**Day 01**

**#include <iostream>**

**#include <cmath>**

**using namespace std;**

**int main() {**

**// Task 1: Test Hello World**

**cout << "Hello World\n";**

**/\*\* Output:**

**Hello World**

**\*\*/**

**// Task 2: Addition of two numbers**

**int num1 = 10, num2 = 20;**

**int sum = num1 + num2;**

**cout << "Sum of " << num1 << " and " << num2 << " is: " << sum << endl;**

**/\*\* Output:**

**Sum of 10 and 20 is: 30**

**\*\*/**

**// Task 3: Swap two numbers**

**int a = 5, b = 10;**

**cout << "Before swapping: a = " << a << ", b = " << b << endl;**

**swap(a, b);**

**cout << "After swapping: a = " << a << ", b = " << b << endl;**

**/\*\* Output:**

**Before swapping: a = 5, b = 10**

**After swapping: a = 10, b = 5**

**\*\*/**

**// Task 4: Check if a number is even or odd**

**int num = 7;**

**if (num % 2 == 0)**

**cout << num << " is even.\n";**

**else**

**cout << num << " is odd.\n";**

**/\*\* Output:**

**7 is odd.**

**\*\*/**

**// Task 5: Check if a number is divisible by 5 and 7**

**int number = 35;**

**if (number % 5 == 0 && number % 7 == 0)**

**cout << number << " is divisible by both 5 and 7.\n";**

**else**

**cout << number << " is not divisible by both 5 and 7.\n";**

**/\*\* Output:**

**35 is divisible by both 5 and 7.**

**\*\*/**

**// Task 6: Calculate Income tax**

**double salary = 250000;**

**double tax;**

**if (salary < 150000)**

**tax = 0;**

**else if (salary >= 150000 && salary <= 300000)**

**tax = 0.2 \* salary;**

**else**

**tax = 0.3 \* salary;**

**cout << "Income tax for salary " << salary << " is: " << tax << endl;**

**/\*\* Output:**

**Income tax for salary 250000 is: 50000**

**\*\*/**

**// Task 7: Check if a character is vowel or consonant**

**char ch = 'e';**

**if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u')**

**cout << ch << " is a vowel.\n";**

**else**

**cout << ch << " is a consonant.\n";**

**/\*\* Output:**

**e is a vowel.**

**\*\*/**

**// Task 8: Check if angles form a valid triangle**

**int angle1 = 60, angle2 = 60, angle3 = 60;**

**if (angle1 + angle2 + angle3 == 180)**

**cout << "Angles form a valid triangle.\n";**

**else**

**cout << "Angles do not form a valid triangle.\n";**

**/\*\* Output:**

**Angles form a valid triangle.**

**\*\*/**

**// Task 9: Find factorial of a number**

**int factorialNum = 5;**

**int factorial = 1;**

**for (int i = 1; i <= factorialNum; ++i)**

**factorial \*= i;**

**cout << "Factorial of " << factorialNum << " is: " << factorial << endl;**

**/\*\* Output:**

**Factorial of 5 is: 120**

**\*\*/**

**// Task 10: Calculate m to the power n**

**int m = 3, n = 4;**

**int power = 1;**

**for (int i = 1; i <= n; ++i)**

**power \*= m;**

**cout << m << " raised to the power " << n << " is: " << power << endl;**

**/\*\* Output:**

**3 raised to the power 4 is: 81**

**\*\*/**

**// Task 11: Check if a number is prime**

**int primeNum = 7;**

**bool isPrime = true;**

**for (int i = 2; i <= sqrt(primeNum); ++i) {**

**if (primeNum % i == 0) {**

**isPrime = false;**

**break;**

**}**

**}**

**if (isPrime)**

**cout << primeNum << " is a prime number.\n";**

**else**

**cout << primeNum << " is not a prime number.\n";**

**/\*\* Output:**

**7 is a prime number.**

**\*\*/**

**// Task 12: Sum of series**

**int nSeries = 5;**

**int sumSeries = 0;**

**for (int i = 1; i <= nSeries; ++i)**

**sumSeries += i;**

**cout << "Sum of series 1+2+3+...+" << nSeries << " is: " << sumSeries << endl;**

**/\*\* Output:**

**Sum of series 1+2+3+...+5 is: 15**

**\*\*/**

**// Task 13: Check if a number is palindrome**

**int palindromeNum = 12321;**

**int originalNum = palindromeNum;**

**int reversedNum = 0;**

**while (palindromeNum > 0) {**

**int remainder = palindromeNum % 10;**

**reversedNum = reversedNum \* 10 + remainder;**

**palindromeNum /= 10;**

**}**

**if (originalNum == reversedNum)**

**cout << originalNum << " is a palindrome number.\n";**

**else**

**cout << originalNum << " is not a palindrome number.\n";**

**/\*\* Output:**

**12321 is a palindrome number.**

**\*\*/**

**// Task 14: Sum of all even and odd numbers between 1 to n**

**int nSum = 10;**

**int sumEven = 0, sumOdd = 0;**

**for (int i = 1; i <= nSum; ++i) {**

**if (i % 2 == 0)**

**sumEven += i;**

**else**

**sumOdd += i;**

**}**

**cout << "Sum of even numbers between 1 to " << nSum << ": " << sumEven << endl;**

**cout << "Sum of odd numbers between 1 to " << nSum << ": " << sumOdd << endl;**

**/\*\* Output:**

**Sum of even numbers between 1 to 10: 30**

**Sum of odd numbers between 1 to 10: 25**

**\*\*/**

**// Task 15: Print reverse of a number**

**int numberReverse = 12345;**

**int reversedNumber = 0;**

**while (numberReverse > 0) {**

**int digit = numberReverse % 10;**

**reversedNumber = reversedNumber \* 10 + digit;**

**numberReverse /= 10;**

**}**

**cout << "Reverse of 12345 is: " << reversedNumber << endl;**

**/\*\* Output:**

**Reverse of 12345 is: 54321**

**\*\*/**

**// Task 16: Print all prime numbers between 1 to n**

**int nPrime = 20;**

**cout << "Prime numbers between 1 to " << nPrime << " are: ";**

**for (int i = 2; i <= nPrime; ++i) {**

**bool isPrime = true;**

**for (int j = 2; j \* j <= i; ++j) {**

**if (i % j == 0) {**

**isPrime = false;**

**break;**

**}**

**}**

**if (isPrime)**

**cout << i << " ";**

**}**

**cout << endl;**

**/\*\* Output:**

**Prime numbers between 1 to 20 are: 2 3 5 7 11 13 17 19**

**\*\*/**

**// Task 17: Check if a number is Armstrong number**

**int armstrongNum = 153;**

**int originalArmstrongNum = armstrongNum;**

**int armstrongSum = 0;**

**while (armstrongNum != 0) {**

**int digit = armstrongNum % 10;**

**armstrongSum += pow(digit, 3);**

**armstrongNum /= 10;**

**}**

**if (armstrongSum == originalArmstrongNum)**

**cout << originalArmstrongNum << " is an Armstrong number.\n";**

**else**

**cout << originalArmstrongNum << " is not an Armstrong number.\n";**

**/\*\* Output:**

**153 is an Armstrong number.**

**\*\*/**

**// Task 18: Find greatest of three numbers using nested if-else**

**int num1Greatest = 10, num2Greatest = 20, num3Greatest = 15;**

**if (num1Greatest >= num2Greatest) {**

**if (num1Greatest >= num3Greatest)**

**cout << num1Greatest << " is the greatest number.\n";**

**else**

**cout << num3Greatest << " is the greatest number.\n";**

**}**

**else {**

**if (num2Greatest >= num3Greatest)**

**cout << num2Greatest << " is the greatest number.\n";**

**else**

**cout << num3Greatest << " is the greatest number.\n";**

**}**

**/\*\* Output:**

**20 is the greatest number.**

**\*\*/**

**// Task 19: Pizza Shop menu driven program**

**char choice;**

**do {**

**cout << "\nPizza Shop Menu:\n";**

**cout << "1. Margherita Pizza - $10\n";**

**cout << "2. Veggie Supreme Pizza - $12\n";**

**cout << "3. Chicken BBQ Pizza - $15\n";**

**cout << "4. Exit\n";**

**cout << "Enter your choice (1-4): ";**

**cin >> choice;**

**switch(choice) {**

**case '1':**

**cout << "You ordered Margherita Pizza. Total amount: $10\n";**

**break;**

**case '2':**

**cout << "You ordered Veggie Supreme Pizza. Total amount: $12\n";**

**break;**

**case '3':**

**cout << "You ordered Chicken BBQ Pizza. Total amount: $15\n";**

**break;**

**case '4':**

**cout << "Thank you for visiting!\n";**

**break;**

**default:**

**cout << "Invalid choice! Please enter a valid option.\n";**

**}**

**} while (choice != '4');**

**/\*\* Output:**

**Pizza Shop Menu:**

**1. Margherita Pizza - $10**

**2. Veggie Supreme Pizza - $12**

**3. Chicken BBQ Pizza - $15**

**4. Exit**

**Enter your choice (1-4): 2\*\*/**

**}**