

Knapsack problem

```
#include <stdio.h>
```

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

```
int main() {  
    int weight[10], profit[10], n, capacity, i, w;  
    int dp[10][50];
```

```
    printf("Enter number of items: ");  
    scanf("%d", &n);
```

```
    printf("Enter weights of items:\n");  
    for (i = 0; i < n; i++) {  
        scanf("%d", &weight[i]);  
    }
```

```
    printf("Enter profits of items:\n");  
    for (i = 0; i < n; i++) {  
        scanf("%d", &profit[i]);  
    }
```

```
    printf("Enter capacity of knapsack: ");  
    scanf("%d", &capacity);
```

```
    for (i = 0; i <= n; i++) {  
        for (w = 0; w <= capacity; w++) {
```

```

    if (i == 0 || w == 0)
        dp[i][w] = 0;
    else if (weight[i - 1] <= w)
        dp[i][w] = max(profit[i - 1] + dp[i - 1][w - weight[i - 1]], dp[i - 1][w]);
    else
        dp[i][w] = dp[i - 1][w];
}
}

printf("Maximum profit = %d\n", dp[n][capacity]);

return 0;
}

```

Output

```

Enter number of items: 2
Enter weights of items:
89
98
Enter profits of items:
5
6
Enter capacity of knapsack: 3
Maximum profit = 0

=== Code Execution Successful ===

```