Q1. Write a program to read your name and age, and print them in the format:

Hello <name>, you are <age> years old.

#include <iostream>

#include <string>

using namespace std;

int main() {

string name = "Liza";

int age = 21;

cout << "Hello, "<<name <<" you are " <<age <<" years old."<<endl;

return 0;

}

Q2. Read an integer and check whether it is even or odd.

#include <iostream>

#include <string>

using namespace std;

int main() {

int x;

cout << "Enter an integer:"<< endl;

cin>>x;

if (x==0)

{

cout<<"its zero"<< endl;

}

else if (x % 2 ==0)

{

cout<< "its even!"<< endl;

}

else

{

cout<<"its odd!"<< endl;

}

return 0;

}

Q3. Take two integers as input and print the larger one using if-else.

#include <iostream>

#include <string>

using namespace std;

int main() {

int x;

int y;

cout << "Enter first integer:"<< endl;

cin>>x;

cout << "Enter second integer: "<< endl;

cin>>y;

if (x>y)

{

cout<<x <<" is greater than "<<y << endl;

}

else

{

cout<<y <<" is greater than "<<x << endl;

}

return 0;

}

Q4. Read three integers and print the largest number.

#include <iostream>

#include <string>

using namespace std;

int main() {

int x;

int y;

int z;

cout << "Enter first integer:"<< endl;

cin>>x;

cout << "Enter second integer: "<< endl;

cin>>y;

cout << "Enter third integer:"<< endl;

cin>>z;

if (x>y and x>z)

{

cout<<x <<" is the greatest!"<< endl;

}

else if (y>x and y>z)

{

cout<<y <<" is the greatest!"<< endl;

}

else

{

cout<<z <<" is the greatest!"<< endl;

}

Q5. Take an integer and check whether it is positive, negative, or zero.

#include <iostream>

#include <string>

using namespace std;

int main() {

int x;

cout << "Enter an integer:"<< endl;

cin>>x;

if (x>0)

{

cout<<x <<" is possitive!"<< endl;

}

else if (x<0)

{

cout<<x <<" is the negative!"<< endl;

}

else

{

cout<<x <<" is zero!"<< endl;

}

return 0;

}

Q6. Write a program to print the multiplication table of a given number using

a for loop.

#include <iostream>

#include <string>

using namespace std;

int main() {

int x;

cout << "Enter an integer:"<< endl;

cin>>x;

if (x!=0)

{

for (int i=1; i<=10; i++)

{

cout<<x <<" x " << i <<" = "<<x\*i << endl;

}

}

else

{

cout<<x <<" is zero!"<< endl;

}

return 0;

}

Q7. Print all numbers from 1 to 100 using a for loop.

#include <iostream>

#include <string>

using namespace std;

int main() {

for (int i=1; i<=100; i++)

{

cout<<i <<endl;

}

return 0;

}

Q8. Find the sum of the first n natural numbers.

#include <iostream>

#include <string>

using namespace std;

int main() {

int n;

cout<< "Enter an integer: ";

cin>> n;

int total = 0;

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

{

total = total + i;

}

cout<< "The total sum: "<< total<< endl;

return 0;

}

Q9. Find the factorial of a given number n.

#include <iostream>

#include <string>

using namespace std;

int main() {

int n;

cout<< "Enter an integer: ";

cin>> n;

int total = 1;

if (n<0)

{

cout<<"cannot find negative factorial!"<<endl;

}

else if(n==0)

{

cout<<"no factorial for zero"<<endl;

}

else

{

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

{

total = total\*i;

}

cout<< "factorial: "<< total<< endl;

}

return 0;

}

Q10. Check whether a given year is a leap year or not.

#include <iostream>

#include <string>

using namespace std;

int main() {

int n;

cout<< "Enter a year: ";

cin>> n;

if (n%4==0)

{

if(n%400==0)

{

cout<<n <<" is a leap year!"<< endl;

}

else if (n%100==0)

{

cout<<n<<" is not a leap year!"<< endl;

}

else

{

cout<<n <<" is a leap year!"<< endl;

}

}

else

{

cout<<n <<" is not a leap year!"<< endl;

}

return 0;

}

Q11. Given marks of a student (0–100), print the grade: A (≥90), B (80–89),

C (70–79), D (60–69), F (below 60).

#include <iostream>

#include <string>

using namespace std;

int main()

{

int mark;

cout<<"Enter your marks between (0-100): "<<endl;

cin>> mark;

if(mark>=90)

{

cout<<"Your grade is an A!"<<endl;

}

else if(mark>=80)

{

cout<<"Your grade is a B!"<<endl;

}

else if(mark>=70)

{

cout<<"Your grade is a C!"<<endl;

}

else if(mark>=60)

{

cout<<"Your grade is a D!"<<endl;

}

else

{

cout<<"Your grade is a F"<<endl;

}

}

Q12. Find the roots of a quadratic equation ax2 + bx + c = 0. (Handle real and

imaginary roots using if-else.)

#include <iostream>

#include <string>

using namespace std;

int sqrt(int n) {

int i = 0;

while (i \* i <= n) {

i++;

}

return i - 1;

}

int main()

{

int a, b, c;

cout << "enter coefficients a, b, and c: ";

cin >> a >> b >> c;

if (a == 0) {

cout << "not a quadratic equation" << endl;

return 0;

}

int d = b \* b - 4 \* a \* c;

if (d > 0) {

int sqrtd = sqrt(d);

cout << "roots are real and distinct:" << endl;

cout << "root 1 = " << (-b + sqrtd) / (2 \* a) << endl;

cout << "root 2 = " << (-b - sqrtd / (2 \* a) << endl;

}

else if (d == 0) {

cout << "roots are real and equal:" << endl;

cout << "root = " << (-b) / (2 \* a) << endl;

}

else {

int sqrtd = sqrt(-d);

cout << "roots are complex and imaginary:" << endl;

cout << "root 1 = " << (-b) / (2 \* a) << " + " << sqrtd << "i" << endl;

cout << "root 2 = " << (-b) / (2 \* a) << " - " << sqrtd << "i" << endl;

}

return 0;

}

Q13. Check whether a number is prime or not.

#include <iostream>

#include <string>

using namespace std;

int main()

{

int a;

cout << "enter a number: ";

cin >> a;

int flag = 0;

if (a == 0)

{

cout << "zero is not a prime number" << endl;

return 0;

}

else if(a<0)

{

cout<<"negative numbers are not prime"<< endl;

}

else

{

for (int i = 2; i <= a/2;i++)

{

if (a%i==0)

{

flag = 1;

break;

}

}

if(flag == 1)

{

cout<<"not a prime number"<< endl;

}

else

{

cout<<a<<" is a prime number"<< endl;

}

}

}

Q14. Print all prime numbers between 1 and 100.

#include <iostream>

#include <string>

using namespace std;

int main()

{

for (int j = 2; j <= 100; j++)

{

int flag = 0;

for (int i = 2; i <= j / 2; i++)

{

if (j % i == 0) {

flag = 1;

break;

}

}

if (flag == 0) {

cout << j << " is a prime number" << endl;

}

}

return 0;

}

Q15. Reverse the digits of a given number. (Example: input 1234 → output

4321)

#include <iostream>

#include <string>

using namespace std;

int main() {

int n, r = 0;

cout << "enter a number: ";

cin >> n;

while (n > 0) {

int digit = n % 10;

r = r \* 10 + digit;

n = n / 10;

}

cout << "reversed number: " << r << endl;

return 0;

}

Q16. Find the sum of digits of a given number. (Example: input 1234 → output

10)

#include <iostream>

#include <string>

using namespace std;

int main() {

int num, sum = 0;

cout << "enter a number: ";

cin >> num;

while (num > 0) {

int digit = num % 10;

sum = sum + digit;

num = num / 10;

}

cout << "sum of digits: " << sum << endl;

return 0;

}

Q17. Generate the Fibonacci series up to n terms.

#include <iostream>

#include <string>

using namespace std;

int main() {

int n;

cout << "enter number of terms: ";

cin >> n;

int a = 0, b = 1;

cout << "fibonacci Series: ";

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

cout << a << " ";

int next = a + b;

a = b;

b = next;

}

cout << endl;

return 0;

}

Q18. Check whether a given number is a palindrome or not. (Example: 121 is

palindrome, 123 is not.)

#include <iostream>

#include <string>

using namespace std;

int main() {

int num, original, reversed = 0;

cout << "enter a number: ";

cin >> num;

original = num;

while (num > 0) {

int digit = num % 10;

reversed = reversed \* 10 + digit;

num = num / 10;

}

if (original == reversed)

cout << original << " is a palindrome." << endl;

else

cout << original << " is not a palindrome." << endl;

return 0;

}

Q19. Write a program to calculate the simple interest. Formula: SI =

P ×R×T

100

#include <iostream>

#include <string>

using namespace std;

int main() {

int P, R, T;

cout << "Enter Principal (P): ";

cin >> P;

cout << "Enter Rate of Interest (R): ";

cin >> R;

cout << "Enter Time (T in years): ";

cin >> T;

int SI = (P \* R \* T) / 100;

cout << "Simple Interest = " << SI << endl;

return 0;

}

Q20. Write a program to find the greatest common divisor (GCD) of two num-

bers using a loop.

#include <iostream>

#include <string>

using namespace std;

int main() {

int a, b;

cout << "enter two numbers: ";

cin >> a >> b;

while (b != 0) {

int temp = b;

b = a % b;

a = temp;

}

cout << "GCD = " << a << endl;

return 0;

}