

### Assignment 3

# Structure for an item which stores weight and  
# corresponding value of Item

class Item:

```
def __init__(self, value, weight):  
    self.value = value  
    self.weight = weight
```

# Main greedy function to solve problem

def fractionalKnapsack(W, arr):

# Sorting Item on basis of ratio

arr.sort(key=lambda x: (x.value/x.weight), reverse=True)

# Result(value in Knapsack)

finalvalue = 0.0

# Looping through all Items

for item in arr:

# If adding Item won't overflow,

# add it completely

if item.weight <= W:

W -= item.weight

finalvalue += item.value

# If we can't add current Item,

# add fractional part of it

else:

finalvalue += item.value \* W / item.weight

break

# Returning final value

return finalvalue

# Driver Code

if \_\_name\_\_ == "\_\_main\_\_":

W = 50

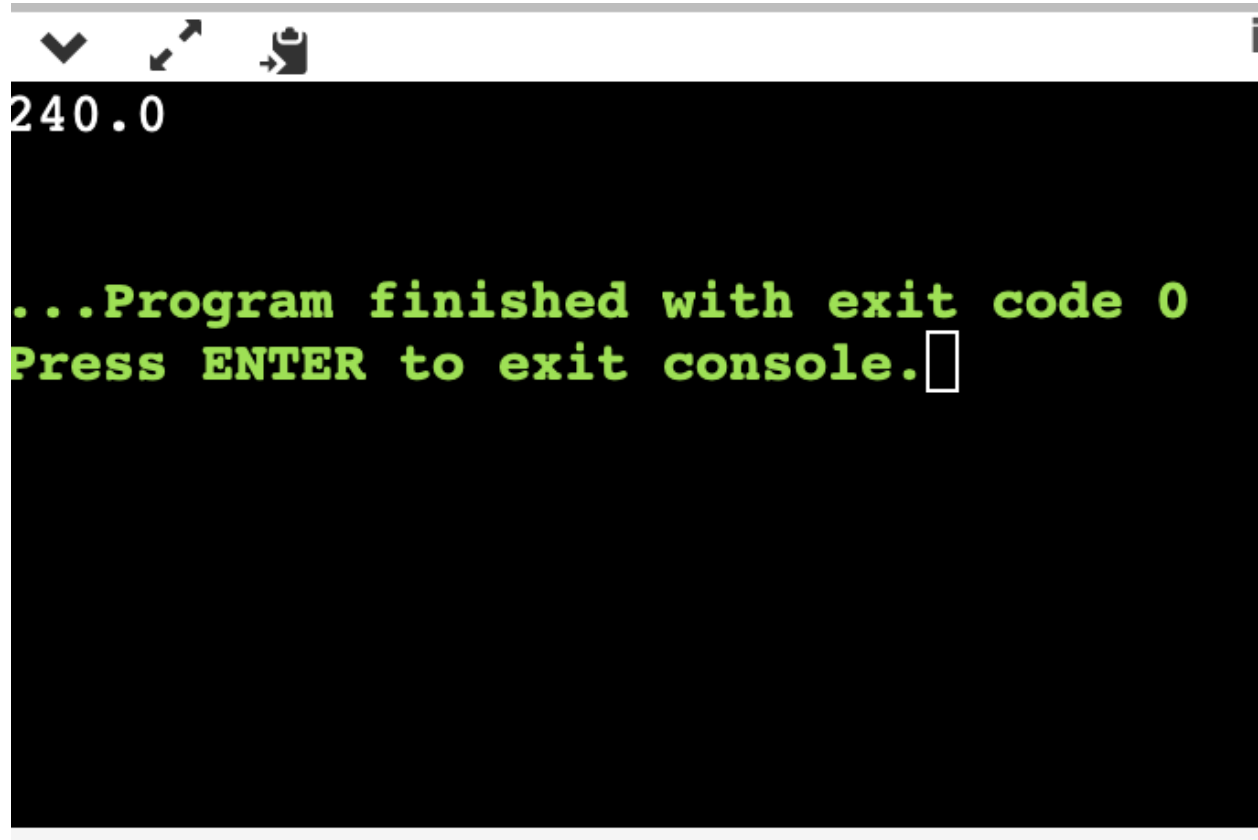
arr = [Item(60, 10), Item(100, 20), Item(120, 30)]

# Function call

max\_val = fractionalKnapsack(W, arr)

```
print(max_val)
```

Output:



A terminal window with a black background and white and green text. The top bar is white with three icons: a downward arrow, a double-headed arrow, and a document with an arrow. The text inside the terminal is as follows:

```
240.0
```

```
...Program finished with exit code 0
```

```
Press ENTER to exit console.
```

The cursor is positioned at the end of the last line of text.