

GAUHATI COMMERCE COLLEGE
Department of BCA

C++ PROGRAMS FOR PRACTICE

1. C++ program to print “Hello World” in the console screen

```
// Header file for input output functions
#include <iostream>
using namespace std;

// main() function: where the execution of
// C++ program begins
int main() {

    // This statement prints "Hello World"
    cout << "Hello World";

    return 0;
}
```

2. C++ program to read and print number input from the user.

```
// C++ program to demonstrate the
// cin object
#include <iostream>
using namespace std;

// Driver Code
int main()
{
    int i;

    // Take input using cin
    cin >> i;

    // Print output
    cout << i;

    return 0;
}
```

3. C++ program to print the ASCII value of a character.

```
// C++ program to print
// ASCII Value of Character
#include <iostream>
using namespace std;

// Driver code
int main()
{
    char c = 'A';
    cout << "The ASCII value of " <<
        c << " is " << int(c);
    return 0;
}
```

4. C++ program to swap two numbers.

```
// C++ program to swap two
// numbers using 3rd variable
#include <bits/stdc++.h>
using namespace std;

// Driver code
int main()
{
    int a = 2, b = 3;

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

    // temporary variable
    int temp;

    // applying swapping algorithm
    temp = a;
    a = b;
    b = temp;
    cout << "After swapping a = " << a << ", b = " << b
        << endl;

    return 0;
}
```

5. C++ program to find the value of int, double, float and char.

```
// C++ program to find the size of int, char,
// float and double data types
#include <iostream>
using namespace std;
```

```

int main()
{
    int integerType;
    char charType;
    float floatType;
    double doubleType;

    // Calculate and Print
    // the size of integer type
    cout << "Size of int is: " << sizeof(integerType)
        << "\n";

    // Calculate and Print
    // the size of doubleType
    cout << "Size of char is: " << sizeof(charType) << "\n";

    // Calculate and Print
    // the size of charType
    cout << "Size of float is: " << sizeof(floatType)
        << "\n";

    // Calculate and Print
    // the size of floatType
    cout << "Size of double is: " << sizeof(doubleType)
        << "\n";

    return 0;
}

```

6. C++ program to determine compound interest.

```

// C++ program to find compound interest
// for given values.
#include <bits/stdc++.h>
using namespace std;

// Driver code
int main()
{
    double principal = 10000, rate = 5, time = 2;

    // Calculate compound interest
    double A = principal * ((pow((1 + rate / 100), time)));
    double CI = A - principal;

    cout << "Compound interest is " << CI;

    return 0;
}

```

```
}
```

7. C++ program to check for even or odd integer.

```
// C++ program to check if the number is even  
// or odd using modulo operator  
#include <bits/stdc++.h>  
using namespace std;  
  
int main() {  
    int n = 11;  
  
    // If n is completely divisible by 2  
    if (n % 2 == 0)  
        cout << "Even";  
  
    // If n is NOT completely divisible by 2  
    else  
        cout << "Odd";  
    return 0;  
}
```

8. C++ program to determine the largest among three numbers

```
// C++ Program to find largest among three  
// numbers using if-else-if ladder  
#include <iostream>  
using namespace std;  
  
int main() {  
    int a = 1, b = 2, c = 11;  
  
    // Finding the largest by comparing using  
    // relational operators with if-else  
    if (a >= b) {  
        if (a >= c)  
            cout << a;  
        else  
            cout << c;  
    }  
    else {  
        if (b >= c)  
            cout << b;  
        else  
            cout << c;  
    }  
  
    return 0;
```

```
}
```

9. C++ program to check for leap year.

```
// C++ program to check if a given
// year is a leap year or not
#include <iostream>
using namespace std;

// Function to check leap year
bool checkYear(int year)
{
    if (year % 400 == 0) {
        return true;
    }

    // not a leap year if divisible by 100
    // but not divisible by 400
    else if (year % 100 == 0) {
        return false;
    }

    // leap year if not divisible by 100
    // but divisible by 4
    else if (year % 4 == 0) {
        return true;
    }

    // all other years are not leap years
    else {
        return false;
    }
}

// Driver code
int main()
{
    int year = 2000;

    checkYear(year) ? cout << "Leap Year"
                    : cout << "Not a Leap Year";

    return 0;
}
```

10. C++ program to check for prime number.

```
// C++ Program to check for prime number using
// Simple Trial Division
```

```

#include <bits/stdc++.h>
using namespace std;

int main() {
    int n = 29;

    int cnt = 0;

    // If number is less than/equal to 1,
    // it is not prime
    if (n <= 1)
        cout << n << " is NOT prime" << endl;
    else {

        // Check for divisors from 1 to n
        for (int i = 1; i <= n; i++) {

            // Check how many number is divisible
            // by n
            if (n % i == 0)
                cnt++;
        }

        // If n is divisible by more than 2 numbers
        // then it is not prime
        if (cnt > 2)
            cout << n << " is NOT prime" << endl;

        // else it is prime
        else
            cout << n << " is prime" << endl;
    }

    return 0;
}

```

11. C++ program to check for palindrome number.

```

#include <iostream>
using namespace std;

int main() {
    int n=1221;
    int t = n;
    int rev = 0;

    // Calculate reverse number rev of a given number n
    while (t > 0) {
        int dig = t % 10;

```

```

    rev = rev * 10 + dig;
    t /= 10;
}

// Compare number n with reverse number rev
if (n==rev)
    cout << "Palindrome.";
else
    cout << "Not Palindrome.";
return 0;
}

```

12. C++ program to calculate simple interest.

```

// C++ program to find simple interest
// for given principal amount, time
// and rate of interest.
#include<iostream>
using namespace std;

// Driver code
int main()
{
    // We can change values here for
    // different inputs
    float P = 1, R = 1, T = 1;

    // Calculate simple interest
    float SI = (P * T * R) / 100;

    // Print the resultant value of SI
    cout << "Simple Interest = " << SI;

    return 0;
}

```

13. C++ program to convert a given temperature in Fahrenheit scale to temperature in Celsius scale.

```

// C++ program to convert Fahrenheit
// scale to Celsius scale
#include <bits/stdc++.h>
using namespace std;

// Function to convert Fahrenheit
// to Celsius
float Conversion(float n)

```

```
{  
    return (n - 32.0) * 5.0 / 9.0;  
}
```

```
// Driver code  
int main()  
{  
    float n = 40;  
    cout << Conversion(n);  
    return 0;  
}
```

14. C++ program to find the area and perimeter of a rectangle.

```
// C++ program to find area  
// and perimeter of rectangle  
#include<iostream>  
using namespace std;  
  
// Utility function  
int areaRectangle(int a, int b)  
{  
    int area = a * b;  
    return area;  
}  
  
int perimeterRectangle(int a, int b)  
{  
    int perimeter = 2*(a + b);  
    return perimeter;  
}  
  
// Driver code  
int main()  
{  
    int a = 5;  
    int b = 6;  
    cout << "Area = " <<  
        areaRectangle(a, b) <<  
        endl;  
    cout << "Perimeter = " <<  
        perimeterRectangle(a, b);  
    return 0;  
}
```

15. C++ program to check whether a character is a vowel or a consonant.

```
// C++ program to check if a given  
// character is vowel or consonant.  
#include <iostream>
```

```

using namespace std;

// Function to check whether a
// character is vowel or not
void vowelOrConsonant(char x)
{
    if (x == 'a' || x == 'e' || x == 'i' || x == 'o'
        || x == 'u' || x == 'A' || x == 'E' || x == 'I'
        || x == 'O' || x == 'U')
        cout << "Vowel" << endl;
    else
        cout << "Consonant" << endl;
}

// Driver code
int main()
{
    vowelOrConsonant('c');
    vowelOrConsonant('E');
    return 0;
}

```

16. C++ program to calculate the sum of first N natural numbers.

```

// C++ program to find sum of first
// n natural numbers.
#include <iostream>
using namespace std;

// Returns sum of first n natural
// numbers
int findSum(int n)
{
    int sum = 0;
    for (int i = 1; i <= n; i++)
        sum = sum + i;
    return sum;
}

// Driver code
int main()
{
    int n = 5;
    cout << findSum(n);
    return 0;
}

```

17. C++ program to determine the factorial of a number.

```
// C++ program to find factorial
```

```

// of given number
#include <iostream>
using namespace std;

// Function to find factorial of
// given number
unsigned int factorial(unsigned int n)
{
    if (n == 0)
        return 1;
    return n * factorial(n - 1);
}

// Driver code
int main()
{
    int num = 5;
    cout << "Factorial of " << num << " is "
         << factorial(num) << endl;
    return 0;
}

```

18. C++ program to reverse a number.

```

// C++ program to implement
// the above approach
#include <bits/stdc++.h>
using namespace std;

// Iterative function to
// reverse digits of num
int reverseDigits(int num)
{
    int rev_num = 0;
    while (num > 0) {
        rev_num = rev_num * 10 + num % 10;
        num = num / 10;
    }
    return rev_num;
}

// Driver code
int main()
{
    int num = 4562;
    cout << "Reverse of num is " << reverseDigits(num);

    getchar();
}

```

```
        return 0;
```

```
}
```

19. C++ program to check for Armstrong number.

```
// C++ program to determine whether
// the number is Armstrong number
// or not
#include <bits/stdc++.h>
using namespace std;

// Function to calculate x
// raised to the power y
int power(int x, unsigned int y)
{
    if (y == 0)
        return 1;
    if (y % 2 == 0)
        return (power(x, y / 2) * power(x, y / 2));

    return (x * power(x, y / 2) * power(x, y / 2));
}

// Function to calculate
// order of the number
int order(int x)
{
    int n = 0;
    while (x) {
        n++;
        x = x / 10;
    }
    return n;
}

// Function to check whether the
// given number is Armstrong number
// or not
bool isArmstrong(int x)
{
    // Calling order function
    int n = order(x);
    int temp = x, sum = 0;

    while (temp) {
        int r = temp % 10;
        sum += power(r, n);
        temp = temp / 10;
    }
}
```

```

    // If satisfies Armstrong
    // condition
    return (sum == x);
}

// Driver code
int main()
{
    int x = 153;
    cout << boolalpha << isArmstrong(x) << endl;

    x = 1253;
    cout << boolalpha << isArmstrong(x) << endl;

    return 0;
}

```

20. C++ program to display the factors of a natural number.

```

// C++ implementation to print all divisors
#include <iostream>
using namespace std;

// Function to print the divisors
void printDivisors(int n)
{
    for (int i = 1; i <= n; i++)
        if (n % i == 0)
            cout << " " << i;
}

// Driver code
int main()
{
    cout << "The divisors of 100 are: ";
    printDivisors(100);
    return 0;
}

```