***Week – 7 (31.05.2021 – 05.06.2021)***

***CODES BASED ON WEELKY TASK***

1. ***Add Two Numbers:***

class Solution {

public:

ListNode\* adding(ListNode\* l1, ListNode\* l2, int carry) {

if(l1 == NULL && l2 == NULL && carry == 0) return NULL;

int n1 = l1!=NULL? l1->val: 0;

int n2 = l2!=NULL? l2->val: 0;

ListNode\* node = new ListNode((n1 + n2 + carry) % 10);

carry = (n1 + n2 + carry)/10;

node->next = adding(l1?l1->next:NULL, l2?l2->next:NULL, carry);

return node;

}

ListNode\* addTwoNumbers(ListNode\* l1, ListNode\* l2) {

return adding(l1, l2, 0);

}

};

1. ***K-th Symbol in Grammar:***

class Solution {

public:

int kthGrammar(int N, int K) {

if(N==1) return 0;

if(K <= pow(2,N-1)/2) return kthGrammar(N-1,K);

else return !kthGrammar(N-1,K-(pow(2,N-1)/2));

}

};

1. ***N-th Tribonacci Number:***

class Solution {

public:

long long int arr[38]={0};

int tribonacci(int n) {

if(n == 0) return 0;

if(n == 1 || n == 2) return 1;

if(arr[n]!=0)

return arr[n];

return arr[n]=tribonacci(n-3)+tribonacci(n-2)+tribonacci(n-1);

}

};

1. ***Check if Number is a Sum of Powers of Three:***

class Solution {

public:

bool checkPowersOfThree(int n) {

if(n%3 == 2) return false;

if(n == 0) return true;

return checkPowersOfThree(n/3);

}

};

1. ***Sum of Digits in Base K:***

class Solution {

public:

int sumBase(int n, int k) {

if(n == 0) return 0;

return sumBase(n/k, k) + n%k;

}

};