

Lab Mid Programming Task

A secret vault opens only when a detective correctly computes a **unique unlocking code** based on three integers: **A**, **B**, and **C**, given as input.

Your task is to write a C++ program that :

1. Accepts integers A, B, and C as input.
2. Computes an **unlock value** according to these rules:
 - Step 1: Multiply A and B.
 - Step 2: If C is even, add the remainder of dividing (A + B) by C.
 - Step 3: If C is odd, subtract the smallest of the three numbers from the result.
 - Step 4: If the final result is divisible by 3, print **“Vault Unlocked”**, otherwise print **“Access Denied”**.
3. Uses at least one **user-defined function** to modularize your logic.

Code Compiled using Clang with CMake on MacOS

Paste Code Here:

```
#include <iostream>

bool isAccessAllowed(int a, int b, int c);

int main()
{
    int a;
    int b;
    int c;

    std::cout << "Enter the code with spaces between each number: ";
    std::cin >> a >> b >> c;

    if (isAccessAllowed(a, b, c))
    {
        std::cout << "Vault Unlocked!\n";
    }
    else
    {
        std::cout << "Access Denied!\n";
    }

    std::cin.ignore();
    std::cin.get();
    return 0;
}

bool isAccessAllowed(int a, int b, int c)
{
    int pass = a * b;

    if (c % 2 == 0)
        pass += (a + b) % c;
    else
        pass -= std::min(a, std::min(b, c));

    if (pass % 3 == 0)
        return true;

    // pass is not divisible by 3
    return false;
}
```

Paste Output Screenshot Here:

```
[100%] Built target main
Executable Started ...
Enter the code with spaces between each number: 1 2 3
Access Denied!

Elapsed Time: 2.350 seconds
obsure@Obscures-MacBook-Air Lab Mid %
```

```
Executable Started ...
Enter the code with spaces between each number: 43 7 0
Vault Unlocked!

Elapsed Time: 3.142 seconds
obsure@Obscures-MacBook-Air Lab Mid %
```