NUMBER SYSTEM

1}Find out whether a given number is a Duck number or not. A Duck number is a number which has zeroes present in it, but there should be no zero present in the beginning of the number.

```cpp
#include <iostream>
#include <string>
using namespace std;

int main() {
    string num;
    cout << "Enter a number: ";
    cin >> num;

    // A Duck number should not start with '0'
    if (num[0] == '0') {
        cout << "Not a Duck number." << endl;
        return 0;
    }

    // Check if it contains at least one '0'
    bool hasZero = false;
    for (int i = 1; i < num.length(); i++) {
        if (num[i] == '0') {
            hasZero = true;
            break;
        }
    }

    if (hasZero)
        cout << "It is a Duck number." << endl;
```

```
        }
    }

    if (hasZero)
        cout << "It is a Duck number." << endl;
    else
        cout << "Not a Duck number." << endl;

    return 0;
}
```

OUTPUT:

```
Enter a number: 125
Not a Duck number.
```

2}Find out whether the given number is a CoPrime number or not. Two numbers A and B are said to be Co-Prime or mutually prime if the Greatest Common Divisor of them is 1.

```cpp
#include <iostream>
using namespace std;

// Function to find GCD using Euclidean algorithm
int findGCD(int a, int b) {
    while (b != 0) {
        int temp = b;
        b = a % b;
        a = temp;
    }
    return a;
}

int main() {
    int A, B;
    cout << "Enter first number: ";
    cin >> A;
    cout << "Enter second number: ";
    cin >> B;

    int gcd = findGCD(A, B);

    if (gcd == 1)
        cout << "The numbers " << A << " and " << B << " are Co
            -Prime." << endl;
    else
        cout << "The numbers " << A << " and " << B << " are NOT Co
            -Prime." << endl;

    return 0;
}
```

OUTPUT:

```
Enter first number: 12
Enter second number: 13
The numbers 12 and 13 are Co-Prime.


=== Code Execution Successful ===
```

3}Find out whether a given number is a Buzz Number or not. Buzz number is another special number that ends with the digit 7 or is divisible by 7.

```cpp
#include <iostream>
using namespace std;

int main() {
    int num;
    cout << "Enter a number: ";
    cin >> num;

    // A Buzz number either ends with 7 or is divisible by 7
    if (num % 10 == 7 || num % 7 == 0)
        cout << num << " is a Buzz Number." << endl;
    else
        cout << num << " is NOT a Buzz Number." << endl;

    return 0;
}
```

OUTPUT:

```
Enter a number: 14
14 is a Buzz Number.


=== Code Execution Successful ===
```