ASSIGNMENT DAY_17

```
// c program to print  upper triangular portion of 3X3 matrix
#include<stdio.h>
int main(){
    int row,col;
    printf("enter the number of rows");
    scanf("%d",&row);
    printf("enter the col");
    scanf("%d",&col);
    int arr[row][col];
    for(int i=0;i<row;i++){
        for(int j=0;j<col;j++){
            scanf("%d",&arr[i][j]);
        }
    }
     for(int i=0;i<row;i++){
        for(int j=0;j<col;j++){
            printf("%d",arr[i][j]);
        }
         printf("\n");
    }
    printf("\n");
    for(int i=0;i<row;i++){
        for(int j=0;j<col;j++){
            if(i<=j){
                printf("%d",arr[i][j]);
            }
            else{
                printf(" ");
            }
        }
        printf("\n");
    }
```

// Exercise 3: A serial transmission line can transmit 960 characters each second.

```
// Write a program that will calculate the time required to send a file, given the file's

// size. Try the prog ram on a 400MB (419,430,400 -byte) file. Use appropriate units.

// (A 400MB file takes days.)


#include<stdio.h>
int main(){
   int filesize;
   int transmit =960;
   int second, minit,hour,day;

   printf("enter the size of file in bytes");
   scanf("%d",&filesize);

   second=filesize/transmit;
   minit=second/60;
   hour=minit/60;
   day=hour/24;


   printf("send in time %d\n",second);
   printf("send in time %d\n",minit);
   printf("send in time %d\n",hour);
   printf("send in time %d\n",day);

// 419430400

}




#include <stdio.h>

int main() {
   int start_day, start_month, start_year;
   int end_day, end_month, end_year;

   int days_in_months[] = {31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31};
```

```
printf("Enter the start date (DD/MM/YY): ");
scanf("%d %d %d", &start_day, &start_month, &start_year);
printf("Enter the end date (DD/MM/YY): ");
scanf("%d %d %d", &end_day, &end_month, &end_year);


    int total_start_days = 0, total_end_days = 0;

    for (int i = 1; i < start_year; i++) {
    if ((i % 4 == 0 && i % 100 != 0) || (i % 400 == 0)) {
        total_start_days += 366;
    } else {
        total_start_days += 365;
    }
}
    for (int i = 1; i < start_month; i++) {
    total_start_days += days_in_months[i - 1];
    if (i == 2 && ((start_year % 4 == 0 && start_year % 100 != 0) || (start_year % 400 == 0))) {
        total_start_days += 1;
    }
}

    total_start_days += start_day;



    for (int i = 1; i < end_year; i++) {
    if ((i % 4 == 0 && i % 100 != 0) || (i % 400 == 0)) {
        total_end_days += 366;
    } else {
        total_end_days += 365;
    }
}
    for (int i = 1; i < end_month; i++) {
    total_end_days += days_in_months[i - 1];
    if (i == 2 && ((end_year % 4 == 0 && end_year % 100 != 0) || (end_year % 400 == 0))) {
        total_end_days += 1;
    }
}


    total_end_days += end_day;
```

```
    int day_difference = total_end_days - total_start_days;
    printf("The number of days between %d/%d/%d and %d/%d/%d is: %d days\n",
      start_day, start_month, start_year, end_day, end_month, end_year, day_difference);

  return 0;
}
```

```
// Exercise 4: Write a program to add an 8% sales tax to a given amount and round

// the result to the nearest penny.


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

int main(){
  int price,sale,total;
  printf("enter the amount");
  scanf("%d",&price);
  sale = price *0.8;
  printf("the sales is %d",sale);
  total = price+sale;
  total = round(total*100)/100;
  printf("the total amount is %d",total);

}
```

```
// Exercise 5: Write a program to tell if a number is prime.
#include<stdio.h>
int main(){
  int n,isfound=1;
  printf("enter a number");
  scanf("%d",&n);
  for(int i=2;i<n;i++){
    if(n%i==0){
      isfound=0;
```

```
        }
    }
    if(isfound==1){
        printf("the number is prime");
    }
    else{
        printf("the number is not a prime number");
    }

}
```

// Exercise 6: Write a program that takes a series of numbers and counts the

// number of positive and negative values.

```
#include<stdio.h>
int main(){
    int n,pos=0,neg=0,sum=0;
    while(1){
        int i=1;
        printf("enter the values %d\n",i);
        scanf("%d",&n);
        if(n==0){
            break;
        }
        else if(n>0){
            pos++;
            sum = sum+n;

        }
        else if(n<0){
            neg++;
        }


    }
```

```
    printf("the positive numbers are %d %d\n",pos,sum);
    printf("the negative numbers are %d\n",neg);
}



// c program to find the HCF(heighest common factor)using recursion


#include<stdio.h>
int HCF(int num1,int num2);

int main(){
    int num1,num2;
    printf("enter the number");
    scanf("%d",&num1);
    printf("enter the second number");
    scanf("%d",&num2);
    int result = HCF(num1,num2);
    printf("the HCF of a number is %d",result);


}
int HCF(int num1,int num2){
    if(num2==0){
        return num1;
    }
    return HCF(num2,num1%num2);
}







// c program to find LCM(lowest common multipl)
#include<stdio.h>
int LCM(int num1,int num2);

int main(){
    int num1,num2;
    printf("enter the num1");
    scanf("%d",&num1);
```

```
    printf("enter the num2");
    scanf("%d",&num2);
    int result = LCM(num1,num2);
    int v = (num1* num2)/result;
    printf("the lCM is %d\n  THe HCF is %d",v,result);
}

int LCM(int num1,int num2){
    if(num2==0){
        return num1;
    }
    return LCM(num2,num1%num2);
}
```

```
// c program to convert the decimal number to binary number

#include<stdio.h>
int binaryy(int n);

int main(){
    int n;
    printf("enter the number");
    scanf("%d",&n);
    printf("converting decimal to binary");
    binaryy(n);
}
int binaryy(int n){
    if(n==0)
    {
        return 0;
    }
    binaryy(n/2);
    printf("%d",n%2);

}
```

```
// wap to find the sum of natural numbers and factorial of a number of all natural numbers 1 to N
//series is 1/1!+2/2!+3/3!+4/4!+N/N!

#include<stdio.h>
int factorial(int n);

int main(){
    int n;
    float sum=0.0;
    printf("enter the number");
    scanf("%d",&n);
    for(int i=1;i<=n;i++){
        sum +=(float)i/factorial(i);
    }

printf("the sum is %.2f",sum);


}
int factorial(int n){
    int fact =1;
    for(int i=1;i<=n;i++){
        fact *=i;
    }
    return fact;

}
```

```
// c program to read a matrix and print diagonals
// 1 2 3
// 4 5 6
// 7 8 9
// output: 1 5 9
// 3 5 7
```

```c
#include<stdio.h>
int main(){
    int row ,col;
    printf("enter the row");
    scanf("%d",&row);
    printf("enter the col");
    scanf("%d",&col);

    int arr[row][col];
    for(int i=0;i<row;i++){
        for(int j=0;j<col;j++){
            scanf("%d",&arr[i][j]);
        }
    }
    printf("first diagonal");
    for(int i=0;i<row;i++){
        printf(" %d",arr[i][i]);
    }
    printf("\n");
    printf("the secondary");
    for(int i=0;i<row;i++){
        printf(" %d",arr[i][row-i-1]);
    }
    printf("\n");
}
```

```c
// c program to input and print text using dynamic memory allocation
#include<stdio.h>
#include <stdlib.h>
int main(){
    int n;
    char *name;
    printf("enter the size");
    scanf("%d",&n);
```

```
    name =(char*)malloc(n*sizeof(char));
    if(name ==NULL){
        printf("the memory isnot there");
        return 1;
    }
    getchar();
    printf("enter the name in here");
    scanf("%[^\n]\n",name);
    printf("the name is %s\n",name);

    free(name);
    printf("the memory is free");

}
```

// c program to print the one diamonational array print the sum of all elements along with inputted array element using dynamic allocation

```
#include<stdio.h>
#include <stdlib.h>
int main(){
    int n,sum=0;
    printf("enter the size ");
    scanf("%d",&n);
    int *arr =(int*)malloc(n*sizeof(int));
    if(arr==NULL){
        printf("memory is not allocated");
        return 1;
    }
    for(int i=0;i<n;i++){
        scanf("%d",&arr[i]);
        sum=sum+arr[i];
    }
    for(int j=0;j<n;j++){
        printf("%d",arr[j]);

    }
    printf("the sum is %d",sum);
```

```
}
```

```
// c program to replace all even elements by 0 and odd by 1 using 1 dimentional array
#include<stdio.h>
int main(){
    int n;
    printf("enter the element to been stored");
    scanf("%d",&n);
    int arr[n];
    printf("enter the elements");
    for(int i=0;i<n;i++){
        scanf("%d",&arr[i]);
        if(arr[i]%2==0){
            arr[i]=0;
        }
        else{
            arr[i]=1;
        }
    }
    printf("the numbers are");
    for(int i=0;i<n;i++){
        printf("%d",arr[i]);
    }
}
```