

Define a class to represent a parcel

class Parcel:

def __init__(self, weight, profit):

self.weight = weight

self.profit = profit

self.profit_per_weight = profit / weight # Calculate profit-to-weight ratio

Function to maximize profit using the Fractional Knapsack strategy

def fractional_knapsack(parcel, capacity):

Sort parcels by profit-to-weight ratio in descending order

parcel.sort(key=lambda x: x.profit_per_weight, reverse=True)

total_profit = 0.0 # Total profit accumulated

for parcel in parcels:

if capacity == 0: # If the truck is full, stop

break

if parcel.weight <= capacity:

Take the entire parcel

total_profit += parcel.profit

capacity -= parcel.weight

else:

Take a fraction of the parcel

total_profit += parcel.profit_per_weight * capacity

capacity = 0 # Truck is now full

return total_profit

Main function to test the program

if __name__ == "__main__":

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# Input: List of parcels with weights and profits
parcels = [
    Parcel(10, 60), # Parcel 1: weight=10, profit=60
    Parcel(20, 100), # Parcel 2: weight=20, profit=100
    Parcel(30, 120) # Parcel 3: weight=30, profit=120
]

truck_capacity = 50 # Maximum weight capacity of the truck

# Calculate the maximum profit
max_profit = fractional_knapsack(parcels, truck_capacity)
print(f"Maximum profit that can be achieved: {max_profit:.2f}")
```