#include<stdio.h>

void knapSack(int W, int n, int val[], int wt[]);

int getMax(int x, int y);

int main(void) {

//the first element is set to -1 as

//we are storing item from index 1

//in val[] and wt[] array

int val[] = {-1, 100, 20, 60, 40}; //value of the items

int wt[] = {-1, 3, 2, 4, 1}; //weight of the items

int n = 4; //total items

int W = 5; //capacity of knapsack

knapSack(W, n, val, wt);

return 0;

}

int getMax(int x, int y) {

if(x > y) {

return x;

} else {

return y;

}

}

void knapSack(int W, int n, int val[], int wt[]) {

int i, w;

//value table having n+1 rows and W+1 columns

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

//fill the row i=0 with value 0

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

V[0][w] = 0;

}

//fille the column w=0 with value 0

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

V[i][0] = 0;

}

//fill the value table

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

for(w = 1; w <= W; w++) {

if(wt[i] <= w) {

V[i][w] = getMax(V[i-1][w], val[i] + V[i-1][w - wt[i]]);

} else {

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

}

}

}

//max value that can be put inside the knapsack

printf("Max Value: %d\n", V[n][W]);

}