Домашнее задание №4
Планаризация графа

19 марта 2022 г.

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62 семейств psi найдено
psi0 = [0, 2, 4, 5, 8, 9, 19]
psi1 = [0, 2, 4, 5, 8, 10, 19]
psi2 = [0, 2, 4, 6, 7, 10]
psi3 = [0, 2, 4, 6, 10, 19, 20]
psi4 = [0, 2, 4, 8, 9, 19, 20]
psi5 = [0, 2, 4, 8, 10, 19, 20]
psi6 = [0, 3, 6, 7, 10]
psi7 = [0, 3, 6, 10, 19, 20]
psi8 = [0, 3, 10, 18, 19]
psi9 = [0, 5, 8, 9, 18, 19]
psi10 = [0, 5, 8, 10, 18, 19]
psi11 = [1, 3, 6, 7, 10]
psi12 = [1, 3, 6, 10, 19, 20]
psi13 = [1, 3, 10, 18, 19]
psi14 = [1, 6, 7, 10, 15]
psi15 = [1, 6, 10, 15, 19, 20]
psi16 = [1, 7, 10, 15, 16]
psi17 = [1, 10, 15, 16, 17]
psi18 = [1, 10, 15, 17, 19, 20]
psi19 = [1, 10, 17, 18, 19]
psi20 = [2, 4, 5, 8, 9, 11, 19]
psi21 = [2, 4, 5, 8, 10, 11, 19]
psi22 = [2, 4, 6, 7, 10, 11]
psi23 = [2, 4, 6, 10, 11, 19, 20]
psi24 = [2, 4, 8, 9, 11, 19, 20]
psi25 = [2, 4, 8, 10, 11, 19, 20]
psi26 = [4, 5, 8, 9, 15, 19]
psi27 = [4, 5, 8, 10, 15, 19]
psi28 = [4, 6, 7, 10, 15]
psi29 = [4, 6, 10, 15, 19, 20]
psi30 = [4, 8, 9, 15, 19, 20]
psi31 = [4, 8, 10, 15, 19, 20]
psi32 = [5, 8, 9, 11, 12, 13]
psi33 = [5, 8, 9, 11, 13, 19]
psi34 = [5, 8, 9, 12, 13, 15, 16]
psi35 = [5, 8, 9, 13, 15, 19]
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psi36 = [5, 8, 9, 13, 18, 19]
psi37 = [5, 8, 10, 11, 12, 13]
psi38 = [5, 8, 10, 11, 13, 19]
psi39 = [5, 8, 10, 12, 13, 15, 16]
psi40 = [5, 8, 10, 13, 15, 19]
psi41 = [5, 8, 10, 13, 18, 19]
psi42 = [7, 10, 11, 12]
psi43 = [7, 10, 12, 15, 16]
psi44 = [8, 9, 11, 12, 13, 14]
psi45 = [8, 9, 11, 13, 14, 19]
psi46 = [8, 9, 11, 14, 19, 20]
psi47 = [8, 9, 12, 13, 14, 15, 16]
psi48 = [8, 9, 13, 14, 15, 19]
psi49 = [8, 9, 13, 14, 18, 19]
psi50 = [8, 9, 14, 15, 16, 17]
psi51 = [8, 9, 14, 15, 17, 19, 20]
psi52 = [8, 9, 14, 17, 18, 19]
psi53 = [8, 10, 11, 12, 13, 14]
psi54 = [8, 10, 11, 13, 14, 19]
psi55 = [8, 10, 11, 14, 19, 20]
psi56 = [8, 10, 12, 13, 14, 15, 16]
psi57 = [8, 10, 13, 14, 15, 19]
psi58 = [8, 10, 13, 14, 18, 19]
psi59 = [8, 10, 14, 15, 16, 17]
psi60 = [8, 10, 14, 15, 17, 19, 20]
psi61 = [8, 10, 14, 17, 18, 19]

Выделение G' максимального двудольного графа H'
Для каждой пары множеств посчитаем значение критерия
Aij = |psi(i)| + |psi(j)| - |psi(i)&psi(j)|

Возьмем psi(23) и psi(47)

psi(23) = [2, 4, 6, 10, 11, 19, 20]
psi(47) = [8, 9, 12, 13, 14, 15, 16]

Вернем старые обозначения
psi(47) = ['v1v10', 'v1v11', 'v2v8', 'v2v9', 'v2v10', 'v3v6', 'v3v8'] - ребра
вне гамильтонового цикла
psi(23) = ['v1v5', 'v1v6', 'v0v6', 'v0v10', 'v2v5', 'v6v9', 'v6v10'] - ребра
внутри гамильтонового цикла
Проведем эти ребра на 0-м слое
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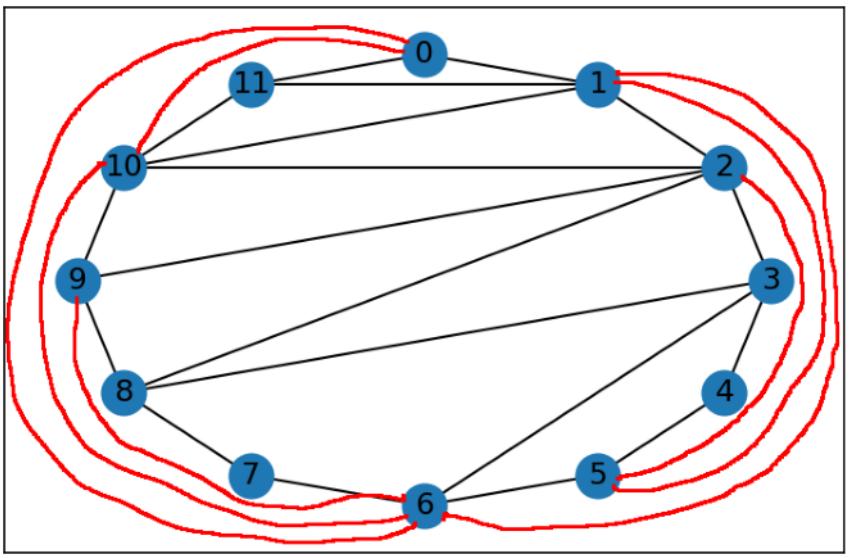


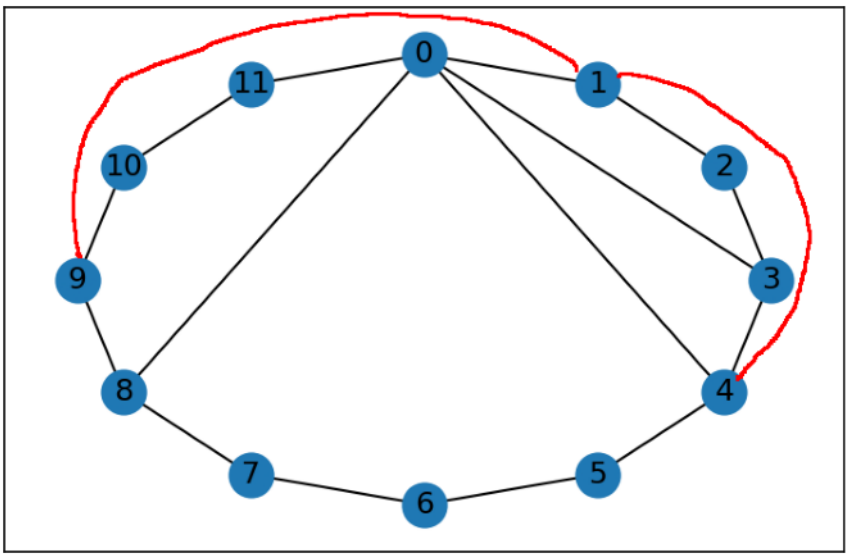
Удалим из psi(G) ребра вошедшие в другие множества. Объеденим одинаковые множества
Назовем новые множества psi'
psi'(0) = ['v1v4', 'v1v9']
psi'(1) = ['v1v4', 'v0v8']
psi'(2) = ['v1v4']
psi'(3) = ['v1v4', 'v0v4', 'v0v8']
psi'(4) = ['v1v4', 'v0v4']
psi'(5) = ['v1v4', 'v0v4', 'v4v9']
psi'(6) = ['v1v4', 'v1v9', 'v4v9']
psi'(7) = ['v0v3', 'v0v4', 'v0v8']
psi'(8) = ['v0v3', 'v0v4']
psi'(9) = ['v0v3', 'v0v4', 'v4v9']
psi'(10) = ['v0v3', 'v0v8']
psi'(11) = ['v0v3']
psi'(12) = ['v0v3', 'v3v10']
psi'(13) = ['v0v3', 'v3v10', 'v4v9']
psi'(14) = ['v1v9']
psi'(15) = ['v0v8']
psi'(16) = ['v1v9', 'v4v9']
psi'(17) = ['v4v9']
psi'(18) = ['v3v10']
psi'(19) = ['v3v10', 'v4v9']

Нереализованные ребра
['v1v4', 'v0v3', 'v0v4', 'v1v9', 'v0v8', 'v3v10', 'v4v9']

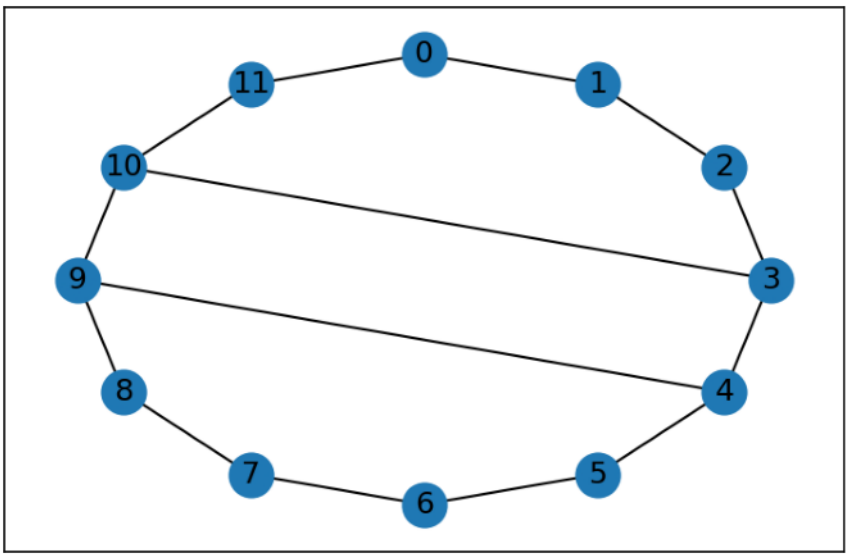
На слое 1 проведем ребра внутри гамильтонового цикла ['v1v4', 'v1v9']

На слое 1 проведем ребра вне гамильтонового цикла ['v0v3', 'v0v4', 'v0v8']
На слое 2 проведем ребра внутри гамильтонового цикла ['v3v10', 'v4v9']

Слой 1



Слой 2



Толщина графа m = 3