Break;
```

```
Case 4:
Printf("\n Division of %d and %d is %d", a, b, div);
 Break;
default:
    Printf("Enter the correct choice ... \n");
  Break;
      }
return 0; }
```

5. Develop a program to display the fibonacci series upto n terms.

```
#include<stdio.h>
#include<math.h>
int main(){
 int fib1=0; fib2=1; fib3; N, count=0;
Printf("Program for showing fibonaci series upto n terms\n");
Printf("Enter the value of no You want to show\n");
  Scanf("%d", &N);
Printf("first %d fibonacies no are ---- \n", N);
Printf("%d\n", fib1);
Printf("%d\n", fib2);
  Count=2.
 while(count<N){
 fib3= fib1+fib2;
    Count++;
  Printf("%d\n", fib3);
    fib1=fib2; fib2=fib3; }
 return 0; }.
```

6. Implement a program to find the factorial of a given no using while loop.

```
#include<stdio.h>
#include<math.h>
int main(){
int n, i, f;
f=i=1;
Printf("factorial using while loop\n Enter a no to find factorial\n");
Scanf("%d",&n);
while(i<=n){
    f=f*i;
    i++;}
Printf("the factorial of %d is %d\n",n,f);
return 0;}
```

7. Write a C program to find the roots of a quadratic equation

```
#include<stdio.h>
#include<math.h>
int main(){
Float A, B, C, root1, root2;
Float disc;
Printf("Program for finding roots of quad. equation\n");
Printf("Enter the values of A, B and C\n");
Scanf("%f %f %f", &A, &B, &C);

If(A==0||B==0||C==0){
    Printf("Roots Cannot determined\n");
```

```
else{
    disc = pow(B,2)-(4*A*C);
  if(disc<0){
    Printf("Imaginery roots\n");
    root1=(-B+Sqrt(disc))/(2*A);
    root2=(-B-Sqrt(disc))/(2*A);
  Printf("Root1=%f\n", root1);
  Printf("Root2=%f\n", root2);}
else If(disc==0){
  Printf("Roots are real and equal\n");
  root1=(-B+Sqrt(disc))/(2*A);
  root1=root2;
Printf("Root1=%f\n", root1);
Printf("Root2=%f\n", root2);}
else If(disc>0){
  Printf("roots are real and distinct\n");
  root1=(-B+Sqrt(disc))/(2*A);
  root1=(-B-sqrt(disc))/(2*A);
Printf("Root1=%f\n", root1);
Printf("Root2=%f\n", root2);}

return 0;}
```

8. Create a program to calculate the distance between two lines using a user defined functions

```
#include<stdio.h>
#include<math.h>
Void distance(int,int,int,int);
int main()
{
 int y, a, b, c1, c2;
Printf("Program for finding distance B/w two parallel lines\n");
Printf("Enter the value of a, b, c1 and c2\n");
Scanf("%d %d %d %d %d", &a, &b, &c1, &c2);

distance(a, b, c1, c2);

return 0;
}
Void distance(int a, int b, int c, int d)
{
 float z;
 z=(Fabs(c-d))/Sqrt(d+Pow(a,2))/Pow(b,2));
Printf("The distance B/w two parallel line are %f", z);
}
```

9. Write a C program to find factorial of a given integer using recursive functions.

```
#include<stdio.h>
#include<math.h>
void factorial(int);

int main(){
  int n;
Printf("Program for factorial using recursive function\n");
Printf("Enter a no to find the factorial\n");
Scanf("%d",&n);
  factorial(n);
  return 0;}
Void factorial(int x){
  int i; fact=1, no=x;
for(i=1; i<=no; i++){
    fact=fact*i;}
Printf("Factorial of %d is %d\n", no, fact);
  }
```

10. Write a program to generate fibonacci series using recursions.

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

void fibonachi(int);

int main(){ int a;
    Printf("Program for generating fibonachi\n");
    Printf("Enter a no to generate fibonachi\n");
    Scanf("%d", &a);

    fibonachi(a);
     return 0; }
Void fibonachi(int no){
int F1=0, F2=1, F3=0, Count;
Printf("the fibonachi series upto %d is\n", no);
Printf("%d\n", F1);
Printf("%d\n", F2);
 Count=2;
for(Count; Count<no; Count++){
    F3=F1+F2
     Printf("%d\n", F3);
     F1=F2;
     F2=F3; }
     }
```

11. Create a program to swap two number using Call by Value and Call by references.

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```
// Call by Value
#include<stdio.h>
#include<math.h>
void swap(int);

int main(){ int a,b;
   Printf("Program for swaping no by call by value\n");
  Printf("Enter the value of a and b\n");
   Scanf("%d %d",&a,&b);
  Printf("The value of a=%d and b=%d Before\n",a, b); };
  Swap(a,b);
    return 0; }
  void swap(int c, int d){
    int e;
      e=d;
      d=c;
    Printf("Value after swap a=%d, b=%d\n", e, d);
    }

// Call by Refrence
#include<stdio.h>
#include<math.h>

void swap(int*, int*);

int main(){
  int a, b;
```

```
Printf("Program of swaping value by call by reference\n");
Printf("Enter the value of A and B\n");
Scanf("%d%d", &a, &b);
Printf("Before swaping the values a=%d, b=%d", a, b);
Swap(&a, &b);

Printf("After swaping the values a=%d, b=%d\n", a, b);
return 0; }

Void swap(int *c, int *d) {
  int e;
    e = *c;
    *c = *d;
    *c = e;
Printf("After swaping value in function a=%d, b=%d\n", *c, *d);
  }
```

12. Create a program to calculate Slope B/w two lines Using User defined functions.

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

Void Slope(int,int,int,int);

intmain(){
  int x1,x2,y1,y2;
Printf("Program for finding slope using fenction\n");
Printf("Enter Value of x1,x2,y1,y2\n");
Scanf("%d%d%d%d",&x1,&x2,&y1,&y2);
  Slope(x1,x2,y1,y2);
  return 0;}

Void slop(intx, inty, intz, inta){
Floatint S;
Float intS=((a-z)/(y-x));
    Printf("The value of Slope is %of", S);
        }
```

14. Write a C program that uses fenctions to perform multiplication of matrices.

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

void multiply(int r11, int r12, int c11, int c22);
int main()
{
  int r1, r2, c1, c2;
Printf("Program for multiplication of matrix\n");
Printf("enter order of matrix A\n enter no of row in A\n");
Scanf("%d", &r1);
Printf("enter the no of column in matrix A\n");
Scanf("%d", &c1);
Printf("enter order of matrix B\n enter no of row in matrix B\n");
Scanf("%d", &r2);
Printf("enter the no of column in matrix B\n");
Scanf("%d", &c2);

If(r1==r2 && c1==c2)
        multiply(r1, r2, c1, c2);

else
    Printf("this matrix cannot be added\n");
    }
return 0;
    }
```

```
void multiply(int r111, int r222, int c111, int c222){
int A[10][10];
int B[10][10];
int C[10][10];
int i, j, k;

Printf("\n Enter the element of matrix A Row wise\n");
for (i=0; i<r111; i++){
        for(j=0; j<c111; j++)
        Scanf("%d", &A[i][j]);}

Printf("\n Enter the element of matrix B row wise\n");
for (i=0; i<r222; i++){
        for(j=0; j<c222; j++){
        Scanf("%d", &B[i][j]);}

// operation for multiplication of matrix
For (i=0; i<r111; i++){
        for(j=0; j<c222; j++){
                C[i][j]=0;
        for[k=0; k<c111; k++){
        C[i][j] += A[i][k] * b[k][j];}}

Printf("The element of matrix C is\n");
```

```
for(i=0; i<3; i++){
    Printf("\n");
    for(j=0; j<4; j++){
      Printf("%d", c[i][j]);
      Printf("\t");
    }
}
```

15. Write a C program to Concatenate two strings without using library function.

```
#include<stdio.h>
#include<string.h>
void Concat(char[], char[]);
int main(){
    char s1[40], s2[35];
  Printf("\n Enter String 1: \n");
    gets(s1);
  Printf("\n Enter String 2: \n");
    gets(s2);
    Concat(s1, s2);
  Printf("Concated string is: %s", s1);
    return 0; }
```

```
Void Concat (char S1[], char S2[]){
    int i, j;
    i = Strlen(S1);
for (j=0; S2[j] != '\0'; i++, j++){
        S1[i] = S2[j];
    }
    S1[i] = '\0';
    }
```

16. Write a program to store and display the details of a Student Using Structures.

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

Struct Student{
    Char firstname[50];
    int roll;
    float marks; }S[5];

int main(){
    int i;
    Printf("Program for storing and displaying details
        of Students using structure \n");
    Printf("Enter the info of students\n");
    for (i=0; i<5; ++i){
      S[i].roll = i+1;
    Printf("Enter the name of roll no %d student\n", S[i].roll);
```

```
Printf Scanf("%s", s[i].firstname);
Printf("Enter marks\n");
Scanf("%f", &s[i].marks);

Printf("The detail of Students are\n");

for(i=0; i<5; ++i){
Printf("\n Roll no :%d\n Firstname:%s", i+1);
Puts(s[i].firstname);
Printf("marks:%f", s[i].marks);
   Printf("\n");
return 0;
    }
```

Q.13 Write a C program to perform addition of two matrix.

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

int main(){
 int A[10][10];
 int B[10][10];
 int C[10][10];
 int i, j, k, r1, r2, c1, c2;
Printf("Program for add of two matrix\n");
Printf("Enter the order of matrix A\n");
Printf("Enter the no of row and column in matrix A\n");
Scanf("%d%d", &r1, &c1);
Printf("Enter the no of row and column in matrix B\n");
Scanf("%d%d", &r2, &c2);

If(r1==r2, c1==c2){
 Printf("Enter the element of matrix A Row wise\n");
 for(i=0; i<r1; i++){
    for(j=0; j<c1; j++){
     Scanf("%d", &A[i][j]);}}


Printf("Enter the element of matrix B Row wise\n");
for(i=0; i<r2; i++){
   for(j=0; j<c2; j++){
    Scanf("%d", &B[i][j]);}}

// The addition of two matrix Are
```

```
for(i=0; i<r1; i++){
  for(j=0; j<c1; j++){
    c[i][j]=0;
    for(k=0; k<c1; k++){
      c[i][j] = A[i][j]+B[i][j]; }}}

Printf("The element of matrix c is\n");

for(i=0; i<r1; i++){
  for(j Printf("\n");
  for(j=0; j<c1; j++){
    Printf("%d", c[i][j]);
    Printf("\t");
    }}

}
else {
    Printf("matrix cannot be added\n");
    }
return 0; }
```

Output of all programs

1. Program for finding Sum and average of 3 no.

Enter 1st no, 2nd no, 3rd no
2
3
4
The Sum of 3 no is 9.
The average of 3 no is 3.000000.

2. Program for finding largest of 3 using if else statement.

Enter the value of 1st no, 2nd no, 3rd no.
5
6
8
The no 8 is greater than 6 and 5.

3. Program for finding no is Armstrong or not.

Enter An Integer.
153
153 is an Armstrong no

4. Program for performing arithematic operations using switch statements.

1: Addition
2: Substraction
3: ~~Di~~ multiply
4: Divide

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Enter the value of first and second number
10
12
Enter the operation You want to perform.
1
The sum Sum of 10 and 12 is 22.

5. Program for showing fibonacci series upto n terms
Enter the value of no You want to show.
10
First 10 fibonacies no are - - - - - .
0
1
1
2
3
5
8
13
21
34

6. Factorial using while loop
Enter a no to find factorial
5
The factorial of 5 is 120.

7. Program for finding root of quad. equations.
Enter the values of A, B and C
1 2 1
2
1
Roots are Real and equal.
Root1 = -1.000000.
Root2 = -1.000000.

8. Program for finding distance B/w two parallel lines
Enter the value of a, b, c1, c2.
2
4
7
-5
The distance B/w two parallel lines are 2.400000.

9. Program for factorial using recursive functions
Enter a no to find factorial.
5
Factorial of 5 is 120.

10. Program for generating fibonachi
Enter a no to generate fibonachi
10
The fibonachi series upto 10 is

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0
1
1
2
3
5
8
13
21
34

11. Part-I (Call by Value)
Program for swaping no by Call by Value
Enter the value of a and b
6
5

The value of a=6 and b=5 Before.
Value after swap a=5, b=6.

Part-II (Call by Reference)
Program of swaping value by Call by Refrence
Enter the Value of A and B.
5
9

Before swaping the values a=5, b=9.
After swaping the value in function a=9, b=5.
After swaping the value a=9, b=5.

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12. Program for finding slope Osing function
Enter a value of x_1, x_2, y_1, y_2.
-2
0
3
-1
The Value of slope is -2.

14. Program for multiplication of matrix
Enter order of matrix A
enter no of rows in A
2
enter the no of column in matrix A.
2
Enter order of matrix in B
enter no of ~~column~~ in matrix B
2
enter the no of column in matrix B
2
Enter the element of matrix A Row-wise
1
2
3
4
Enter the element of matrix B Row-wise
4
3
2
1

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The element of matrix is
8 5
20 13

15. Enter String 1: Hello
Enter String 2: World
Concated String is: Hellow world

16. Program for storing and displaying detail of Student Using Structure.
Enter the info of Students.
Enter the name of roll no 1 Student
Ravi
Enter marks :-
65
Enter the name of roll no 2 Student
Pawan
Enter marks
75
Enter the name of roll no 3 Student
Rahul
Enter marks
65
Enter the name of roll no 4 Student
Rashi
Enter marks
79

The detail of Students are
Roll no: 1
First name:- Ravi
Marks: 65
Roll no:- ~~Pawan~~ 2
First name: ~~Ra~~ Pawan
marks: 75
Roll no: 3
First name: Rahul
Marks: 65
Roll no: ~~Ro~~ 4
First name: Rashi
marks: 79.

13. Program for add of two matrix
Enter the order of matrix A
Enter the no of row and Column in matrix A
2
2
Enter the no Row and Column in matrix B
2
2
Enter the element of matrix A Row-wise
1
2
3
4

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Enter the element of matrix B row wise
4
3
2
1
The element of matrix C is
5 5
5 5