

## Interview-1

Round-1

Write a program to find the minimum number out of three numbers without using comparison operators <https://www.geeksforgeeks.org/smallest-of-three-integers-without-comparison-operators/>

Round 2:

Difference between static and dynamic library

What is a static function in C why it is used

Basic programs to manipulate a particular bit set it to toggle it.

Program to find the number that occurs an odd number of times in an array where every other element occurs an even number of times {<https://www.geeksforgeeks.org/find-the-number-occurring-odd-number-of-times/>}

Program to find min element in a sorted rotated array (he was expecting answer using binary search)<https://www.geeksforgeeks.org/find-minimum-element-in-a-sorted-and-rotated-array/>

Program to replicate a linked list having a randomized pointer pointing to other nodes randomly (without using extra space)<https://www.geeksforgeeks.org/a-linked-list-with-next-and-arbit-pointer/>

Rotate a Matrix by 180 degree

## Interview -2

- What is IPC and how semaphore is used for this?
- What's wrong in the given code?

```
char* func(){  
char name[] = "name";  
return name;  
}
```

```
int main(){  
char* ptr = func();  
printf("%s",&ptr);  
}
```

- Implement stack in C?
- what is the difference between C and C++?
- What is the difference between stacks or queues?
- Describe your project and what are its applications?
- Describe how to implement matrix multiplication in CUDA?

- What is inheritance and how to implement it in C?
- What is polymorphism give an example?
- What is perceptron and how it is different from neural network?
- What is deep learning or deep network?
- How to implement unsupervised learning in deep neural networks?
- what is learned in deep learning?

### Compute average of two numbers without overflow

Given two numbers, a and b. Compute the average of the two numbers.

The well know formula  $(a + b) / 2$  may fail at the following case :

If,  $a = b = (2^{31}) - 1$ ; i.e. INT\_MAX.

Now, (a+b) will cause overflow and hence formula  $(a + b) / 2$  wont work

Below is the implementation :

```
// C++ code to compute average of two numbers
```

```
#include <bits/stdc++.h>
```

```
using namespace std;
```

```
// Function to compute average of two numbers
```

```
int compute_average(int a, int b)
```

```
{
```

```
    return (a + b) / 2;
```

```
}
```

```
// Driver code
```

```
int main()
```

```
{
```

```
    // Assigning maximum integer value
```

```
    int a = INT_MAX, b = INT_MAX;
```

```
    // Average of two equal numbers is the same number
```

```

cout << "Actual average : " << INT_MAX << endl;

// Function to get the average of 2 numbers

cout << "Computed average : " << compute_average(a, b);

return 0;

}

```

### Output:

Actual average : 2147483647

Computed average : -1

### Improved Formula that does not cause overflow :

Average =  $(a / 2) + (b / 2) + ((a \% 2) + (b \% 2)) / 2$

Below is the implementation :

```

// C++ code to compute average of two numbers

#include <bits/stdc++.h>

using namespace std;

// Function to compute average of two numbers

int compute_average(int a, int b)

{

    return (a / 2) + (b / 2) + ((a % 2 + b % 2) / 2);

}

// Driver code

int main()

```

```

{

    // Assigning maximum integer value

    int a = INT_MAX, b = INT_MAX;

    // Average of two equal numbers is the same number

    cout << "Actual average : " << INT_MAX << endl;

    // Function to get the average of 2 numbers

    cout << "Computed average : " << compute_average(a, b);

    return 0;

}

```

#### Output:

Actual average : 2147483647

Computed average : 2147483647

## Implementing ternary operator without any conditional statement

How to implement ternary operator in C++ without using conditional statements.

In the following condition: **a ? b: c**

If a is true, b will be executed.

Otherwise, c will be executed.

We can assume a, b and c as values.

Recommended: Please try your approach on **{IDE}** first, before moving on to the solution.

We can code the equation as :

**Result = (!a)\*b + (!a)\*c**

In above equation, if a is true, the result will be b.

Otherwise, the result will be c.

```

// CPP code to implement ternary operator

#include <bits/stdc++.h>

// Function to implement ternary operator without

```

```

// conditional statements

int ternaryOperator(int a, int b, int c)

{

    // If a is true, we return (1 * b) + (!1 * c) i.e. b

    // If a is false, we return (!1 * b) + (1 * c) i.e. c

    return ((!!a) * b + (!a) * c);

}


// Driver code

int main()

{

    int a = 1, b = 10, c = 20;

    // Function call to output b or c depending on a

    std::cout << ternaryOperator(a, b, c) << '\n';

    a = 0;

    // Function call to output b or c depending on a

    std::cout << ternaryOperator(a, b, c);

    return 0;

}

```

**Output:**

10

20

## Interview-3

### Round-1

3. What is booting process of linux operating system
4. Questions on android, how is the project structure, manifest file, life cycle and some tricky questions on android
5. Puzzle lamp-bridge
6. Write code for tic-tac-toe game
7. Write graphic program for ball bouncing on wall
8. How to implement the logcat of android studio?
9. What is CUDA? Write CUDA program to add two array by their index
10. How many maximum threads can you create? What is block? What is grid?
11. Concepts of C++ like Virtual functions, Inheritance, Constructors, static variables etc.
12. Why we use virtual functions? How they are implemented?

### Round-3

2. You have an application that writes 1 to 1000 in a file, write another application which will close the first application once the first application writes the numbers upto 100.
  3. Do you know Linux? (as I had mentioned it in my resume) write down basic commands
  4. Write a code for ls command (input was a directory name)
  5. Booting process in detail
  6. Can you change the grub? If yes then how?
  7. If you kill a parent process then what will happen ?
  8. Write CUDA program for matrix multiplication? What are the different ways to do the same problem?
  9. How do we synchronize threads in CUDA?
  10. Is it possible to change the action of certain keys? if yes then how?
- From 9 they shortlisted only 3 people for HR interview

## **Interview-3**

1. [Booting in Linux](#)
2. [Child – Parent Process](#)
3. [Mathematical Question](#)
4. [Design data structure to implement multi-threading.](#)
5. [What is booting process of linux operating system](#)
6. [What is CUDA](#)
7. [How do we synchronize threads in CUDA?](#)
8. [If you kill a parent process then what will happen ?](#)
9. [Reverse Bits](#)
10. [Word Boggle](#)