20/7/23 Knap sack.

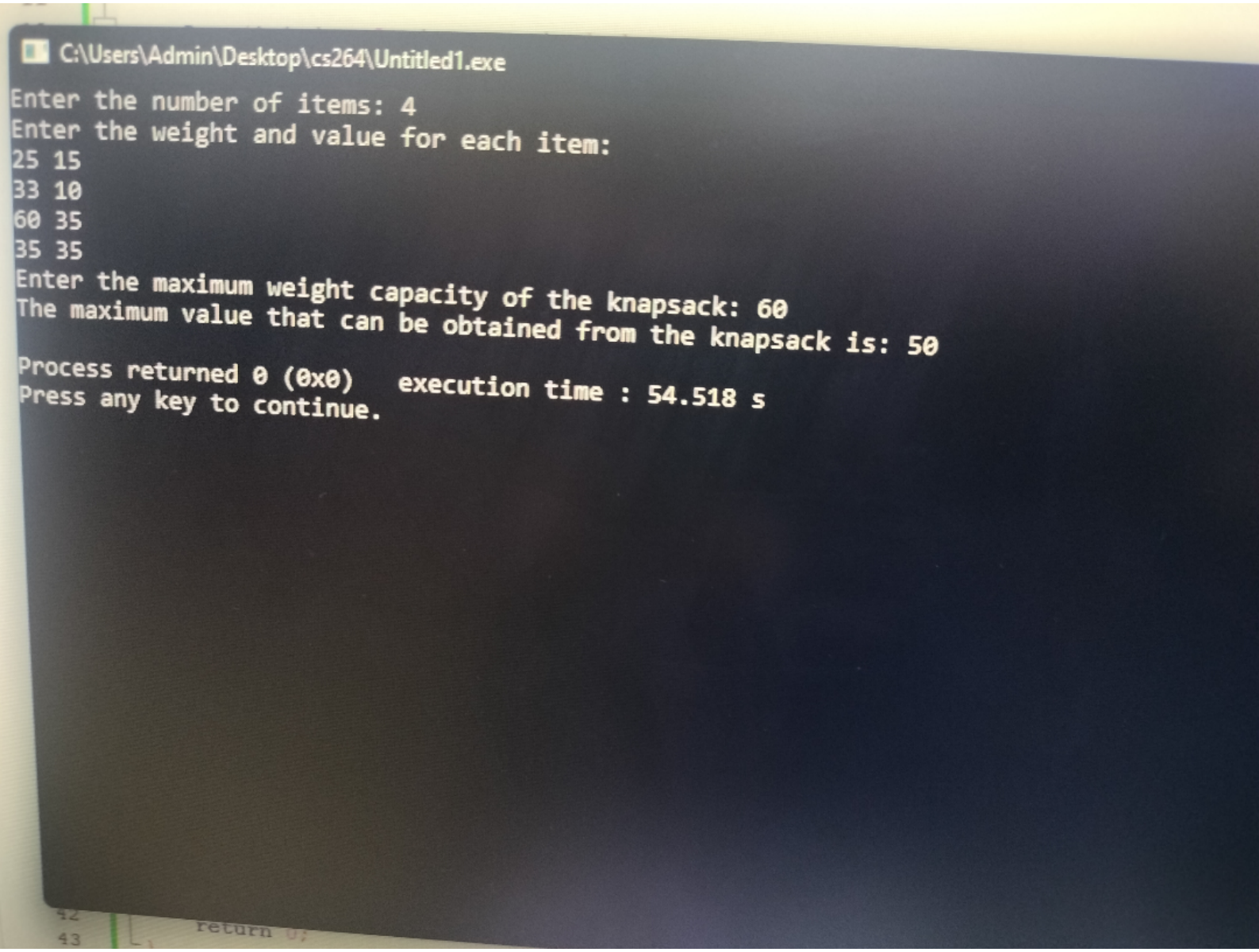
```
#include <stdio.h>
int max(int a, int b) {
return (a>b)?a:b
}
int knapSack(int w, int weights[], int values
[], int n){
int dp[n+1][w+1];
for (int i=0; i<n; i++) {
for (int w=0; w<=w; w++) {
if (i==0 || w==0)
dp[i][w]=0;
else if (weights[i-1]<=w)
dp[i][w] = max(values[i-1] +
dp[i-1][w-weights[i-1]],
dp[i-1][w]);
else
dp[i][w] = dp[i-1][w];
}
}
return dp[n][w];
}
int main(){
int n, w;
Printf("Enter the no of items:");
Scanf("%d", &n);
int weights[n], values[n];
Printf("Enter the weight & value for
each item:\n");
for (int i=0; i<n; i++)
Scanf("%d %d", &weights[i], &
values[i]);
Printf("Enter the Max weight capacity of
the Knapsack:");
Scanf("%d", &w);
int result = knapSack(w, weights,
values, n);
Printf("The max value that can be
obtained from the knapsack is
%d\n", result);
return 0;
}
```

Output:

```
Enter the no of items - 4
Enter the weight & value for each item.
2 12
1 15
2 25
2 10
Enter the max weight capacity of the
Knapsack - 5

The Max value that can be obtained
from the knapsack is 40.
```

20/7/23


C:\Users\Admin\Desktop\cs264\Untitled1.exe
Enter the number of items: 4
Enter the weight and value for each item:
25 15
33 10
60 35
35 35
Enter the maximum weight capacity of the knapsack: 60
The maximum value that can be obtained from the knapsack is: 50
Process returned 0 (0x0) execution time : 54.518 s
Press any key to continue.