|  |  |
| --- | --- |
|  | |
| **CSE 2208 Algorithms Lab**  **Assignment No:03**    **Assignment Topic**:  **1.0/1 Knapsack** | |
| **Date of Performance: 26.03.2020**  **Date of Submission**: **04.03.2020** | **Name**: **Mubina Ashrafi**  **Student ID**: **180104030**  **Lab Group**: **A2**  **Department of CSE, AUST.** |

1.0/1 Knapsack

#include<bits/stdc++.h>

using namespace std;

int maximum(int a, int b) { return (a > b) ? a : b; }

int knapsack(int n,int W,int wt[],int val[])

{

int i,w;

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

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

{

for(w=0; w<=W; w++)

{

if(i==0 || w==0)

{

kp[i][w]=0;

}

else if(wt[i-1]<=w)

{

kp[i][w]=maximum(val[i-1]+kp[i-1][w-wt[i-1]],kp[i-1][w]);

}

else{

kp[i][w]=kp[i-1][w];

}

}

}

int k,j;

for(k=0; k<=n; k++)

{

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

{

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

}

cout <<endl;

}

return kp[n][W];

}

int main()

{

int wt[]={1,3,4,5};

int val[]={1,4,5,7};

int W=7;

int n=sizeof(val)/sizeof(val[0]);

cout << knapsack(n,W,wt,val) <<endl;

return 0;

}