

מטלה 8 – שאלה 4

שאלה 4: תיכנות – תקציב אוטיליטרי על תנאי

כמו שאלה 3, רק עם האלגוריתם האוטיליטרי-על-תנאי.

קלט: הפונק' מקבלת את כמות ה"תרומה", שמות הנושאים לתרומה, רשימת העדפות האזרחים.
פלט: רשימת התרומות לפי כל אזרח, התרומה הכוללת לנושאים.

דוגמאות הרצה –

כמו הדוגמאות בהרצאה

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Example 1
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player number 1 : ['a', 'b']
player number 2 : ['a', 'c']
player number 3 : ['a', 'd']
player number 4 : ['b', 'c']
player number 5 : ['a']

Total donate – 500

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Donate of each citizen by subject –

player number 1 : {'a': 100.0}
player number 2 : {'a': 100.0}
player number 3 : {'a': 100.0}
player number 4 : {'b': 50.0, 'c': 50.0}
player number 5 : {'a': 100.0}

Total donate by subject –
{'a': 400.0, 'b': 50.0, 'c': 50.0, 'd': 0}
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Example 2
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player number 1 : ['d', 'b']
player number 2 : ['a', 'c']
player number 3 : ['a', 'd']
player number 4 : ['b', 'c']
player number 5 : ['a']

Total donate – 500

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Donate of each citizen by subject –

player number 1 : {'d': 50.0, 'b': 50.0}
player number 2 : {'a': 100.0}
player number 3 : {'a': 100.0}
player number 4 : {'b': 50.0, 'c': 50.0}
player number 5 : {'a': 100.0}

Total donate by subject –
{'a': 300.0, 'b': 100.0, 'c': 50.0, 'd': 50.0}
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דוגמה נוספת (דוגמה שמראה תרומה המתחלקת שווה כיוון שיש מצב של שוויון בין הבחירות של הנושאים)

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Example 3
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player number 1 : ['a', 'b', 'c', 'd']
player number 2 : ['a', 'b']
player number 3 : ['b', 'c']
player number 4 : ['c', 'd']
player number 5 : ['a', 'd']

Total donate - 800

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Donate of each citizen by subject -

player number 1 : {'a': 40.0, 'b': 40.0, 'c': 40.0, 'd': 40.0}
player number 2 : {'a': 80.0, 'b': 80.0}
player number 3 : {'b': 80.0, 'c': 80.0}
player number 4 : {'c': 80.0, 'd': 80.0}
player number 5 : {'a': 80.0, 'd': 80.0}

Total donate by subject -
{'a': 200.0, 'b': 200.0, 'c': 200.0, 'd': 200.0}
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עוד דוגמא:

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Example 4
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player number 1 : ['a', 'b']
player number 2 : ['b', 'c']
player number 3 : ['a', 'b', 'c', 'd']
player number 4 : ['a', 'd']
player number 5 : ['b', 'd']

Total donate - 800

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Donate of each citizen by subject -

player number 1 : {'b': 160.0}
player number 2 : {'b': 160.0}
player number 3 : {'b': 160.0}
player number 4 : {'a': 80.0, 'd': 80.0}
player number 5 : {'b': 160.0}

Total donate by subject -
{'a': 80.0, 'b': 640.0, 'c': 0, 'd': 80.0}
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