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1.Program Name: Check odd or even and sum them

Program:

```c
#include<stdio.h>
int checkoddeven(int n)
{
if (n%2==0)
  return 1;
else
  return 0;
}
void main()
{
int n,osum=0,esum=0,num;
printf("\nEnter number of integers: ");
scanf("%d",&n);
for(int i=0;i<n;++i)
{
 printf("\nEnter a number: ");
 scanf("%d",&num);
 if(checkoddeven(num)==1)
  esum+=num;
 else
  osum+=num;
}
```

```
printf("\nSum of odd numbers: %d",osum);
printf("\nSum of even numbers: %d\n",esum);
}
```

Output:

csea50@jtl-13:~/assignment2$ ./checkoddeven
Enter number of integers: 5
Enter a number: 3
Enter a number: 2
Enter a number: 4
Enter a number: 9
Enter a number: 12

Sum of odd numbers: 12
Sum of even numbers: 18

2.Program Name: Reversing the digits of a number

Program:

```
#include<stdio.h>
void ReverseNum(int *num)
{
int rev=0;
while(*num!=0)
{
 rev=rev*10+ *num%10;
 *num/=10;
}
*num=rev;
}
void main()
{
int n;
printf("\nEnter a number: ");
scanf("%d",&n);
ReverseNum(&n);
```

```
printf("\nReverse of the number is:%d\n",n);
}
```

Output:

csea50@jtl-13:~/assignment2$ ./reverse
Enter a number: 594217
Reverse of the number is:712495

3. Program Name: Power of a number

Program:

```
#include<stdio.h>
float power(float X, int N)
{
if(N==0)
 return 1;
else
 return X*power(X,N-1);
}
void main()
{
float X,pow;
int N;
printf("\nEnter the value of base: ");
scanf("%f",&X);
printf("'\nEnter the value of power: ");
scanf("%d",&N);
if (N<0)
{pow=power(X,-N);
pow=1/pow;
}
else
pow=power(X,N);
printf("\nBase %f to the power %d is %f\n",X,N,pow);
}
```

csea50@jtl-13:~/assignment2$ ./power
Enter the value of base: 2
Enter the value of power: -2
Base 2.000000 to the power -2 is 0.250000

4. Program Name: Product of n numbers

Program:

```c
#include<stdio.h>
float prod(float n)
{
printf("Enter a number: ");
scanf("%f",&n);
if(n==0)
 return 1;
else
 return n*prod(n);
}
void main()
{
float n;
printf("\nMultiplication will be stopped when you enter 0\n");
printf("Enter a number: ");
scanf("%f",&n);
float product=prod(n)*n;
printf("Result; %.3f\n",product);
}
```

Output:

csea50@jtl-13:~/assignment2$ ./prod
Multiplication will be stopped when you enter 0
Enter a number: 2
Enter a number: 3
Enter a number: 10
Enter a number: 5

Enter a number: 0
Result; 300.000

5. <u>Program Name:</u> Print numbers from N to 0

<u>Program:</u>

```c
#include<stdio.h>
void printing(int N)
{
if(N>0)
{
 printf("%d",N-1);
 printing(N-1);
}
}
void main()
{
int N;
printf("Enter the value of N: ");
scanf("%d",&N);
printf("The required sequence: ");
printing(N);
printf("\n");
}
```

<u>Output:</u>

csea50@jtl-13:~/assignment2$ ./print
Enter the value of N: 10
The required sequence: 9876543210

6. <u>Program Name:</u> Find the rightmost non-zero digit of *n!*

<u>Program:</u>

```c
#include<stdio.h>
unsigned long fact(int n)
{
```

```c
unsigned long fact=1;
for(int i=1;i<=n;++i)
 fact*=i;

return fact;


}
void main()
{
int n;
printf("\nEnter a number: ");
scanf("%d",&n);
if(n>=1 && n<=100)
{
unsigned long temp=fact(n);
printf("\nFactorial of %d is : %lu\n",n,temp);
while(temp!=0)
{
 if(temp%10!=0)
  {temp=temp%10;
   break;
  }
 temp/=10;
}
printf("\nRightmost non-zero digit is: %lu\n",temp);
}
}
```

Output:

csea50@jtl-13:~/assignment2$ ./fact
Enter a number: 7
Factorial of 7 is : 5040
Rightmost non-zero digit is: 4

7. Program Name: Tic-Tac-Toe

Program:

```c
#include<stdio.h>
#include<stdlib.h>
char play='X';
char val='O';

void main()
{
int op,pos,count=0;
char a1=' ',a2=' ',a3=' ',b1=' ',b2=' ',b3=' ',c1=' ',c2=' ',c3=' ';
//char a1=a2=a3=b1=b2=b3=c1=c2=c3=' ';


printf("\n\nChoose Player (1 or 2): ");
scanf("%d",&op);
play='X';val='O';

while(count<9)
{
if((op==2 && play=='X')|| (op==1 && play=='O'))
 pos=(rand()%9 +1);
else
{
printf("Player %c : Choose position(1-9): ",play);
scanf("%d",&pos);
}
switch(pos)
{
case 1: if(a1==' ')
        {a1=play;count++;}
        else
        {if(op==2 && play=='O'|| (op==1 && play=='X'))
        printf("wrong move\n");
        play=val;}
        break;
case 2: if(a2==' ')
        {a2=play;count++;}
        else {
        if(op==2 && play=='O'|| (op==1 && play=='X'))
```

```c
        printf("wrong move\n");
        play=val;}
        break;
case 3: if(a3==' ')
        {a3=play;count++;}
        else {
        if(op==2 && play=='O'|| (op==1 && play=='X'))
        printf("wrong move\n");
        play=val;}
        break;
case 4: if(b1==' ')
        {b1=play;count++;}
        else if(op==2 && play=='O'|| (op==1 && play=='X'))
        {printf("wrong move\n");play=val;}
        break;
case 5: if(b2==' ')
        {b2=play;count++;}
        else {
        if(op==2 && play=='O'|| (op==1 && play=='X'))
        printf("wrong move\n");
        play=val;}
        break;
case 6: if(b3==' ')
        {b3=play;count++;}
        else {
        if(op==2 && play=='O'|| (op==1 && play=='X'))
        printf("wrong move\n");
        play=val;}
        break;
case 7: if(c1==' ')
        {c1=play;count++;}
        else {
        if(op==2 && play=='O'|| (op==1 && play=='X'))
        printf("wrong move\n");
        play=val;}
        break;
case 8: if(c2==' ')
        {c2=play;count++;}
        else {
```

```c
        if(op==2 && play=='O'|| (op==1 && play=='X'))
        printf("wrong move\n");
        play=val;}
        break;
case 9: if(c3==' ')
        {c3=play;count++;}
        else {
        if(op==2 && play=='O'|| (op==1 && play=='X'))
        printf("wrong move\n");
        play=val;}
        break;

}



printf("%c\t%c\t%c\n\n%c\t%c\t%c\n\n%c\t%c\t%c\n\n",a1,a2,a3,b1,b2,
b3,c1,c2,c3);
printf("----------------------------------------------\n");



if((a1==a2 && a2==a3) && a1!=' ' && a2!= ' ')
{
printf("\nPlayer %c Wins!!!\n",play);
break;
}
else if((b1==b2 && b2==b3) && b1!=' ' && b2!=' ')
{
printf("\nPlayer %c Wins!!!\n",play);
break;
}
else if((c1==c2 && c2==c3) && c1!=' ' && c2!=' ')
{
printf("\nPlayer %c Wins!!!\n",play);
break;
}
else if((a1==b1 && b1==c1) && a1!=' ' && b1!=' ')
{
```

```c
printf("\nPlayer %c Wins!!!\n",play);
break;
}
else if((a2==b2 && b2==c2) && b2!=' ' && a2!=' ')
{
printf("\nPlayer %c Wins!!!\n",play);
break;
}
else if((a3==b3 && c3==a3) && a3!=' ' && b3!=' ')
{
printf("\nPlayer %c Wins!!!\n",play);
break;
}
else if((a1==b2 && b2==c3) && a1!=' ' && b2!=' ')
{
printf("\nPlayer %c Wins!!!\n",play);
break;
}
else if((c1==b2 && b2==a3) && c1!=' ' && b2!=' ')
{
printf("\nPlayer %c Wins!!!\n",play);
break;
}

if(play =='X')
 {play='O';
 val='X';
}
else
 {
play='X';
val='O';}

}


//printf("\n\n%d",count);
if (count==9)
printf("\nDraw match !!!\n");
```

}

<u>Output:</u>

csea50@jtl-13:~/assignment2$ ./tic
Choose Player (1 or 2): 1
Player X : Choose position(1-9): 5

    X

    X   0

Player X : Choose position(1-9): 1
X

    X   0

X

    X   0

        0

Player X : Choose position(1-9): 2
X   X

```
     X    O

          O

-----------------------------------------------
X    X

     X    O

     O    O

-----------------------------------------------
Player X : Choose position(1-9): 3
X    X    X

     X    O

     O    O

-----------------------------------------------

Player X Wins!!!
```