***Week – 9 (******13.06.2021 – 19.06.2021)***

***CODES BASED ON WEELKY TASK***

1. ***Rod Cutting:***

void getAns(vector<int> &ans, vector<vector<int>> &dp, int i, int j, vector<int> p)

{

int k;

if (i+1 == j) return ;

for (k=i+1; k<j; k++)

{

if (dp[i][k] + dp[k][j] + p[j] - p[i] == dp[i][j])

{

ans.push\_back(p[k]);

getAns(ans, dp, i, k, p);

getAns(ans, dp, k, j, p);

return ;

}

}

}

vector<int> Solution::rodCut(int A, vector<int> &B) {

vector<int> p;

p.push\_back(0);

for (int b: B) p.push\_back(b);

p.push\_back(A);

sort(p.begin(), p.end());

int n = p.size();

vector<vector<int>> dp(n, vector<int>(n, 0));

for (int l = 2; l <= n; l++)

{

for (int i = 0; i + l - 1 < n; i++)

{

dp[i][i+l-1] = INT\_MAX;

for (int k = i + 1; k < i + l - 1; k++)

dp[i][i+l-1] = min(dp[i][i+l-1], dp[i][k] + dp[k][i+l-1] + p[i+l-1] - p[i]);

}

}

vector<int> ans;

getAns(ans, dp, 0, n - 1, p);

return ans;

}