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**PROGRAM 11: Implement 0/1 Knapsack problem using dynamic programming**

CODE:

#include<stdio.h>

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

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

{

int i, w;

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

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

{

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

{

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

K[i][w] = 0;

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

K[i][w] = max(val[i-1] + K[i-1][w-wt[i-1]], K[i-1][w]);

else

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

}

}

return K[n][W];

}

int main()

{

int i, n, val[100], wt[100], W;

printf("\nEnter number of items:\n");

scanf("%d", &n);

printf("\nEnter value and weight of items:\n");

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

scanf("%d%d", &val[i], &wt[i]);

}

printf("\nEnter size of knapsack:\n");

scanf("%d", &W);

printf("\n Maximum total value in the knapsack is: %d", knapSack(W, wt, val, n));

return 0;

}

OUTPUT:



