**Top 10 Coding Questions on Conditional Statements & Loops**

**📌 1. If-Else: Check Even or Odd**

**Problem:** Write a program to check if a given number is **even or odd** using an if-else statement.

**📌 2. Nested If-Else: Find the Largest of Three Numbers**

**Problem:** Given three numbers, find the **largest** using if-else or nested if-else.

**📌 3. If-Else: Check Leap Year**

**Problem:** Write a program to check whether a given year is a **leap year** or not.

**📌 4. Switch Case: Simple Calculator**

**Problem:** Design a calculator that takes two numbers and an operator (+, -, \*, /) as input and performs the operation.

**📌 5. While Loop: Count Digits in a Number**

**Problem:** Given a number, count the number of **digits** in it using a loop.

**📌 6. For Loop: Sum of First N Natural Numbers**

**Problem:** Given a number N, find the sum of the first N natural numbers using a loop.

**📌 7. While Loop: Reverse a Number**

**Problem:** Reverse a given number using a loop.

**📌 8. For Loop & If-Else: Check Prime Number**

**Problem:** Write a program to check if a number is **prime**.

**📌 9. Loops: Print Fibonacci Series (N Terms)**

**Problem:** Print the first N terms of the Fibonacci series

**📌 10. Nested Loops: Print a Pyramid Pattern**

**Problem:** Print a pyramid pattern for N rows.

## 📌 1. If-Else: Check Even or Odd

**Problem:** Write a program to check if a given number is **even or odd** using an if-else statement.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int num;

cin >> num;

if (num % 2 == 0) cout << "Even";

else cout << "Odd";

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int num = sc.nextInt();

System.out.println((num % 2 == 0) ? "Even" : "Odd");

}

}

#### Python:

num = int(input())

print("Even" if num % 2 == 0 else "Odd")

## 📌 2. Nested If-Else: Find the Largest of Three Numbers

**Problem:** Given three numbers, find the **largest** using if-else or nested if-else.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int a, b, c;

cin >> a >> b >> c;

cout << max(a, max(b, c));

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int a = sc.nextInt(), b = sc.nextInt(), c = sc.nextInt();

System.out.println(Math.max(a, Math.max(b, c)));

}

}

#### Python:

a, b, c = map(int, input().split())

print(max(a, b, c))

## 📌 3. If-Else: Check Leap Year

**Problem:** Write a program to check whether a given year is a **leap year** or not.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int year;

cin >> year;

if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0))

cout << "Leap Year";

else

cout << "Not a Leap Year";

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int year = sc.nextInt();

if ((year % 4 == 0 && year % 100 != 0) || (year % 400 == 0))

System.out.println("Leap Year");

else

System.out.println("Not a Leap Year");

}

}

#### Python:

year = int(input())

print("Leap Year" if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0) else "Not a Leap Year")

## 📌 4. Switch Case: Simple Calculator

**Problem:** Design a calculator that takes two numbers and an operator (+, -, \*, /) as input and performs the operation.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int a, b;

char op;

cin >> a >> op >> b;

switch(op) {

case '+': cout << a + b; break;

case '-': cout << a - b; break;

case '\*': cout << a \* b; break;

case '/': cout << (b != 0 ? a / b : 0); break;

default: cout << "Invalid Operator";

}

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int a = sc.nextInt();

char op = sc.next().charAt(0);

int b = sc.nextInt();

switch(op) {

case '+': System.out.println(a + b); break;

case '-': System.out.println(a - b); break;

case '\*': System.out.println(a \* b); break;

case '/': System.out.println(b != 0 ? a / b : 0); break;

default: System.out.println("Invalid Operator");

}

}

}

#### Python:

a, op, b = input().split()

a, b = int(a), int(b)

print(eval(f"{a}{op}{b}"))

## 📌 5. While Loop: Count Digits in a Number

**Problem:** Given a number, count the number of **digits** in it using a loop.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int num, count = 0;

cin >> num;

while (num) {

num /= 10;

count++;

}

cout << count;

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int num = sc.nextInt(), count = 0;

while (num > 0) {

num /= 10;

count++;

#### 

System.out.println(count);

}

}

#### Python:

num = input()

print(len(num))

## 📌 6. For Loop: Sum of First N Natural Numbers

**Problem:** Given a number N, find the sum of the first N natural numbers using a loop.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int n, sum = 0;

cin >> n;

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

cout << sum;

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int n = sc.nextInt(), sum = 0;

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

System.out.println(sum);

}

}

#### Python:

n = int(input())

print(n \* (n + 1) // 2)

## 📌 7. While Loop: Reverse a Number

**Problem:** Reverse a given number using a loop.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int num, rev = 0;

cin >> num;

while (num) {

rev = rev \* 10 + num % 10;

num /= 10;

}

cout << rev;

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int num = sc.nextInt(), rev = 0;

while (num > 0) {

rev = rev \* 10 + num % 10;

num /= 10;

}

System.out.println(rev);

}

}

#### Python:

num = input()

print(num[::-1])

## 📌 8. For Loop & If-Else: Check Prime Number

**Problem:** Write a program to check if a number is **prime**.

### Solution:

#### C++:

#include <iostream>

using namespace std;

bool isPrime(int n) {

if (n < 2) return false;

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

if (n % i == 0) return false;

return true;

}

int main() {

int num;

cin >> num;

cout << (isPrime(num) ? "Prime" : "Not Prime");

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static boolean isPrime(int n) {

if (n < 2) return false;

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

if (n % i == 0) return false;

return true;

}

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int num = sc.nextInt();

System.out.println(isPrime(num) ? "Prime" : "Not Prime");

}

}

#### Python:

def is\_prime(n):

if n < 2: return False

for i in range(2, int(n\*\*0.5) + 1):

if n % i == 0: return False

return True

num = int(input())

print("Prime" if is\_prime(num) else "Not Prime")

## 📌 9. For Loop: Print Fibonacci Series Up to N Terms

**Problem:** Write a program to print the **Fibonacci series** up to N terms using a for loop.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int n, a = 0, b = 1, next;

cin >> n;

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

cout << a << " ";

next = a + b;

a = b;

b = next;

}

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

int a = 0, b = 1, next;

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

System.out.print(a + " ");

next = a + b;

a = b;

b = next;

}

}

}

#### Python:

n = int(input())

a, b = 0, 1

for \_ in range(n):

print(a, end=' ')

a, b = b, a + b

## 📌 10. Nested Loops: Print a Pyramid Pattern

**Problem:** Print a pyramid pattern for N rows.

### Solution:

#### C++:

#include <iostream>

using namespace std;

int main() {

int n;

cin >> n;

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

for (int j = 1; j <= n - i; j++) cout << " ";

for (int j = 1; j <= 2 \* i - 1; j++) cout << "\*";

cout << endl;

}

return 0;

}

#### Java:

import java.util.Scanner;

class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int n = sc.nextInt();

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

for (int j = 1; j <= n - i; j++) System.out.print(" ");

for (int j = 1; j <= 2 \* i - 1; j++) System.out.print("\*");

System.out.println();

}

}

}

#### Python:

n = int(input())

for i in range(1, n + 1):

print(' ' \* (n - i) + '\*' \* (2 \* i - 1))

## 🎉 Congratulations on Completing This Guide! 🚀

You have successfully worked through some of the most important **Conditional Statements & Loops** problems. Keep practicing, stay consistent, and keep building your coding skills! 💡

For more such content, follow me on Instagram: [**code.abhii07**](https://www.instagram.com/syntax.error) 📲🔥

Happy Coding! 😊🎯