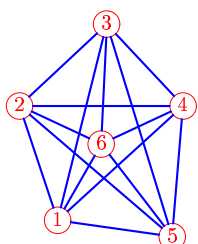


Алгоритм отжига

Найти длину гамильтонова цикла S_4 в полном графе K_6 после четырех циклов решения задачи методом отжига. Даны расстояния $L_{i,j}$ между вершинами. Даны также: начальная последовательность вершин L_0 , последовательность замен вершин \mathbf{Z} и выпавшие при этом вероятности перехода \mathbf{P}_k , $k = 1, \dots, 4$. Переход на худшее ($\Delta S_k = S_k - S_{k-1} > 0$) решение допустим, если $P_* = 100e^{-\Delta S_k/T_k} > P_k$, где снижение температуры происходит по закону $T_{k+1} = 0.5T_k$ от $T_1 = 100$ независимо от того, принято решение или нет. Если $\Delta S_k \leq 0$, то новое решение принимается.

Задача 13.1.

Апанасевич Иван

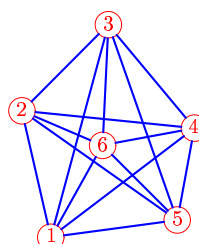


$\mathbf{V} = [1, 4, 5, 6, 2, 3, 1]$.
 $\mathbf{Z} = [V_3 \rightleftharpoons V_4], [V_4 \rightleftharpoons V_5],$
 $[V_5 \rightleftharpoons V_6], [V_6 \rightleftharpoons V_2]$.
 $\mathbf{P} = 70, 93, 83, 96$.

Ребро	$L_{i,j}$
1-2	22
1-3	38
1-4	32
1-5	22
1-6	16
2-3	22
2-4	31
2-5	38
2-6	17
3-4	21
3-5	42
3-6	22
4-5	24
4-6	17
5-6	22

Задача 13.2.

Власов Владимир

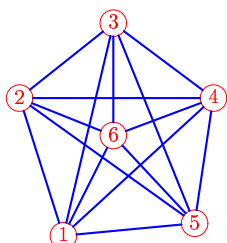


$\mathbf{V} = [1, 3, 4, 5, 6, 2, 1]$.
 $\mathbf{Z} = [V_5 \rightleftharpoons V_6], [V_3 \rightleftharpoons V_5],$
 $[V_4 \rightleftharpoons V_5], [V_6 \rightleftharpoons V_2]$.
 $\mathbf{P} = 58, 64, 62, 76$.

Ребро	$L_{i,j}$
1-2	24
1-3	41
1-4	34
1-5	24
1-6	20
2-3	23
2-4	32
2-5	35
2-6	16
3-4	25
3-5	39
3-6	22
4-5	17
4-6	17
5-6	20

Задача 13.3.

Гервальд Владислав

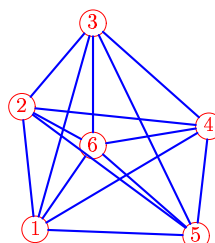


$\mathbf{V} = [1, 4, 3, 2, 5, 6, 1]$.
 $\mathbf{Z} = [V_5 \rightleftharpoons V_2], [V_3 \rightleftharpoons V_4],$
 $[V_4 \rightleftharpoons V_6], [V_6 \rightleftharpoons V_2]$.
 $\mathbf{P} = 32, 38, 74, 45$.

Ребро	$L_{i,j}$
1-2	27
1-3	41
1-4	38
1-5	25
1-6	21
2-3	22
2-4	36
2-5	40
2-6	19
3-4	23
3-5	40
3-6	21
4-5	24
4-6	20
5-6	22

Задача 13.4.

Гудков Андрей

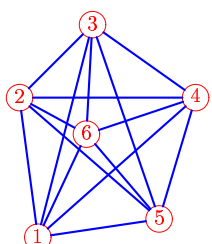


$\mathbf{V} = [1, 4, 5, 3, 2, 6, 1]$.
 $\mathbf{Z} = [V_3 \rightleftharpoons V_5], [V_5 \rightleftharpoons V_2],$
 $[V_4 \rightleftharpoons V_6], [V_6 \rightleftharpoons V_2]$.
 $\mathbf{P} = 67, 84, 55, 84$.

Ребро	$L_{i,j}$
1-2	23
1-3	40
1-4	38
1-5	30
1-6	19
2-3	20
2-4	35
2-5	40
2-6	15
3-4	29
3-5	44
3-6	23
4-5	20
4-6	22
5-6	26

Задача 13.5.

Дейнеко Анастасия



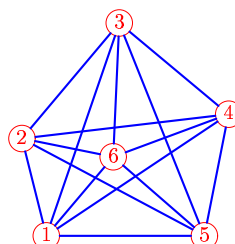
$\mathbf{V} = [1, 3, 4, 5, 6, 2, 1]$.
 $\mathbf{Z} = [V_4 \rightleftharpoons V_6], [V_3 \rightleftharpoons V_5],$
 $[V_5 \rightleftharpoons V_6], [V_2 \rightleftharpoons V_3]$.
 $\mathbf{P} = 59, 90, 58, 79$.

Ребро	$L_{i,j}$
1-2	26
1-3	41
1-4	39
1-5	23
1-6	21
2-3	19
2-4	33
2-5	35
2-6	14
3-4	24
3-5	38
3-6	20
4-5	24
4-6	21
5-6	21

Задача 13.6.

Зыза Анастасия

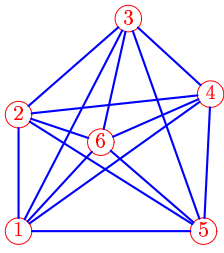
Олеговна



$\mathbf{V} = [1, 5, 2, 6, 3, 4, 1]$.
 $\mathbf{Z} = [V_3 \rightleftharpoons V_4], [V_2 \rightleftharpoons V_3],$
 $[V_4 \rightleftharpoons V_5], [V_5 \rightleftharpoons V_2]$.
 $\mathbf{P} = 70, 65, 41, 60$.

Ребро	$L_{i,j}$
1-2	19
1-3	42
1-4	41
1-5	29
1-6	19
2-3	28
2-4	39
2-5	39
2-6	17
3-4	27
3-5	43
3-6	25
4-5	23
4-6	23
5-6	22

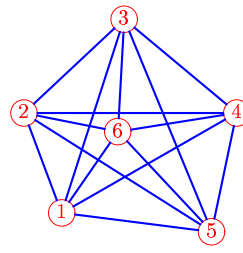
Задача 13.7. *Китади Элие Камбомба*



$V = [1, 4, 3, 5, 6, 2, 1].$
 $Z = [V_5 \rightleftharpoons V_6], [V_4 \rightleftharpoons V_5],$
 $[V_3 \rightleftharpoons V_4], [V_6 \rightleftharpoons V_2].$
 $P = 86, 84, 96, 78.$

Ребро	$L_{i,j}$
1-2	22
1-3	45
1-4	44
1-5	35
1-6	23
2-3	27
2-4	36
2-5	41
2-6	16
3-4	21
3-5	42
3-6	24
4-5	26
4-6	22
5-6	25

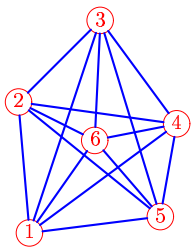
Задача 13.8. *Кузнецов Владислав*



$V = [1, 4, 2, 3, 5, 6, 1].$
 $Z = [V_4 \rightleftharpoons V_6], [V_5 \rightleftharpoons V_6],$
 $[V_2 \rightleftharpoons V_4], [V_6 \rightleftharpoons V_2].$
 $P = 95, 94, 40, 88.$

Ребро	$L_{i,j}$
1-2	20
1-3	38
1-4	38
1-5	28
1-6	18
2-3	26
2-4	40
2-5	42
2-6	18
3-4	27
3-5	43
3-6	21
4-5	23
4-6	22
5-6	26

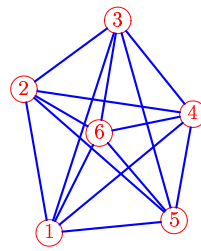
Задача 13.9. *Максимова Дарья*



$V = [1, 2, 5, 6, 3, 4, 1].$
 $Z = [V_3 \rightleftharpoons V_4], [V_4 \rightleftharpoons V_6],$
 $[V_5 \rightleftharpoons V_6], [V_6 \rightleftharpoons V_2].$
 $P = 74, 35, 83, 23.$

Ребро	$L_{i,j}$
1-2	24
1-3	42
1-4	34
1-5	25
1-6	21
2-3	22
2-4	30
2-5	34
2-6	16
3-4	24
3-5	38
3-6	22
4-5	17
4-6	15
5-6	19

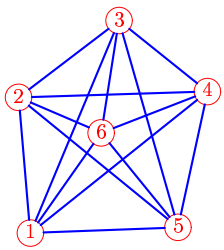
Задача 13.10. *Селиванов Александр*



$V = [1, 4, 5, 2, 3, 6, 1].$
 $Z = [V_5 \rightleftharpoons V_6], [V_3 \rightleftharpoons V_5],$
 $[V_4 \rightleftharpoons V_5], [V_6 \rightleftharpoons V_2].$
 $P = 58, 60, 94, 43.$

Ребро	$L_{i,j}$
1-2	27
1-3	42
1-4	35
1-5	23
1-6	21
2-3	22
2-4	32
2-5	37
2-6	16
3-4	22
3-5	39
3-6	21
4-5	20
4-6	18
5-6	21

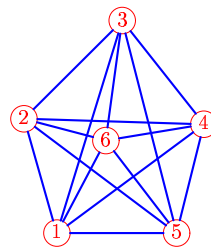
Задача 13.11. *Сургучев Лев Сергеевич*



$V = [1, 2, 4, 3, 5, 6, 1].$
 $Z = [V_4 \rightleftharpoons V_6], [V_3 \rightleftharpoons V_5],$
 $[V_5 \rightleftharpoons V_2], [V_6 \rightleftharpoons V_2].$
 $P = 36, 89, 74, 89.$

Ребро	$L_{i,j}$
1-2	25
1-3	43
1-4	42
1-5	28
1-6	23
2-3	24
2-4	35
2-5	38
2-6	17
3-4	21
3-5	40
3-6	21
4-5	26
4-6	21
5-6	23

Задача 13.12. *Суханов Станислав*

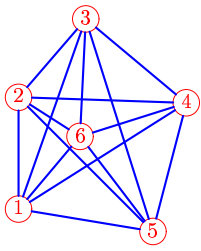


$V = [1, 2, 3, 4, 5, 6, 1].$
 $Z = [V_3 \rightleftharpoons V_4], [V_4 \rightleftharpoons V_6],$
 $[V_5 \rightleftharpoons V_6], [V_6 \rightleftharpoons V_2].$
 $P = 89, 95, 76, 93.$

Ребро	$L_{i,j}$
1-2	22
1-3	42
1-4	34
1-5	22
1-6	19
2-3	26
2-4	34
2-5	36
2-6	16
3-4	25
3-5	41
3-6	23
4-5	21
4-6	18
5-6	22

Задача 13.13.

Терехова Маргарита

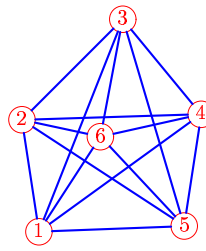


$V = [1, 5, 6, 4, 2, 3, 1].$
 $Z = [V_3 \rightleftharpoons V_5], [V_4 \rightleftharpoons V_6],$
 $[V_5 \rightleftharpoons V_2], [V_6 \rightleftharpoons V_2].$
 $P = 99, 91, 34, 104.$

Ребро	$L_{i,j}$
1-2	21
1-3	38
1-4	37
1-5	25
1-6	18
2-3	19
2-4	31
2-5	35
2-6	13
3-4	24
3-5	42
3-6	22
4-5	25
4-6	21
5-6	22

Задача 13.14.

Ухлинов Владимир

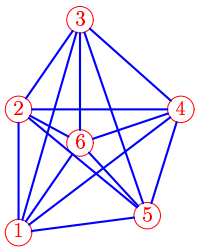


$V = [1, 3, 4, 5, 6, 2, 1].$
 $Z = [V_4 \rightleftharpoons V_6], [V_5 \rightleftharpoons V_2],$
 $[V_6 \rightleftharpoons V_2], [V_2 \rightleftharpoons V_4].$
 $P = 84, 63, 84, 52.$

Ребро	$L_{i,j}$
1-2	21
1-3	43
1-4	37
1-5	27
1-6	21
2-3	27
2-4	33
2-5	36
2-6	15
3-4	23
3-5	40
3-6	22
4-5	21
4-6	19
5-6	23

Задача 13.15.

Шилов Николай Ильич

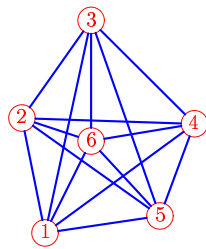


$V = [1, 4, 5, 6, 3, 2, 1].$
 $Z = [V_3 \rightleftharpoons V_4], [V_2 \rightleftharpoons V_3],$
 $[V_4 \rightleftharpoons V_6], [V_5 \rightleftharpoons V_2].$
 $P = 46, 45, 73, 30.$

Ребро	$L_{i,j}$
1-2	23
1-3	41
1-4	38
1-5	24
1-6	20
2-3	20
2-4	30
2-5	31
2-6	13
3-4	25
3-5	39
3-6	23
4-5	21
4-6	20
5-6	18

Задача 13.16.

Юркевич Владислав



$V = [1, 4, 3, 5, 2, 6, 1].$
 $Z = [V_2 \rightleftharpoons V_3], [V_3 \rightleftharpoons V_4],$
 $[V_4 \rightleftharpoons V_5], [V_5 \rightleftharpoons V_6].$
 $P = 21, 79, 37, 62.$

Ребро	$L_{i,j}$
1-2	22
1-3	41
1-4	35
1-5	22
1-6	19
2-3	22
2-4	32
2-5	32
2-6	13
3-4	27
3-5	39
3-6	22
4-5	18
4-6	19
5-6	19