დათა ჭანუყვაძე

1)   
def chanta(kg\_max, nivtebi):

    for it in nivtebi:

        it['value\_per\_kg'] = it['value'] / it['weight']

    dalagebuli\_nivtebi = sorted(nivtebi, key=lambda x: x['value\_per\_kg'], reverse=True)

    total\_value = 0

    total\_weight = 0

    final\_items = []

    for it in dalagebuli\_nivtebi:

        if total\_weight + it['weight'] <= kg\_max:

            total\_value += it['value']

            total\_weight += it['weight']

            final\_items.append(it)

    return total\_value, total\_weight, final\_items

chantis\_moculoba = 15

nivtebi = [

    {'value': 4, 'weight': 12},

    {'value': 1, 'weight': 2},

    {'value': 2, 'weight': 1},

    {'value': 10, 'weight': 4},

    {'value': 2, 'weight': 2},

]

2)

#dinamiuri

#item1 = {'value': 4, 'weight': 12}

#item2 = {'value': 1, 'weight': 2}

#item3 = {'value': 2, 'weight': 1}

#item4 = {'value': 10, 'weight': 4}

#item5 = {'value': 2, 'weight': 2}

#

#result\_value, result\_weight, final\_items = chanta(chantis\_moculoba, item1, item2, item3, item4, item5)

result\_value, result\_weight, final\_items = chanta(chantis\_moculoba, nivtebi)

print(f"Nivtebis saerto fasi: {result\_value}GEL")

print(f"Nivtebis saerto wona: {result\_weight}kg")

print("Shercheuli nivtebi:")

for item in final\_items:

    print(f"{item['value']}GEL, {item['weight']}kg")

3)

def max\_earnings\_within\_time(jobs, max\_time):

    dp = [0] \* (max\_time + 1)

    for i in range(1, max\_time + 1):

        for job in jobs:

            if job["duration"] <= i:

                dp[i] = max(dp[i], dp[i - job["duration"]] + job["earnings"])

    return dp[max\_time]

jobs = [

    {"name": "A", "duration": 2, "earnings": 100},

    {"name": "B", "duration": 1, "earnings": 19},

    {"name": "C", "duration": 2, "earnings": 27},

    {"name": "D", "duration": 1, "earnings": 25},

    {"name": "E", "duration": 3, "earnings": 15},

]

max\_earnings = max\_earnings\_within\_time(jobs, 3)

print(f"Max Tanxa 3 Saatshi: {max\_earnings} GEL")