



C++ Bootcamp

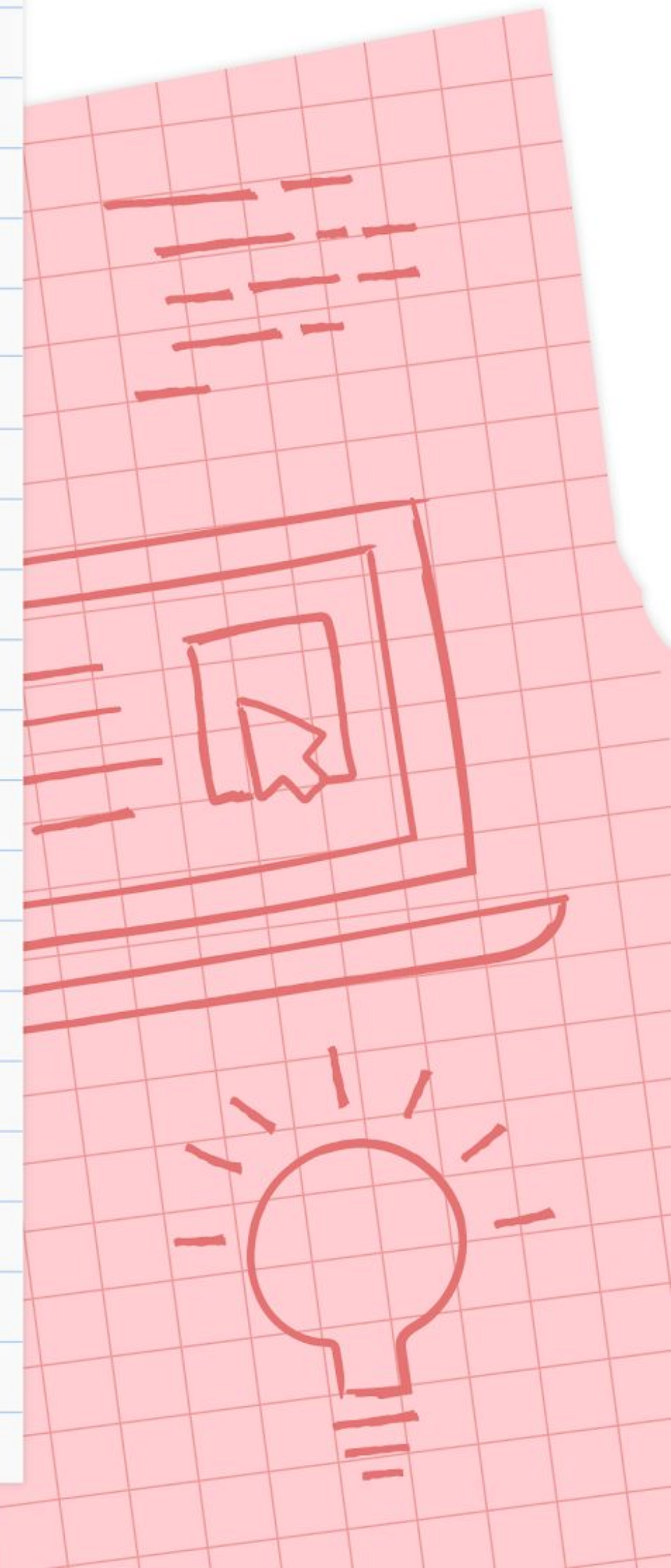
by: Hassan Shafqat
Project Manager and C++ mentor

```
filterByOrg = filterByOrg ? study.lead_organization === filterByOrg : true  
!Status = filterByStatus ? study.status === filterByStatus : true  
(matchStatus) {  
  function filterStudies({ studies, filterByOrg, filterByStatus }) {  
    return studies.filter(study => filterByOrg && filterByStatus && !filterByOrg && !filterByStatus)
```

About me

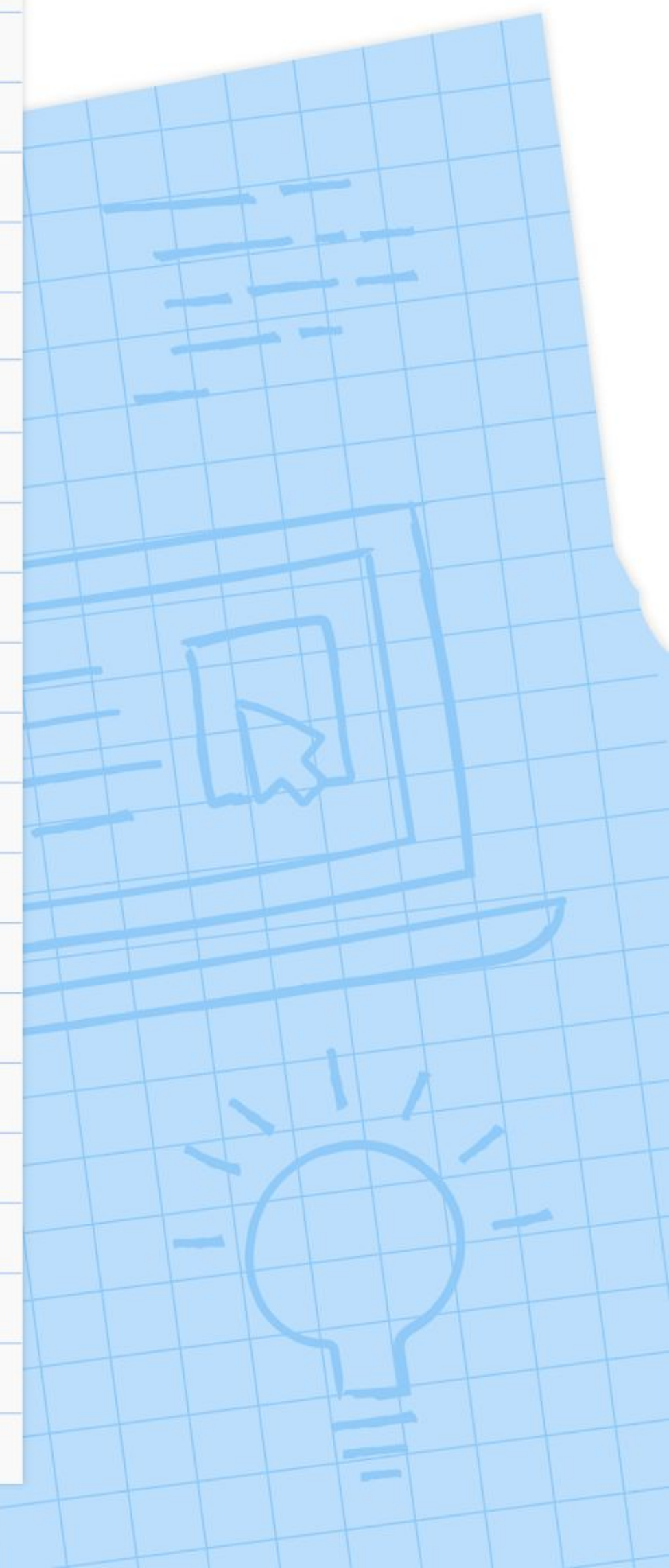


Why did I chose C++?



Aim

- What is C++?
- Why C++?
- C++ for Interviews
- Skill Levels
- Career path
- Challenge
- Resources



What is C++?

“Object-Oriented programming language”



C++ meaning



All

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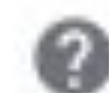
Tools

About 16,50,00,000 results (0.45 seconds)

C++ (said C plus plus) is **an object-oriented computer language** created by notable computer scientist Bjarne Stroustrup as part of the evolution of the C family of languages. It was developed as a cross-platform improvement of C to provide developers with a higher degree of control over memory and system resources. 20-Oct-2021

<https://www.techopedia.com> › definition › c-plus-plus-pro...

What is C++ Programming Language? - Techopedia



About featured snippets



Feedback



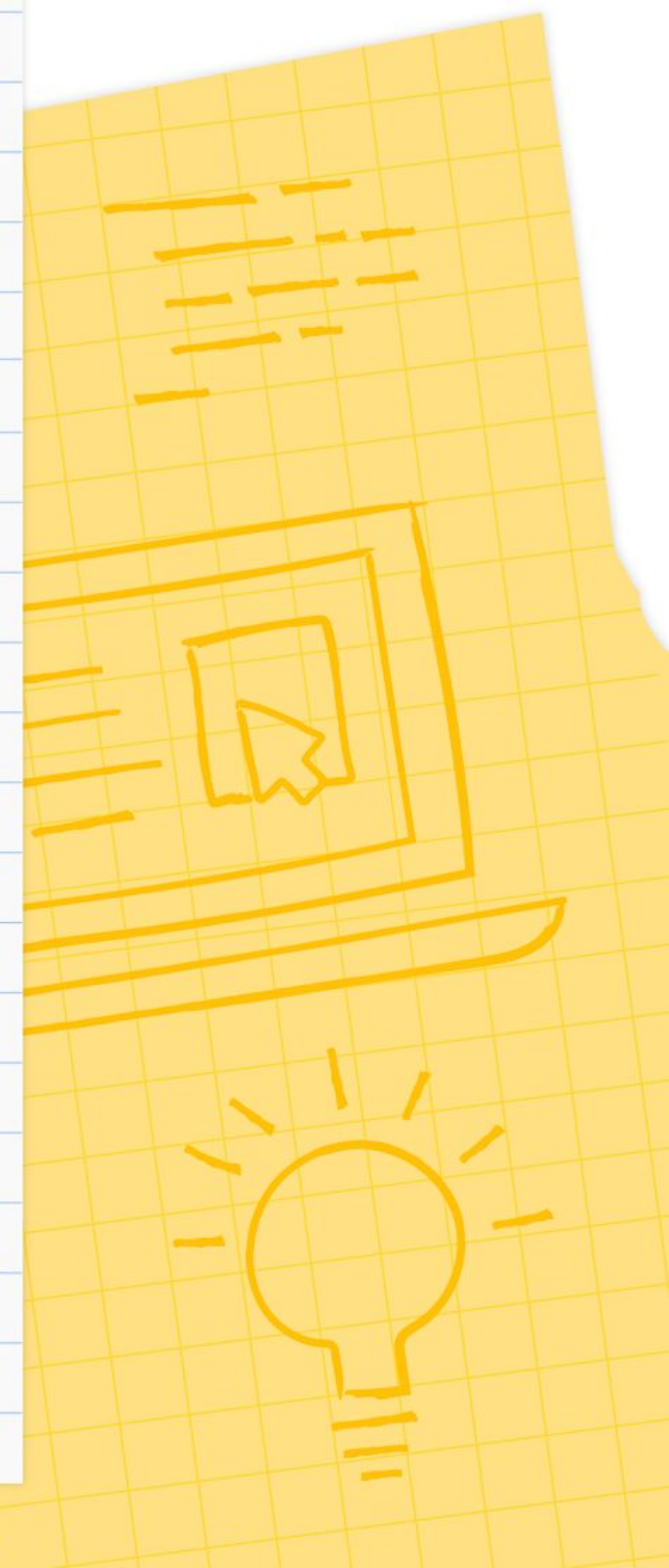
Google Developer Student Clubs


```
1  #include <iostream>
2  using namespace std;
3
4  class Box {
5      public:
6          double length;           // Length of a box
7          double breadth;          // Breadth of a box
8          double height;           // Height of a box
9
10         double getVolume(void)
11         {return length * breadth * height;}
12     };
13
14     int main() {
15         Box Box1;                 // Declare object Box1 of class Box
16
17         Box1.length = 6.0;
18         Box1.breadth = 7.0;
19         Box1.height = 5.0;
20
21         cout << "Volume of Box1 : " << Box1.getVolume() << endl;
22         return 0;
23     }
```


Why C++?

What do most people use c++ for?

- runtime speed vs development time
- Demanding applications
- Reduce complexity with Objects



Stuff made in C++

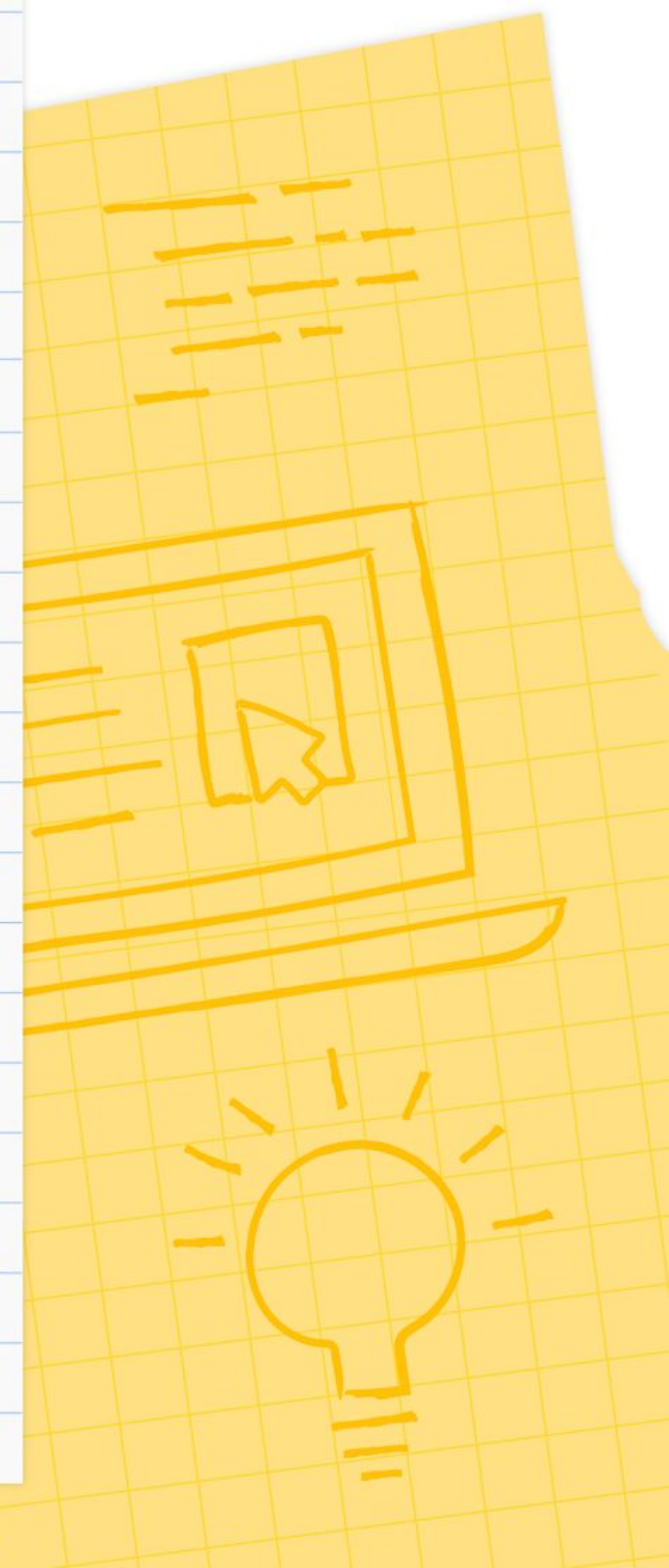
- Games & Game Engines
- Adobe suite
- Windows, Linux and Mac
- Chromium(Google Chrome, Brave, Firefox, Discord, Visual Studios Code)



C++ for Interviews

What do most people use c++ for?

- Resume screening followed by **coding round** is held
- DSA
- C++ interview benefits



Leetcode Example

1. Two Sum

Easy

👍 34480

💬 1083

♡ Add to List

🔗 Share

Given an array of integers `nums` and an integer `target`, return *indices of the two numbers such that they add up to `target`*.

You may assume that each input would have **exactly one solution**, and you may not use the same element twice.

You can return the answer in any order.

Example 1:

Input: `nums = [2,7,11,15]`, `target = 9`

Output: `[0,1]`

Explanation: Because `nums[0] + nums[1] == 9`, we return `[0, 1]`.

Approaches

- Brute force $O(n^2)$
- Binary search $O(n \log(n))$
- Hashmap $O(n)$

```
vector<int> arr = {10, 15, 20, 25, 30, 35};  
binary_search(arr.begin(), arr.end(), 25);
```

```
unordered_map<int,int> HashMap;  
  
HashMap[0] = 25;  
HashMap.find(25);
```


Skill Levels

- Beginner
 - Input/output
 - Variables
 - functions
- Advanced
 - Classes & Objects,
 - STL Vectors, Hashmaps etc
- Professional
 - Advanced concepts like polymorphism, function overloading, garbage collection
 - Multi-threading
 - Code Optimization
 - Debugging tools



How to practice DSA

1. Learn **C++** till advanced level
2. Learn **data structures**(arrays, linked lists, trees, graphs, hash maps)
3. Start **leetcode**
 - a. Do **3 easy** questions a day till you can do all **3 in one hour**
 - b. Start doing **medium** questions till you can do **2 in one hour**
 - c. Practice medium and hard problems till you can do one **hard question in 40 minutes**
4. **100 days of DSA** program.

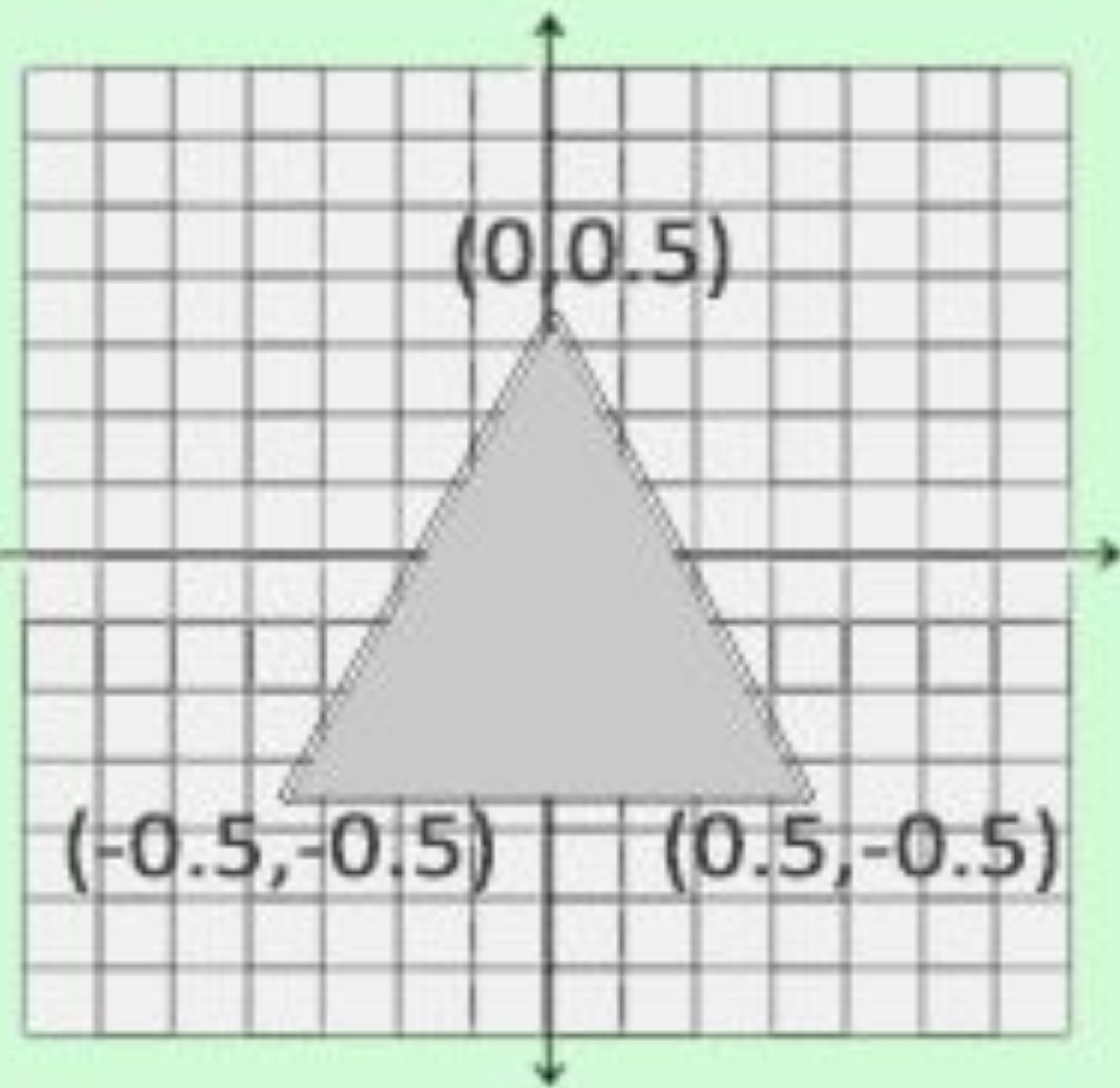
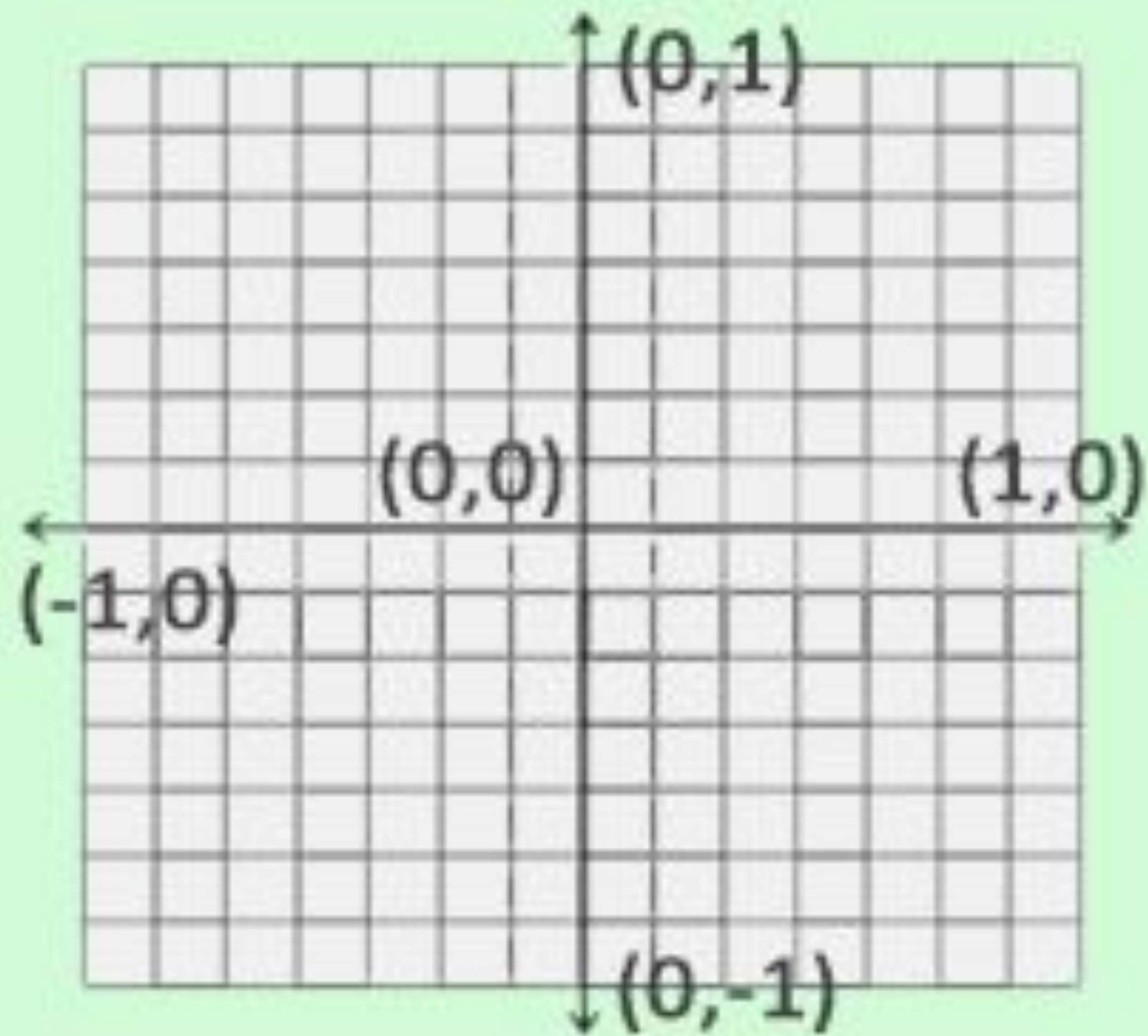


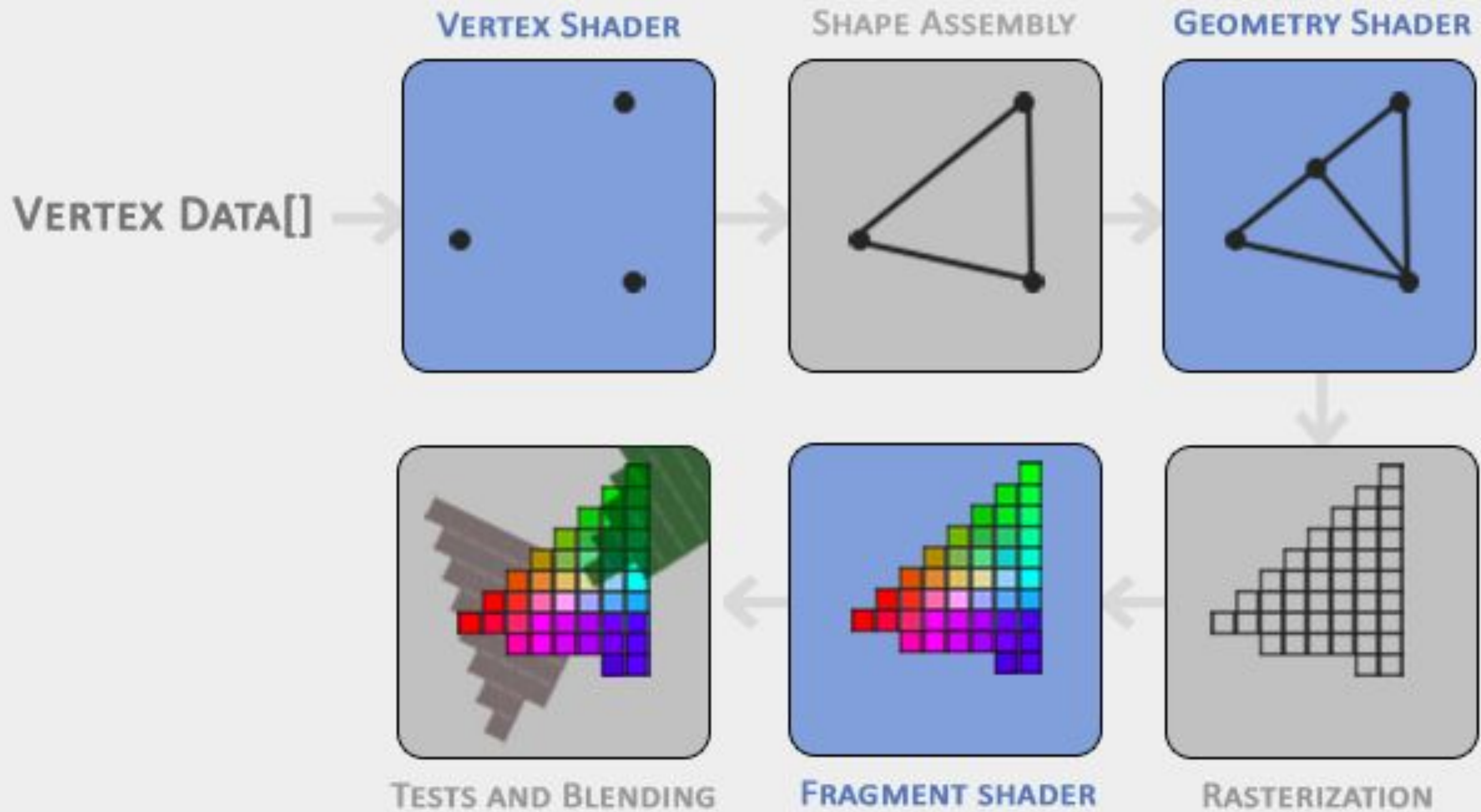
Careers

- **Design, build, and maintain** efficient and reliable C++ code
- Develop **new products**
- Suggest and implement **optimisations** on current products
- **Algorithm Development**
- Work close to operating system
- Work on **legacy code**



Live-Code





Challenge

Make a window in opengl to display your name
Bonus:- each letter in a different colour

Thank You