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WWC DAY 3

Question 1

Function to reverse a string:

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

void reverseString(string &str) {
    int start = 0, end = str.length() - 1;
    while (start < end) {
        swap(str[start], str[end]);
        start++;
        end--;
    }
}

int main() {
    string str = "Hello, World!";
    reverseString(str);
    cout << "Reversed string: " << str << endl;
    return 0;
}
```

QUESTION 2

Function to check if a number is prime:

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

bool isPrime(int num) {
   if (num <= 1) return false;
   for (int i = 2; i * i <= num; i++) {
      if (num % i == 0) return false;
   }
   return true;
}

int main() {
   int num = 7;
   cout << num << " is " << (isPrime(num) ? "Prime" : "Not
Prime") << endl;
   return 0;
}
```

QUESTION 3

Function to swap two variables using pass by reference:

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

void swapByReference(int &a, int &b) {
    int temp = a;
```

```
    a = b;
    b = temp;
}

int main() {
    int a = 5, b = 10;
    swapByReference(a, b);
    cout << "Swapped values: a = " << a << ", b = "
<< b << endl;
    return 0;
}
```

QUESTION 4

Recursive function to compute the GCD of two numbers:

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

int gcd(int a, int b) {
    if (b == 0) return a;
    return gcd(b, a % b);
}

int main() {
    int a = 56, b = 98;
    cout << "GCD: " << gcd(a, b) << endl;
    return 0;
}
```

QUESTION 5

Function to add two numbers:

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

int addNumbers(int a, int b) {
    return a + b;
}

int main() {
    int a = 3, b = 7;
    cout << "Sum: " << addNumbers(a, b) << endl;
    return 0;
}
```

QUESTION 6

Function to reverse a linked list:

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

struct Node {
    int data;
    Node* next;
    Node(int val) : data(val), next(nullptr) {}
};

Node* reverseList(Node* head) {
    Node* prev = nullptr;
    Node* curr = head;
```

```
    while (curr != nullptr) {
        Node* nextNode = curr->next;
        curr->next = prev;
        prev = curr;
        curr = nextNode;
    }
    return prev;
}

void printList(Node* head) {
    while (head != nullptr) {
        cout << head->data << " ";
        head = head->next;
    }
    cout << endl;
}

int main() {
    Node* head = new Node(1);
    head->next = new Node(2);
    head->next->next = new Node(3);
    head->next->next->next = new Node(4);

    cout << "Original list: ";
    printList(head);

    head = reverseList(head);

    cout << "Reversed list: ";
    printList(head);
    return 0;
}
```

QUESTION 7

Function to check if a number is perfect:

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

bool isPerfect(int num) {
    int sum = 0;
    for (int i = 1; i <= num / 2; i++) {
        if (num % i == 0) sum += i;
    }
    return sum == num;
}

int main() {
    int num = 28;
    cout << num << " is " << (isPerfect(num) ?
"Perfect" : "Not Perfect") << endl;
    return 0;
}
```

QUESTION 8

Fibonacci series:

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

void fibonacciSeries(int n) {
   int a = 0, b = 1;
   cout << a << " " << b << " ";
   for (int i = 2; i < n; i++) {
      int next = a + b;
      cout << next << " ";
      a = b;
      b = next;
   }
   cout << endl;
}

int main() {
   int n = 10;
   fibonacciSeries(n);
   return 0;
}
```

QUESTION 9

Difference between member and non-member function in C++:

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

```
class MyClass {
public:
    void display() {
        cout << "This is a member function." << endl;
    }
};

int main() {
    MyClass obj;
    obj.display();
    return 0;
}
```

Example of non-member function:

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

class MyClass {
public:
    int x;
    MyClass(int val) : x(val) {}
};

void display(MyClass obj) {
    cout << "Non-member function. Value: " << obj.x << endl;
}

int main() {
    MyClass obj(10);
```

```
    display(obj);
    return 0;
}
```