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#include <stdio.h>

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

int knapsack(int v[], int w[], int n, int capacity) {
    int matrix[n + 1][capacity + 1];
    for (int i = 0; i <= n; i++) {
        for (int j = 0; j <= capacity; j++) {
            if (i == 0 || j == 0)
                matrix[i][j] = 0;
            else if (w[i - 1] <= j)
                matrix[i][j] = max(v[i - 1] + matrix[i - 1][j - w[i - 1]],
matrix[i - 1][j]);
            else
                matrix[i][j] = matrix[i - 1][j];
        }
    }
    return matrix[n][capacity];
}

int main() {
    int n, capacity;
    printf("Enter the number of items: ");
    scanf("%d", &n);
    int v[n], j[n];
    printf("Enter the values of the items:\n");

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    for (int i = 0; i < n; i++) {  
        scanf("%d", &v[i]);  
    }  
    printf("Enter the weights of the items:\n");  
    for (int i = 0; i < n; i++) {  
        scanf("%d", &j[i]);  
    }  
    printf("Enter the knapsack capacity: ");  
    scanf("%d", &capacity);  
    int result = knapsack(v, j, n, capacity);  
    printf("Maximum value that can be achieved: %d\n", result);  
    return 0;  
}
```

```
Enter the number of items: 4  
Enter the values of the items:  
12  
10  
20  
15  
Enter the weights of the items:  
2  
1  
3  
2  
Enter the knapsack capacity: 5  
Maximum value that can be achieved: 37
```