TASK 1:

#include<iostream>

using namespace std;

int factorial(int n);

int main()

{

int n;

cout << "Enter a positive integer: ";

cin >> n;

cout << "Factorial of " << n << " = " << factorial(n);

return 0;

}

int factorial(int n)

{

if (n > 1)

return n \* factorial(n - 1);

else

return 1;

system("PAUSE");

}

TASK 2:

#include<iostream>

using namespace std;

int fibonacci(int n)

{

if ((n == 1) || (n == 0))

{

return(n);

}

else

{

return(fibonacci(n - 1) + fibonacci(n - 2));

}

}

int main()

{

int n, i = 0;

cout << "Input the number of terms for Fibonacci Series" << endl;

cin >> n;

cout << Fibonacci Series is " << endl;

while (i<n)

{

cout << " " << fibonacci(i);

i++;

}

return 0;

system("PAUSE");

}

TASK 3:

TASK 4:

#include<iostream>

using namespace std;

int arr[20];

int main()

{

int n, i;

cout<<"Enter the size of array"<<endl;

cin >> n;

cout << "Enter the elements" << endl;

for (i = 0; i<n; i++)

cin>> arr[i];

merge\_sort(arr, 0, n - 1);

cout<<"Sorted array:"<<endl;

for (i = 0; i < n; i++)

cout << arr[i] << endl;

return 0;

}

int merge\_sort(int arr[], int low, int high)

{

int mid;

if (low<high) {

mid = (low + high) / 2;

merge\_sort(arr, low, mid);

merge\_sort(arr, mid + 1, high);

merge(arr, low, mid, high);

}

return 0;

}

int merge(int arr[], int l, int m, int h)

{

int arr1[10], arr2[10];

int n1, n2, i, j, k;

n1 = m - l + 1;

n2 = h - m;

for (i = 0; i<n1; i++)

arr1[i] = arr[l + i];

for (j = 0; j<n2; j++)

arr2[j] = arr[m + j + 1];

arr1[i] = 9999;

arr2[j] = 9999;

i = 0;

j = 0;

for (k = l; k <= h; k++) {

if (arr1[i] <= arr2[j])

arr[k] = arr1[i++];

else

arr[k] = arr2[j++];

}

return 0;

}