Discussion

```
// Recursion Example 1: Summorial

// Iterative
int sum (int n) {
    int sum = 0;
    for (int i = 0; i <= n; i ++)
        sum += i;
    return sum;
}

// Recursive
int sum (int n) {
    if (n == 0)
        return 0;
    return n + sum(n-1);
}
```

```
// Recursion Example 2: Sum of array elements
// Example input: [1]

// total = 1 + (2 + (3 + (4 + 0)))


// Recursive
int sum(int arr[], int size, int total) {
    if (size == 0) return 0;
    else return arr[0] + sum(arr+1, size-1, total);
}
```

```
// Recursion Example 4: Fibonacci
// Example input: 5
// fib:   1 1 2 3 5 8 13
// index: 0 1 2 3 4 5 6

int fibonacci(int n) {
    if (n == 0 || n == 1)
        return 1;
    else
        return fibonacci(n-1) + fibonacci(n-2);
}
```

```
// Recursion Example 5: Palindrome Check
// Example input: abcba

bool isPalindrome(char* s, int length) {
    if (length <= 1)
        return true;
    else
        return (a[0] == a[length-1] && isPalindrome(a+1, n-2));
}
```