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**ROLL NO. – 1906137**

**SUBJECT NAME – DESIGN AND ANALYSIS OF ALGORITHMS LAB**

**SUBJECT CODE – CSL4403**

**DATE – 15TH MARCH, 2021**

**BRANCH – CSE 2**

**ASSIGNMENT-11**

**Q11. WAP to implement 0/1 Knapsack using Dynamic Programming.**

**Source Code in C++ Language:**

#include <bits/stdc++.h>

using namespace std;

int main()

{

int W,n;

cout<<"Enter the capacity of knapsack."<<endl;

cin>>W;

cout<<"Enter the number of elements."<<endl;

cin>>n;

int p[n+1],w[n+1];

cout<<"Enter the weights and profits of elements."<<endl;

for(int i=1;i<=n;i++)

cin>>w[i]>>p[i];

int k[W+1][n+1];

for(int j=0;j<=W;j++)

{

for(int i=0;i<=n;i++)

k[j][i]=0;

}

for(int j=1;j<=n;j++)

{

for(int i=1;i<=W;i++)

{

if(w[j]>i)

k[i][j]=k[i][j-1];

else

k[i][j]=max(k[i][j-1],k[i-w[j]][j-1]+p[j]);

}

}

cout<<"Profit table:"<<endl;

for(int j=1;j<=W;j++)

{

for(int i=1;i<=n;i++)

cout<<k[j][i]<<" ";

cout<<endl;

}

cout<<"Maximum profit="<<k[W][n];

return 0;

}

**Output Screenshot:**

