0 / 1 Knapsack in iterative method

Java

Code :

```java
package DP;

import java.util.Arrays;
import java.util.Scanner;

public class knapsack01itr{

    static int answer(int[] wt,int[] val,int n,int w,int[][] dp){
        for(int i=0;i<=n;i++){
            for(int j=0;j<=w;j++){
                if(j==0 || i==0) dp[i][j] = 0;
                else if(wt[i-1]<=j) {
                    dp[i][j] = Math.max(dp[i-1][j],val[i-1]+dp[i-1][j-wt[i-1]]);
                }
                else{
                    dp[i][j] = dp[i-1][j];
                }
            }
        }
        return dp[n][w];
    }

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter the no of items : ");
        int n = sc.nextInt();
        System.out.println("Enter the weight first then value : ");
        int[] wt = new int[n];
        int[] val = new int[n];
        for(int i=0;i<n;i++) wt[i] = sc.nextInt();
        for(int i=0;i<n;i++) val[i] = sc.nextInt();
        System.out.print("Enter the weight of the bag : ");
        int w = sc.nextInt();
        int[][] dp = new int[n+1][w+1];
        System.out.println(answer(wt,val,n,w,dp));
        for(int[] i: dp)
            System.out.println(Arrays.toString(i));

    }
}
```

Output sample:

```
Enter the no of items : 4
Enter the weight first then value :
2 3 4 5
10 20 30 40
Enter the weight of the bag : 7
50
[0, 0, 0, 0, 0, 0, 0, 0]
[0, 0, 10, 10, 10, 10, 10, 10]
[0, 0, 10, 20, 20, 30, 30, 30]
[0, 0, 10, 20, 30, 30, 40, 50]
[0, 0, 10, 20, 30, 40, 40, 50]
PS E:\code\practice>
```