**Task 1**

#include<iostream>

using namespace std;

int main(){

int num, divisor = 2;

cout<<"Enter the number: ";

cin >> num;

cout << "The factors of " << num << "are: ";

for(divisor; divisor<= (num/2); divisor++){

if (num% divisor == 0){

cout<< divisor << " ";

}

}

}

**Task 2**

The output is:

x is 5 and y is 10

**Task 3**

#include<iostream>

using namespace std;

int main(){

int num;

cout <<"Enter the number: ";

cin >> num;

if(num > 10 && num <= 20){

cout << '1';

}

else

cout << '0';

return 0;

}

**Task 4**

#include <iostream>

using namespace std;

int main() {

int Num;

cout << "Enter a positive integer : ";

cin >> Num;

if (Num <= 1) {

cout << "There are no prime numbers less than or equal to " << Num << "." << endl;

return 0;

}

while (Num > 1) {

int divisor = 2;

while (divisor \* divisor <= Num) {

if (Num % divisor == 0) {

break;

}

divisor++;

}

if (divisor \* divisor > Num) {

cout << "The largest prime number less than or equal to " << Num << " is: " << Num << endl;

break;

}

Num--;

}

return 0;

}

**Task 5**

#include <iostream>

#include <string>

using namespace std;

int main() {

string str1, str2;

cout << "Enter first string: ";

cin >> str1;

cout << "Enter second string: ";

cin >> str2;

if (str1 == str2) {

char firstChar = str1[0];

str1 = str1.substr(1) + firstChar;

}

cout << "First string: " << str1 << endl;

cout << "Second string: " << str2 << endl;

return 0;

}

**Task 6**

#include <iostream>

using namespace std;

int divide(int dividend, int divisor) {

if (dividend < divisor) {

return 0;

}

return 1 + divide(dividend - divisor, divisor);

}

int main() {

int dividend, divisor, reminder;

cout << "Enter dividend: ";

cin >> dividend;

cout << "Enter divisor: ";

cin >> divisor;

if (dividend < divisor) {

cout << "Dividend must be greater than divisor." << endl;

return 0;

}

int quotient = divide(dividend, divisor);

reminder = dividend-(divisor\*quotient);

// Print the quotient

cout << "Quotient: " << quotient << endl;

cout << "Reminder: " << reminder<< endl;

return 0;

}

**Task 7**

#include <iostream>

using namespace std;

string removeDuplicates(const string &input) {

string result;

for (char ch : input) {

if (result.find(ch) == string::npos) {

result += ch;

}

}

return result;

}

int main() {

string input;

cout << "Enter a single word: ";

cin >> input;

string result = removeDuplicates(input);

cout << "Original Word: " << input << endl;

cout << "Resultant Word: " << result << endl;

return 0;}

**Task 8**

#include <iostream>

using namespace std;

int main() {

int a[5] = {1, 2, 3, 4, 5};

a[5] = 6;

a[6] = 7;

a[7] = 8;

a[8] = 9;

a[9] = 10;

for (int i = 0; i < 10; i++) {

cout << "a[" << i << "]: " << a[i] << endl;

}

return 0;

}

**Task 9**

#include <iostream>

void bubbleSort(int arr[], int n) {

for (int i = 0; i < n - 1; ++i) {

for (int j = 0; j < n - i - 1; ++j) {

if (arr[j] > arr[j + 1]) {

// Swap arr[j] and arr[j + 1]

int temp = arr[j];

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

arr[j + 1] = temp;

}

}

}

}

void findTripletWithSum(int arr[], int n, int targetSum) {

// Sort the array using bubble sort

bubbleSort(arr, n);

for (int i = 0; i < n - 2; ++i) {

int left = i + 1;

int right = n - 1;

while (left < right) {

int currentSum = arr[i] + arr[left] + arr[right];

if (currentSum == targetSum) {

std::cout << "Yes, there is a triplet with sum " << targetSum << " in the array." << std::endl;

return; // Triplet found, exit the function

} else if (currentSum < targetSum) {

// Move the left pointer to increase the sum

++left;

} else {

// Move the right pointer to decrease the sum

--right;

}

}

}

std::cout << "No triplet found in the array with sum " << targetSum << "." << std::endl;

}

int main() {

int n;

std::cout << "Enter the size of the array: ";

std::cin >> n;

int arr[n];

std::cout << "Enter the array elements (separate with spaces): ";

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

std::cin >> arr[i];

}

int targetSum;

std::cout << "Enter the target sum: ";

std::cin >> targetSum;

findTripletWithSum(arr, n, targetSum);

return 0;

}

**Task 10**

#include <iostream>

using namespace std;

void bubbleSort(int arr[], int n) {

for (int i = 0; i < n-1; i++) {

for (int j = 0; j < n-i-1; j++) {

if (arr[j] > arr[j+1]) {

int temp = arr[j];

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

arr[j+1] = temp;

}

}

}

}

int main() {

int arr[6];

cout << "Enter 6 integers:\n";

for (int i = 0; i < 6; i++) {

cin >> arr[i];

}

bubbleSort(arr, 6);

cout << "Sorted array: ";

for (int i = 0; i < 6; i++)

cout << arr[i] << " ";

cout << endl;

return 0;

}