3anpoc	План на бд до 10000 строк	план на БД до 1000000 строк	план на БД до 30000900 строк, что удалось улучанть	перечень оптимизаций с повснениями
//Swifop scex.wecr s zane c id = 80	QUERYPLAN	QUERY PLAN	QLERYPLAN	CREATE INDEX ON seets (hall_id);
EXPLAIN ANALYZE SELECT Id, row, seat FROM seats WHERE hall, id = EO;	Seq Scan on seats (cost+0.00189.00 nows+94 width+12) (actual time+0.031.2.682 nows+94 loops+1) Filter: (hall, jd = 80)	Seq Scan on seats (cost=0.00.3774.00 rows=199 width=12) (actual time=0.040.13.881 rows=177 loops=1) Filter: (hall  d = 80)	Bitmap Heap Scan on sests (cost+5.84.536.83 rows+199 width+12) (actual time=0.115.0.561 rows+177 loops+1) Recheck Contr) Pall (# - 83)	Добавлен индекс для поля hall_id таблицы seats. В таблице seats на одной странице помещается "157 записей. Поле hall_id
	Rows Removed by Filter: 9906 Planning Time: 0.192 ms	Rows Removed by Filter: 199823 Planning Time: 0.113 ms	Heap Blocks: exect+167  > Bitmap Index Sun on web: half id idx (cost+0.00.5.79 rows+199 width-0) (actual time=0.047.0.047 rows+177 (open+1)	макат принимать 1000 разных значенной в случайном порядки, спедовательно вероитность встратить искомое вкачение half id
	Seq. Sca. on seasi (public 1500 Toward4 addh-12) (situative=0.031.2 662 rows-04 logs-11) Filter (Red. (pt. 40)) filter (Red.	Section 1.50 (Section 1.50) (Section	Banks for the fluid of the St.   - a Stempli refer for me made, [add, data (mark 0.00197 mean *159 width *0] (actual time-0.597, 0.007 mean *177 loops	полительной вырожность встретить искологе вчачение had jd = 15.7% (т. е. словность должно снедется примерно в 6.37 раза). Согласно планам до и после, сложность онивилась в 7.04
		, and the state of	Sacution Time: 0.641 ms	раза.
			g. comp	
//быбор всех сеансов на которых показывают фильм с id 58	QUERY PLAN	QUERYPLAN	QUERY PLAN	CREATE INDEX ON sessions (movie_id);
EXPLAIN ANALYZE SELECT id, time_start, time_end, price FROM sessions WHERE movie_id = 58;	Seq. Scar on seasons (1964) 02.1150 reservit's width-20] (ethal time-0.044.0.300 reservit's loops-1) Filter (mans, 54-30) Filtr (mans, 54-30) Fi	Sep. Extra on sensions (cont-0.00. 2004.00 rows-1984 width-26) (schall dime-0.772. 8.472 rows-200 (loops-1) #38cm (moving) at 5.8] #30cm Removed by 1876: 95794 #30cm Removed by 1876: 95794 #30cm Removed by 1876: 95794 #30cm Removed by 1876: 95794	Bitmap Heap Scan on sessions (costr5.83.471.68 rows=298 width=26) (actual time=0.139.0.693 rows=206 loops=1)  Barbart Contr. (movie Mr = 30)	добавлен индекс для поля техні, і таблицы нахіоль. В паблиць нахіоль на органі странць повышать "110 записай. Поля тожі, і істовит принешть 500 даных внечникі в стучайном вородне, схаружавляльно веропность встрить нахіоно внечень тожі, і и 210 кг. (т. словность, должно нахіоно внечень тожі, і и 210 кг. (т. словность, должно нахіоно внечень в 4.0 дана. Стата от пакви для посля, стомность очениць в 4.0 дана.
	Rows Removed by Filter: 985 Disnoting Time 0 114 ms	Rows Removed by Filter: 99794 Planning Timer 0, 105 ms	Heap Block: exct+179  as Bitman Index San on services and left (control 00 5 78 count 108 widthort) for heal timent 051 0 057 count 206 (const.)	Поле movie_id может принимать 500 разных значений в
	Execution Time: 0.399 ms	Execution Time: 9.505 ms (5 news)	Index Cond: (move <sub>1</sub> d = 58) Standard Tenar (3 1/3 ms	искомое экачение movie_id = 23.8% (Т. е. сложность должна смилите поменения 4.2 году). Сотлария поличия по и постав
	(a town)	(A towns)	Size of the Control o	спонность сневилясь в 4.34 раза.
//Выбор всех билетов приобретенных пользователем с ід 1431	QUERY PLAN	QUERYPIAN	QUERYPIAN	CREATE INDEX ON tickets (client_id);
EXPLAIN ANALYZE SELECT Id, seat_id, session_id, sell_price FROM tickets	Seq Scan on tolents (cont-0.00.1190.00 rower's width-13) (schael/time-0.001.2.000 rowerd (cope-1) Filter: (Seat, 64 + 14.11) Filter: (Seat, 64 + 14.11) Filter: Secular Rowerd by Filter: 992 Filter: Secular Rowerd by Filter: 992 Filter: Seat (1.2.5 filter: 0.12.5 filter: 0.12.	Gather [cost=1000.00.116782.76 rows=51 width=18] [actual time=18.174.229.865 rows=44 loops=1] Worker Planned 2	Bitmap Heap Scan on tickets (costr4.83305.14 rowsr51 width+18) (actual time+0.057.0.179 rowsr44 loops+1)	Добавлен индекс для поля client_id таблицы tickets. В таблице
WHERE client_id = 1431;	Filter: (client_id = 1431) Rows Removed by Filter: 9992	Worken Planned: 2 Workers Launched: 2 -> Parallel Reg Scan on tickets (cost*0.00115777.66 rows*21 width*18) (actual time*11.764.202.264 rows*15 loops*3)	Biosophing Scan on trials in grant 482.205.14 reason's bettlevilig (solut trave-0.057.0.179 reason's loopurs) Restlect Code (sight 47.81) Heap Blobs: reason's 48 - 38 trave (softwarf Scan on Kinds, State), all, (sight 0.00.4.82 reason's sinch 0.00) [calcular deepen 0.000.0031 reason's 48 - 38 trave (softwarf Scan on Kinds, State), all, (sight 0.00.4.82 reason's sinch 0.00) [calcular deepen 0.000.0031 reason's 48 - 38 trave (softwarf Scan on Kinds, State), all, (sight 0.00.4.82 reason's sinch 0.00) [calcular deepen 0.000.0031 reason's 48 - 48 travel 1.00 - 48 tr	Добавлен инърекс для поля client, М таблящы tickets. В табляще tickets на одной странице помещеется "157 записей. Поле client, 14 может границета подосод равних печенов в случайном пораце, сизуальном перохитесть всертить мскомое значение client, 3d = 0.08% (Т. е. словность должна
	Planning Time: 0.125 ms Execution Time: 2.936 ms			случайном порядке, следовательно вероитность встретить искомое значение client_id = 0.08% (Т. е. сложность должна
	(5 rows)	Filter: (dient, id= 1411) Rowa Removed by Filter: 3333319 Planning Time: 0.110 ms	Placeing Time 0.135 ms Securion Time 0.230 ms (7 rown)	онивится примерно в 1250 раз). Согласно планам до и после, сложность очевилась в 509.2 разв. Время выполнения запроса онивилось в "1000 раз.
		387: Functions: 22 Cotions: Inlining false. Cotimization false. Excressions true. Deforming true	(7 rows)	сниямлось в ~1000 рах.
		Options: Initing this, Optimization fals, Opensisten trus, Deforming tree  Timing: Generation 2.063 ms, Initing 0.000 ms, Optimization 0.762 ms, Emission 10.330 ms, Total 13.175 ms  QUERTPLAN		
//Выбор всех клиентов когорые приобреги более 75 билетов.	QUERY PLAN	QUERYPLAN	QUERY PLAN	Здесь не жатает объема памяти для выполнения операции и используется память диска. Увелична параметр work_mem сложность снезилась в 3 раза.
EXPLAIN ANALYZE SELECT clients.name	HashAggregate (cost+269.45.284.70 rows=407 width=26) (actual time=16.126.16.128 rows=0 loops=1)	Troution Geophigrapide (point-CEDER 64.177956.27 rows-05607 width-07) points from-2605.54.200.70 rows-151 laspes) Titles (point-0500 64.00 for 70) Total (point-0500 64.00 for 70) T	Total an Indiagraph   India (1977)   1,819277 conv-06657 width-17]   (state from-2011.14.120.200 conv-118 laspert)	спомность снезилась в 3 раза.
FROM tickets JOIN clients ON clients.id = tickets.client_id GROUP BY clients.id	Filter: (count)(tickets.id) >= 75)	Filter: (count)(scheta.id) >= 75)	Filter: (count)(scheth.id) >= 75)	
GROUP BY clients.id HAVING COUNT(sickets.id) >= 75;	Batches: 1 Memory Usage: 169kB Rows Removed by Filter: 1986	Rows Removed by Fitter: 190802  -> Gather Merge (costr528596.44.575266.37 rows=400000 width=25) (actual time=2664.912.2761.566 rows=301061 loops=1)	Ratches: 1 Memory Usage: 20881kB Rows Removed by Filter: 199882	
	Hash Join (cost=47.45.224.65 rows=8960 width=40) (actual time=2.951.11.221 rows=10000 loops=1)     Hash Cond: (lickets.client_id = clients.id)	Workers Launched: 2 Workers Launched: 2	-> Gather (costn142790.79.194790.79 rows=400000 width=25) (actual time=2146.2952444.653 rows=600000 loops=1) Workers Planned: 2	
	→ Seq Scan on tickets (cost=0.00.153.60 rows=8960 width=8) (actual time=0.068.2.700 rows=10000 loops=1) → Hash (cost=32.20.32.20 rows=1220 width=36) (actual time=2.832.2.832 rows=2000 loops=1)	-> Sort (costr527596.42.528096.42 rows=200000 width=25) (actual time=2631.982.2642.454 rows=100354 (cops=3) Sort Key: clients.id	Workers Launched: 2  → Partial HashAggregate (cost=141790.79.143790.79 rows=200000 width=25) (actual time=2316.042.2354.725 rows=200000 loops=3)	
1	succets: .cues Batches: 1 Memory Usage: 110kB   > Seq Scan on clients (cost+0.00.32.20 rows=1220 width=26) (actual time=0.043.1.522 rows=2000 loops=1)	Sort neemod: external merge: Disk: 4000kB Worker D: Sort Method: external merge: Disk: 4000kB	Group Key: Celetin and Batches: 1 Memory Usage: 30727KB	
I	GGRP FAN  Graph for All (1997) 1811-1812	Worker 1: Sort Method: external merge Dist: 412888  -> Partial HashAggregate (cost=654370.65.505198.78 rows=200000 width=25) (actual time=2399.8743605.222 rows=103354 (cops=3)	o point endorgenia innoi-1709, b. 1,1170,7 more 20000 minerii (innoi-1700 d.), 224,175 more 20000 mineriii (innoi-1700 d.), 224,175 more 20000 mineriii (i	
	(13 nows)	Group Key: clients.id Planned Partitions: 8 Batches: 9 Memory Usage: 4689kB Disk Usage: 87616kB	> Parallel Hash Join (cost+4658.06.120957.46 rows+4166667 width+21) (actual time+27.878.1396.088 rows+2333333 bops+3) Hash Cond: (biolats client, id + clients.id)	
1		Worker C: Balches: 9 Memory Usage: 465943 Disk Usage: 85588kB Worker 1: Balches: 9 Memory Usage: 4432kB Disk Usage: 85080kB	<ul> <li>Parallel Seg Scan on tickets (cost=0.00.105161.67 rows=165667 width=1) (actual time=0.017.234.422 rows=3333333 loops=1)</li> <li>Parallel Hash (cost=3187.47.3187.47 rows=117647 width=17) (actual time=27.260.27.261 rows=6667 loops=3)</li> </ul>	
		-> Parallel Hash Join (cost+5148.06.154891.46 rows=4166667 width=21) (actual time=729.731.1497.605 rows=3333333 loops=3) Hash Cond: (tickets.client_id = clients.id)	Buckets: 262144 Batches: 1 Memory Usage: 12992kB  -> Parallel Seq Scan on clients (cost+0.00.3187.47 rows+117647 width+17) (actual time+6.772.14.375 rows+66667 (cops+3)	
I		Ser Michigan demonstrate (MICHA)  March U. Ser Michigan demonstrate (MICHA)  A print intelligence (MICHA)  A print intelligenc	Planning Time: 2.130 ms aT:	
		Buckets: 65516 Batches: 4 Memory Usage: 3296kB  -> Parallel See Scan on clients (cost=0.00.1187.47 rows=117647 width=17) (actual time=76.785.82.063 rows=66667 (ocos=3)	Functions: 54 Octions: Initiate false. Octimization false. Excressions true. Deforming true	
		Planning Time: 0.463 ms	21  Options: Index (see, Options label) and Contract Index (Specialism Index, Options Index (Options: Index) (see, Options Index, Options Index, Options Index (Index) (Specialism Index) (Index) (Specialism Index) (Index) (	
		Function: SB	(25 rows)	
		Timing: Generation 6.401 ms, Inlining 71.622 ms, Optimization 129.483 ms, Emission 89.143 ms, Total 306.650 ms		
		287. Vacations: 184 Vacations: 185 V		
//Выбрать все проданные VIP билеты на Фильм с ID S8 и информацию о них	QUERYPLAN	QUERYPLAN	QUERY PLAN	Создание индекса по искомому полю seat_group_id не двет положительного результата, так как всего может быть 3 разных
	Hash Join (cost=25.65.293.30 rows=50 width=76) (actual time=0.768.2.612 rows=50 loops=1)	Recent Long (cond-17617 28 1.14802-64 recentS17 with 40) (cottod line="PATILLIT 201 recent B11 loops of - Intelligence Long language, play as and groups (cond-11.11 Transard with-20] (cond-1880-050-0.00 recent loops of - Intelligence Long Long Long Long language (cond-11.11 Transard with-20] (cond-1880-050-0.00 to cond-1880-000 cond	Section (Jan 2014 Lt 300.3 Travel D1 with Mill (Intal free 54.10 x 80.4 Free 40.21 bags 1)  - Intal care range and group, play on any group (and 55.1.3 Travel x 100.70 bags 1)  - Intal care range and group, play on any group (and 55.1.3 Travel x 100.70 bags 1)  - Section (Jan 2014 1)  - Section (Jan 2014 1)  - Intal care range (	положительного результата, так как всего может быть 3 разных экачения и вероятнее всего оно будет встречаться на каждой
EXPLAIN ANALYZE SELECT tickets.id,	relate for (prints 2.6	<ul> <li>Index Scan using seat_groups_pkey on seat_groups (cost=0.15.8.17 rows=1 width=36) (actual time=0.054.0.005 rows=1 loops=1) index Cond: (id = 2)</li> </ul>	-> Index Scan using seat_groups_play on seat_groups (cost+0.15.8.17 nows=1 width=36) (actual time=0.028.0.029 nows=1 (cops=1) Index Cond: (id = 2)	CEDITATE INDEX ON tribate (session, info
tickets.id, said_moups_name as type, halls_name as hall, seats_row as row, seats_neat a seat,	<ul> <li>Index Scan using seat_groups_pkey on seat_groups (cost=0.15.8.17 rows=1 width=36) (actual time=0.076.0.077 rows=1 loops=1) index Cond: (id = 2)</li> </ul>	<ul> <li>Nested Loop (cost*119517.74.124846.92 rows*6517 width*52) (actual time*794.713.817.082 rows*6921 loops*1)</li> <li>Index Scan using movies, pkey on movies (cost*0.27.8.29 rows*1 width*13) (actual time*0.002.0.004 rows*1 loops*1)</li> </ul>	<ul> <li>Nested Loop (cost+31023.99.36353.17 rows+6527 width+52) (actual time+54.1579.022 rows+6521 loops+1)</li> <li>Index Scan using movies _pkey on movies (cost+0.27.8.29 rows+1 width+13) (actual time+0.035.0.026 rows+1 loops+1)</li> </ul>	Museur on none tickets session of newson consumes answers
seats.cow as row, seats.seat as seat,	→ Nested Loop (costr02.25.281.25 rowsr50 widthr45) (actual timer0.520.2.340 rowsr50 loopsr1) → Seq Scan on movies (costr0.00.2.00 rowsr1 widthr12) (actual timer0.037.0.038 rowsr1 loopsr1)		IndexCond: (d = 58)  -> Gather (cost=11023.71.36279.51 rows=6537 width=47) (actual time=54.088.77.856 rows=6921 (cops=1)	на 40%.
seafunction as used, clerks.cames as coattomed, takets.call.price as price, price as price, DOM tectors. DOM	> In Equity case in movies (Data 2D and move *1 with*) (plant limited 0.01.0.000 for each larger(1) filter (1) filter	Similar (2007/15/16, 2017/16, 2017/16, 2017/16)   Antoniosis authors (2017/16, 2016/16, 2016/16, 2016/16)	- Garding (instability 7.1.2072) (instability control 7.2072) (ins	CREATE INDEX ON sessions (id, movie_id); Комбонерованный индеис снетил сложность еще в 2 раза. Оздельный индеис по полю точке_id снизил сложность лишь на 1 %;
movies.name as movie FROM tickets	<ul> <li>Nested Loop (cost+22.25.278.75 rows+50 width+41) (actual time+0.480.2.289 rows+50 loops+1)</li> <li>Nested Loop (cost+21.97.263.44 rows+50 width+34) (actual time+0.437.2.166 rows+50 loops+1)</li> </ul>	<ul> <li>Hash Join (cost+118517.46.123119.56 rows+3845 width=47) (actual time=772.474.790.929 rows+3460 loops=2)</li> <li>Hash Cond: (sests.hall, id = halls.id)</li> </ul>	Nanh Join (cost*30021.71_14625.81 rows*8845 width*47) (actual time*31.028.54.295 rows*3460 (cops*2) Hash Cond: (seats.hall_id = halls.id)	Отдельный индекс по полю movie_id снивил сложность лишь на 1 %;
JOIN clients ON clients.id = tickets.client_id JOIN sessions ON sessions.id = tickets.session_id	<ul> <li>Hash Join (cost*21.69.212.05 rows*150 width*22) (actual time*0.4111.791 rows*158 loops*1)</li> <li>Hash Cond: (tickets.session_id = sessions.id)</li> </ul>	<ul> <li>Nested Loop (cost=118488.95.123080.93 rows=3845 width=43) (actual time=758.753.776.352 rows=3460 loops=2)</li> <li>Parallel Hash Join (cost=118488.54.121194.80 rows=3845 width=34) (actual time=758.738.769.891 rows=3460 loops=2)</li> </ul>	<ul> <li>Nested Loop (cost*29995.21.34587.18 rows*3845 widdf**41) (actual time*32.74953.011 rows*3460 (cops*2)</li> <li>Parallel Hash Join (cost*29994.7932901.05 rows*3845 widdf**34) (actual time*32.723.45.251 rows*3460 (cops*2)</li> </ul>	
JOIN movies ON movies.id = sessions.movie_id JOIN seats ON seats.id = tickets.seat_id	<ul> <li>Seq Scan on tickets (cost+0.00.164.00 rows+10000 width=22) (actual time+0.009.0.547 rows+10000 loops+1)</li> <li>Hash (cost+21.50.21.50 rows+15 width=8) (actual time+0.352.0.352 rows+15 loops+1)</li> </ul>	Nam Cond. [seat. 54 * Edition. Seat. ], [8]  -> Paral May Exp. [seat. 54 * Edition. Seat. ], [8]  -> Paral May Exp. (seat. 54 * Edition. Seat. 2744.59 rows-18839 width+20] [schall time*-0.018. 6.799 rows-13170 loops-2]  Filter. (seat. group, 18 * 2)  Flows. Removed by 19th: 566.03	Hash Cond: (reats id + tickets.seat, (d)  -> Parallel Seg Scan on seats (cost+0.00.2744.59 rows+38839 width+20) (actual time+0.0157.903 rows+33370 loops+2)	
JOIN seat_groups ON seat_groups.id = seats.seat_group_id JOIN halls ON halls.id = seats.hall_id	Buckets: 1024 Batches: 1 Memory Usage: 9kB -> Seq Scan on sessions (costr0.00.21.50 rowsr15 widthr8) (actual timer0.029.0.335 rowsr15 loopsr1)	Filter: (sent, group, id = 2) Rows Removed by Filter: 66630	Filter: (sext_group_id = 2) Rows Removed by Filter: 66630	
WHERE movies id = 58 AND seat_groups.id = 2;	Filter: (movie_jd = 58) Rows Removed by Filter: 985	Ross Removed by Filter: 66529  > Parallel Hash, (not-Halls 42.4 cross-9250 width>2] (actual 6me-754.236756.538 cross-10274 loops-2) Backets: 22768 Batchers: 1 Memory Usage: 46088  > Hash Join (cont-2006.471188.46. cross-9250) width>2] (actual 6me-6.481755.441 rows-10274 loops-2)	-> Parallel Hash (costr2989167, 2989167 rowsr8250 width=22) (actual time=32.474, 32.475 rowsr10274 loopsr2) Buckets: 32768 Batches: 1 Memory Usage: 140868	
	<ul> <li>Index Scan using seats_pkey on seats (cost+0.29.0.34 rows+1 width+20) (actual time+0.002.0.002 rows+0 loops+158) index Cond: (id = tickets.seat_id)</li> </ul>	<ul> <li>Hash Join (cost=2086.4718385.42 rows=8250 width=92) (actual time=6.481755.441 rows=10274 loops=2)</li> <li>Hash Cond: (tickets.session, id = sessions.id)</li> </ul>	<ul> <li>Nested Loop (costr5.45, 29891.67 rowsr8250 widthr22) (actual time=0.074.29.908 rows=10274 loops=2)</li> <li>Parallel Index Croly Scan using sessions, id, movie, id, jdx on sessions (costr0.29.1855.12 rowsr82 widthr48) (actual time=0.041.0.898 rowsr103 loops=2)</li> </ul>	
	a Seq Come in the internal Cold. 3.6.6 of move 1000 death (2) plant times 4000. 8.6.7 one-40000 laugh (3) in the internal Cold. 3.6.7 one-40000 laugh (3) in the internal Cold. 3.0.7 one-400000 laugh (3) in the internal Cold. 3.0.7 one-400000 laugh (3) in the internal Cold. 3.0.7 one-40000000 laugh (3) in the internal Cold. 3.0.7 one-4000000000000000000000000000000000000	Intel Core (District, market), 9° sentions (1)  > Personal language of the Core (Core (Cor	a Paradat Lina (James 2014, L. 2014). Care work 2014 when 22 client a few 22 client 2014 c	
	<ul> <li>Index Scan using clients, play on clients (cost=0.28.0.31 rows=1 width=15) (actual time=0.002.0.002 rows=1 loops=50)</li> <li>Index Cond: (id = tickets.client, id)</li> </ul>	Buckets: 1024 Batches: 1 Memory Usage: 17kB   > Seq Scan on sessions (costr0.00.2084.00 rows=198 width=8) (actual time=0.176.6.343 rows=206 loops=2)	<ul> <li>Bitmap Heap Scan on tickets (cost*5.16360.92 rows*99 width*22) (actual time*0.0150.265 rows*100 loops*206)</li> <li>Recheck Cond: (session, id = sessions.id)</li> </ul>	
	<ul> <li>Hash (cost=2.00.2.00 rows=100 width=11) (actual time=0.141.0.141 rows=100 (apps=1) Buckets: 1024 Earther: 1 Memory Usage: 1368</li> </ul>	Filter: (movie_id = 58) Rows Removed by Filter: 99794	Heap Block: exact-18058  → Bitmac Index Scan on tickets session id idx (cost+0.00.5.14 rows=99 width=0) (actual time=0.007.0.007 rows=100 loops=206)	
	Seq Scan on halls (costr0.00 .1.00 rows=100 width=11) (actual time=0.020 .0.063 rows=100 loops=1) Planning Time: 3.313 ms	Index Scan using clients_play on clients (cost=0.42.0.44 rows=1 width=17) (actual time=0.002.0.002 rows=1 loops=6921) (index Cost: lid = tickets.client.id)	Index Cond: (session_id = sessions.id)  > Index Scan uninc clients, plany on clients. (cost+0.42.0.44 rows+1, width+17) (actual time+0.002.0.002 rows+1 (coss+6921)	
	Execution Time: 2.796 ms	File (Incom.) 4:181  - Nation Service Style Time 1994  - Nation Service Style Time 1994  - Nation Service Style Time 1994  - Nation Service Style Styl	the global constricted any armonic, all, an involved 1.1 may 979 with 40 (solid street 0.01.4.007 may 100 loags 0.05) into 4.00.1.1 may 979 with 40 (solid street 0.01.4.007 may 100 loags 0.05) into 4.00 may 100 may	
		> Seq Scan on halfs (cost=0.00.16.00 nows=1000 width=12) (actual time=13.45813.557 nows=1000 loops=2) Planning Time: 2.540 ms	the face of the state of the st	
		art .	Planning Time: 3.299 ms Specusion Time: 80.299 ms	
		Violence: 3.2  Options: Initing fabre, Optimization fabre, Operasions true, Deforming true Timing: Generation 5.465 m., Initing 0.000 ms, Optimization 1.122 ms, Emission 25.167 ms, Total 31.984 ms Execution Times 21.999 ms	(35 rows)	
		Decusion   Time: 221.899 ms   (38 rows)		
			QUERFAN	
//Посчитать общую стоимость проданных билетов на каждый фильл	QUERY PLAN	QUERY PLAN	QUERY PLAN	CREATE INDEX ON sessions (id, movie_id); Создание комбинированного индекса снизило сложность
EXPLAIN ANALYZE SELECT movies.name, SUM(tickets.sell_price) as earnings FROM movies	Sort (cast=305.83.306.03 rows=80 width=44) (actual time=9.859.9.864 rows=80 loops=1) Sort Key: (sum(tickets.sell_price)) DESC	Test Search (1997-1891-1891-1991-1991-1991-1991-1991-	-	примерно на чепверпь.
LONGAN ANALYZE SELLE, I MOVIMILIAMIN, SUMMICCORELLINE, SPICE) as earnings. FROM movies.  JOIN sessions ON movimiled = sessions. moving. Id  JOIN Schotts ON sessions. Id = tickets.session_id  GROUP BY movimiled  ORDER BY earnings DESC;	International Conference of the Conference of th	Sort Method: quicksort Memory: 6448  -> Finalize GroupAggregate (cost=193761.01.193891.44 rows=500 width=45) (actual time=2676.915.2677.995 rows=500 loops=1)	Sort (cost+151900.74.151901.99 rows-500 width+45) (actual time+2292.699.2294.118 rows-500 loops+1) Sort Key: (sum(tickets.sell_price)) DESC	
GROUP BY movies.id ORDER BY earnings DESC;	Group Key: movies Id Batches: 1 Memory Usage: 48kB	Group Key: movies.id -> Gather Merge (cost+193761.01.193877.69 rows+1000 width+45) (actual time+2676.907.2677.173 rows+1500 loops+1)	In the principles of principle	
	> Hash Join (cost=34.30.252.30 rows=50000 widsh=18) (actual time=1.187.7.225 rows=100000 loops=1) Hash Cond. (sessions.movie.jd = movies.id)	Workers Planned: 2 Workers Launched: 2	Group Key: movies.id  -> Gather Merge (cost=151747.90.151864.57 rows=1000 width=65) (actual time=2291.498.2293.338 rows=1500 loops=1)	
	→ Hash Join (cost+31.50.221.86 rows=10000 width+10) (actual time+1.073.4.769 rows=10000 loops=1) Hash Cond. (tickets.session id = sessions.id)	-> Sort (cost+192760.99.192762.34 rows+500 width+45) (actual time+2634.7912634.817 rows+500 (cops+3) Sort Key: movies.id	Workers Flamed: 2 Workers Launched: 2	
	• In this has [most], 5.0, 7.18 (most) 600 addres[1] (main [fame], 10.4, 1.07 (most) 6000 [most]). • In Equity (most [fame], 10.4, 1.07 (most) 600 addres[1] (main [fame], 2.0, 1.04 (most) 600 [most]). • In the [most], 0.1, 1.00 (most) 600 addres[1] (most) 600 addre	Sort Method: quicksort Memory: 93kB Worker D: Sort Method: pulcksort Memory: 95kB	Water March 19 (2004) Water D. Sant M. March 19 (2004) Water D.	
	Buckets: 1024 Batches: 1 Memory Usage: 48kB   > See Scan on services: (cost=0.00, 19.00 ross=1000 width=16 factual times of 013. 0.522 ross=1000 bosses)*	Worker 1: Sort Method: quicksort Memory: 95kB  -> Partial MathApprenate (costs/192722.22, 192738.57 rossy/500 wight-a51 facturel times/618.458 - 2614.670 rosss/610 books***	Sort Method: quicksort Memory: 95kB Worker C: Sort Method: quicksort Memory: 95kB	
	-> Hash (cost=1.80.1.80 rows=80 width=12) (actual time=0.104.0.104 rows=80 loops=1) Burdett=1024 Batchar: 1 Memory (linear: 1248	Group Key movies Id  Batcher 1 Marrow Planer 2010	Worker I: Sort Method: quicksort Memory: 95kB -> Partial Hairh Americanta (matri 100710.21 190725 46 mass 200 widths 451 (whitel Research 2007.230, 2362.455 mass 500 hones 3)	
	Seq Scan on movies (cost=0.00.1.80 rows=80 width=12) (actual time=0.018.0.052 rows=80 loops=1)  Translation 0.078 res.	Worker C: Batches: 1 Memory Usage: 29748	Group Key: modes 1d	
	Execution Time: 9.959 ms	-> Hash Join (cost=1489.25.171899.26 rows=4166613 width=19) (actual time=21.051.2051.459 rows=2333333 loops=3)	Worker C. Batcher: 1 Memory Usage: 297kB	
		-> Hash Join (cost+3475.00.150054.94 rows+4156613 width+10) (actual time+23.833.1476.169 rows+2333333 loops+3)	→ Hash Join (costr3556.05.12985.88 cown=166667 width=19) (actual time=16.268.1679.194 cows=3333333 (cops=3)	
			> Farallel Hash Join (cost=254180.118H41.42 rows=416667 width=10) (actual time=8.077.1078.367 rows=3333333 (oops=3)	
		<ul> <li>reach (cost=1834.00.1834.00 rows=200000 width=8) (actual time=23.432.23.432 rows=100000 (cops=3)</li> <li>Buckets: 131072 Satches: 2 Memory Usage: 2976kB</li> </ul>	Hash Code (assume mouth of received at)  - Franch Early hashing (major-Edul End Let / received Lodd or with "city] (manufaced 277, 1097.837 / received 271311 (logge = 1)  finish Code (finish mouth of received at / received Lodd or with "city (finish fined 1915.277.538 / received Lodd or received at / received Lond or received at / received Lond or received at / received Lond or received London (London 1970.277.57 / received London 1970.277.57 / received London (London 1970.277.57 / received London 1970.277.57 / received London 1970.277.57 / received London (London 1970.277.57 / received London 19	
		> Seq Scan on sessions (cost=0.00.1834.00 rows=100000 width=8) (actual time=0.008.10.290 rows=100000 loops=3) > Hash (cost=8.00.8.00 rows=500 width=13) (actual time=7.210.7.211 rows=500 loops=3)	-> Parallel Hash (cost=2020.56, 2020.56 rows=1667 width=8) (actual time=7.790.7.790 rows=33333 loops=3)  Buckets: 131072 Batches: 1 Memory Usage: 4960kB	
		Tests Conf. (ministra mone), it is mone (ii)  - tests alone (ministra mone), it is mone (iii)  - tests alone (ministra mone), it is mone (iii)  - Farafit (a) to me tests (ministra Co. 2014.11 men-1011.11 ministra (iii)  - Farafit (a) to me tests (ministra Co. 2014.11 men-1040.11 ministra (iii) (ministra Co. 27.14 for mone) (ministra C	<ul> <li>Parallel Index Only Scan using sessions, jd, movie, jd, jdx on sessions (cost+0.29.2020.96 rows+1667 width+6) (actual time+0.014.30.481 rows+100000 loops+1)</li> <li>Heap Fetches: 0</li> </ul>	
		Planning Time: 0.804 ms 8T:	> Facilities (model) 8, 2003 for conveiling level (edge) (model) 1, 2004 for conveiling level (edge) (model) 1, 2004 for conveiling level (edge) (model) (model) 1, 2004 for conveiling level (edge) (model) (	
		Functions: 72	-> Seq Scan on movies (cost=0.00.8.00 rows=500 width=13) (actual time=8.043.8.114 rows=500 loops=1) Planning Time: 1.414 ms	
		Options: Indiving failer, Optimization failer, Expressions true, Deforming true Timing: Generation 6.931 mm, Indiang 0.000 ms, Optimization 0.925 ms, Emission 19.810 ms, Total 27.658 ms Desculon Time; 2083.004 ms Desculon Time; 2083.004 ms	and the second s	
		(35 rows)	Function: 72 Options: Initing false, Optimization false, Expressions true, Deforming true Trining Generation 6.660 ms, Initing 0.000 ms, Optimization 1.022 ms, Emission 22.661 ms, Total 30.363 ms Describer Times 2.283.44 ms  Appendix Times 2.283.44 ms	
			Secution Time: 298.754 ms (36 rows)	