A ... index is an index on multiple columns in a table.

✔️composite

A ... caches currently and recently used data blocks read from disk.

❌database buffer

RAID level ... means block level striping with dedicated parity disk.

✔️4

A database ... is the combination of the system global area (SGA) and background processes.

✔️instance

When tables are ... , a single data block can contain rows from multiple tables.

❌joined

A ... index is always dense.

❌B+

In composite partitioning each partition is further divided into ...

❌subpartitions using a data distribution method

The basic strategies for partitioning are the following in alphabetical order: ...

❌hash,list,range

RAID level ... means block level striping and distributed parity disk.

✓ 5

A ... index determines the location of the records of the data file.

✗ record

A ... is useful for hiding the identity and location of an underlying schema object.

✓ synonym

An ... is a set of logically contiguous data blocks.

✓ extent

A ... index is an index that has been divided into smaller and more manageable pieces.

✓ partitioned

RAID level ... means mirroring and no striping.

✓ 1

In case of a ... index, data records are not sorted by the search key.

✓ secondary

... is the column or columns that the clustered tables have in common.

✓ cluster key

A ... requires no storage other than the storage of its query in the data dictionary.

✓view

In a ... index, the second and higher levels must be sparse.

✗secondary

... is a set of files containing records of changes made to data files.

✓online redo log

... makes it possible to decompose very large tables and indexes into smaller and more manageable pieces.

✓partitioning

****Give estimation for T(W) if W is the result of the following query:**

SELECT * FROM R WHERE A=1 AND B=2;
and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.**

****What is the cost of a Nested Loop join algorithm if we know the following parameters:**

B(R)=1000, B(S)=10000, M=1200 ?**

****Give estimation for T(W) if W is the result of the following query:**

SELECT * FROM R WHERE A=1 OR B=2;
and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.**

**What is the average cost of a selection operation (SELECT * FROM R WHERE A='x') if we use I, a B+ tree

primary index? We know the following parameters: T(R)=100000, V(R,A)=100000, HT(I)=5.**

A ... is a physical file on disk that contains data structures such as tables and indexes.

✔️data file

... is the time while the first sector of the block moves under the head.

❌rotational letancy

... is a set of files containing records of changes made to data files.

✔️online redo log

The database data files are logically grouped together in a ...

❌tablespaces

RAID level ... means block level striping with dedicated parity disk.

❌0

A ... index is always dense.

❌lowest

A ... requires no storage other than the storage of its query in the data dictionary.

❌data dictionary

... tablespace is a tablespace that can only contain transient data that persists only for the duration of a session.

❌temperary

A database ... is a logical storage structure whose size and structure are not known to the operating system.

❌segments

A ... index has an index entry for every search key value.

✔️dense

In a ... index, the second and higher levels must be sparse.

❌dense

If you create a ... table, then no table segment is allocated for this table.

✔️partitioned

When tables are ... , a single data block can contain rows from multiple tables.

❌cluster

A ... device "forgets" what is stored in it when the power goes off.

✔️volatile

... is a file that provides a chronological log of database messages and errors.

✔️alert log

... contains information about the name and location of data files, online redo log files etc.

❌

... is a situation in which two or more users are waiting for data locked by each other.

✓deadlock

A ... is a schema object from which multiple users can generate unique integers.

✓sequence

****A ... file means that we sort the tuples of a relation by their primary**

key and store them in data blocks in this order.**

✓sequential

All secondary and tertiary storage devices are ... devices.

❌nonvolatie

****Give estimation for T(W) if W is the result of the following query:**

SELECT * FROM R WHERE A=1 OR B=2;
and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.**

****What is the cost of the improved Block Nested Loop join algorithm if we know the following**

parameters: B(R)=1000, B(S)=2000, M=101.**

How many different join trees are there if we join 3 relations R,S,T?

Give estimation for the number of rows of a join operation (R natural join S) if they have a common attribute A, A is key in R, A is foreign key in S, and we know the following parameters: T(R)=1000, T(S)=2000.

... is the time while the first sector of the block moves under the head.

✓rotational latency

All data dictionary tables and views are stored in the ... tablespace.

✓SYSTEM

A ... index determines the location of the records of the data file.

✓primary

A ... requires no storage other than the storage of its query in the data dictionary.

✓view

In composite partitioning each partition is further divided into ...

✓subpartition

... is characterized by higher read/write times than secondary storage.

✓tertiary storage

When tables are ... , a single data block can contain rows from multiple tables.

✔clustered

A ... index is an index that has been divided into smaller and more manageable pieces.

✔partitioned

A ... index is an index on multiple columns in a table.

✔composite

The database data files are logically grouped together in a ...

✔tablespace

A ... index is an index on multiple columns in a table.

✔on

A ... is a group of tables that share common columns and store related data in the same blocks.

✔table cluster

... SQL is SQL whose complete text is not known until run time.

✔Dynamic

... is a set of files containing records of changes made to data files.

✔online redo log

... tablespace is a tablespace that can only contain transient data that persists only for the duration of a session.

✓ temporary

A database ... is the combination of the system global area (SGA) and background processes.

✗ structure

A ... is a data file that belongs to a temporary tablespace.

✓ temp file

The basic strategies for partitioning are the following in alphabetical order: ...

✗ hash partitioning

A ... index has an index entry for every search key value.

✓ dense

A ... index physically reverses the bytes of each index key while keeping the column order.

✓ reverse key

Give estimation for the number of rows of a join operation (R natural join S) if we assume the

"containment of value sets" and know the following parameters: T(R)=1000, T(S)=2000, V(R,A)=100, V(S,A)=200.

Your Answer:

10000

Result: 4 / 4 pts

Comment:

How many different join trees are there if we join 3 relations R,S,T?

Your Answer:

3! = 6

Result: 1 / 4 pts

Comment: (R,S)T and R(S,T) are different

Give estimation for T(W) if W is the result of the following query:

SELECT * FROM R WHERE A=1 OR B=2;

and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.

Your Answer:

5

Result: 0 / 4 pts

Comment: OR not AND

What is the cost of a Nested Loop join algorithm if we know the following parameters:

B(R)=1000, B(S)=10000, M=1200 ?

Your Answer:

Result: 0 / 4 pts

Comment:

Give estimation for B(RxS), if we know the following parameters: T(R)=1000, T(S)=2000, bf(R)=100, bf(S)=50.

Your Answer:

Result: 0 / 4 pts

Comment:

A ... is useful for hiding the identity and location of an underlying schema object.

Result: 2 / 2 pts

✓Synonyms

A database data block consists of one or more ...

Result: 0 / 2 pts

✗extents

A database ... is the combination of the system global area (SGA) and background processes.

Result: 2 / 2 pts

✓Instance

A ... is a group of tables that share common columns and store related data in the same blocks.

Result: 2 / 2 pts

✓cluster

If you create a ... table, then no table segment is allocated for this table.

Result: 0 / 2 pts

❌temprorary table

The database data files are logically grouped together in a ...

Result: 2 / 2 pts

✔️tablespaces

RAID level ... means block level striping with dedicated parity disk.

Result: 2 / 2 pts

✔️4

... contains information about the name and location of data files, online redo log files etc.

Result: 2 / 2 pts

✔️ control file

In case of a ... index, data records are not sorted by the search key.

Result: 0 / 2 pts

❌sparse or non-dense index

... is the time while the first sector of the block moves under the head.

Result: 2 / 2 pts

✔️ rotational latency

A ... is a data file that belongs to a temporary tablespace.

Result: 2 / 2 pts

✓ temp file

An ... is a set of logically contiguous data blocks.

Result: 2 / 2 pts

✓ extent

... is a situation in which two or more users are waiting for data locked by each other.

Result: 0 / 2 pts

✗ Legality of Schedules

A ... is a physical file on disk that contains data structures such as tables and indexes.

Result: 2 / 2 pts

✓ data file

... tablespace is a tablespace that can only contain transient data that persists only for the duration of a session.

Result: 2 / 2 pts

✓ temprory

A ... index determines the location of the records of the data file.

Result: 2 / 2 pts

✓ primary index

... is a file that provides a chronological log of database messages and errors.

Result: 2 / 2 pts

✓Alert Log

RAID level ... means block level striping and two distributed parity disks.

Result: 0 / 2 pts

✗4 5

A ... is a piece of a very large table or index.

Result: 2 / 2 pts

✓A partition

A ... index is an index that has been divided into smaller and more manageable pieces.

Result: 2 / 2 pts

✓Partition

***Give estimation for T(W) if W is the result of the following query:**

SELECT * FROM R WHERE A=1 AND B=2;
and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.*

Your Answer:

T(W)=T(AXB) = T(A)*T(B)=
c=T(R)/V(r,A)=100000/100=

c=100000/200=

T(W)=T(R)/V(R,A)+T(R)/V(R,B)

Result: 0 / 4 pts

Comment:

***What is the cost of the external Sort-Merge algorithm if we know the following parameters:**

B(R)=1000000, M=101?*

Your Answer:

2B(R) +*2*B(R) *log(m-1)(Br/M) -Br

Result: 2 / 4 pts

Comment:

How many different join trees are there if we join 3 relations R,S,T?

Your Answer:

3!

Result: 1 / 4 pts

Comment: (R,S)T and R(S,T) are different.

***What is the cost of the improved Block Nested Loop join algorithm if we know the following**

parameters: B(R)=1000, B(S)=2000, M=101.*

Your Answer:

(B(R)/M-1)*B(S) + B(R)

Result: 2 / 4 pts

Comment:

***What is the average cost of a selection operation (SELECT * FROM R WHERE A='x') if we use I, a B+ tree**

primary index? We know the following parameters: T(R)=100000, V(R,A)=100000, HT(I)=5.*

Your Answer:

Result: 0 / 4 pts

Comment:

A ... is a piece of a very large table or index.

✔️partition

A ... index is an index that computes the value of a function or expression involving one or more columns and stores it in the index.

❌function-based index

An ... is a set of logically contiguous data blocks.

❌segment

A ... table is a table in which the data rows are stored in no particular order on disk.

❌table cluster

A ... is useful for hiding the identity and location of an underlying schema object.

❌control file

When tables are ... , a single data block can contain rows from multiple tables.

❌index-organized table

RAID level ... means block level striping with dedicated parity disk.

✓4

A ... index determines the location of the records of the data file.

❌

A ... index physically reverses the bytes of each index key while keeping the column order.

❌reverse key index

In a ... index, the second and higher levels must be sparse.

❌sparse

A ... requires no storage other than the storage of its query in the data dictionary.

❌index-organized table

A ... index is an index that has been divided into smaller and more manageable pieces.

❌partitioned index

A database ... is the combination of the system global area (SGA) and background processes.

✓instance

The Oracle Database user ... owns all base tables and user-accessible views of the data dictionary.

✗system

A ... index is an index on multiple columns in a table.

✓on

The database data files are logically grouped together in a ...

✓tablespace

A ... index has an index entry for every search key value.

✗dense index

A ... is a set of extents allocated for a specific database object, such as a table.

✗segments

A ... index is an index on multiple columns in a table.

✗composite index

If you create a ... table, then no table segment is allocated for this table.

✗clustered

Give estimation for T(W) if W is the result of the following query:

SELECT * FROM R WHERE A=1 OR B=2;

and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.

Your Answer:

T(W) = T(R)/V(R,A)+V(R,B) = 100000/100+200

Result: 0 / 4 pts

Comment:

Give estimation for the number of rows of a join operation (R natural join S) if they have a common attribute A, A is key in R, A is foreign key in S, and we know the following parameters: T(R)=1000, T(S)=2000.

Your Answer:

T(R join S)= (T(R)T(S))/max{V(R,A), V(S,A)}

Result: 0 / 4 pts

Comment: key and foreign key !

What is the average cost of a selection operation (SELECT * FROM R WHERE A='x') if we use I, a B+ tree

primary index? We know the following parameters: T(R)=100000, V(R,A)=100000, HT(I)=5.

Your Answer:

-In case of a single record: HTi + 1

-In case of multiple records: HTi + ceil(SC(R,A)/bf(R))

Result: 2 / 4 pts

Comment:

What is the cost of the external Sort-Merge algorithm if we know the following parameters:

B(R)=1000000, M=101?

Your Answer:

2* B(R) + 2* B(R) * | log M-1 (B(R)/M)|-B(R)

Result: 3 / 4 pts

Comment: formula is not enough

Give estimation for T(W) if W is the result of the following query:

SELECT * FROM R WHERE A=1 AND B=2;

and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.

Your Answer:

T(W)=T(R)/V(R,A)*V(R,B)

Result: 3 / 4 pts

Comment: formula is not enough

A ... index is an index on multiple columns in a table.
✓ composite
RAID level ... means block level striping with dedicated parity disk.
✓ 4
A database ... is the combination of the system global area (SGA) and background processes.

✓instance

When tables are ... , a single data block can contain rows from multiple tables.

✓clustered

A ... index is always dense.

✓secondary

RAID level ... means block level striping and distributed parity disk.

✓5

A ... is useful for hiding the identity and location of an underlying schema object.

✓synonym

An ... is a set of logically contiguous data blocks.

✓extent

A ... index is an index that has been divided into smaller and more manageable pieces.

✓partitioned

RAID level ... means mirroring and no striping.

✓1

In case of a ... index, data records are not sorted by the search key.

✓secondary

... is the column or columns that the clustered tables have in common.

✓cluster key

A ... requires no storage other than the storage of its query in the data dictionary.

✓view

... is a set of files containing records of changes made to data files.

✓online redo log

... makes it possible to decompose very large tables and indexes into smaller and more manageable pieces.

✓partitioning

A ... is a physical file on disk that contains data structures such as tables and indexes.

✓data file

The database data files are logically grouped together in a ...

✓tablespace(s)

... tablespace is a tablespace that can only contain transient data that persists only for the duration of a session.

✓temporary

A ... index has an index entry for every search key value.

✓dense

If you create a ... table, then no table segment is allocated for this table.

✓partitioned

A ... device "forgets" what is stored in it when the power goes off.

✓volatile

... is a file that provides a chronological log of database messages and errors.

✓alert log

... contains information about the name and location of data files, online redo log files etc.

✓control file

... is a situation in which two or more users are waiting for data locked by each other.

✓deadlock

A ... is a schema object from which multiple users can generate unique integers.

✓sequence

A ... file means that we sort the tuples of a relation by their primary key and store them in data blocks in this order.

✓sequential

... is the time while the first sector of the block moves under the head.

✓rotational latency

All data dictionary tables and views are stored in the ... tablespace.

✓SYSTEM

A ... index determines the location of the records of the data file.

✓primary

In composite partitioning each partition is further divided into ...

✓subpartition

... is characterized by higher read/write times than secondary storage.

✓tertiary storage

A ... is a group of tables that share common columns and store related data in the same blocks.

✓table cluster

... SQL is SQL whose complete text is not known until run time.

✓Dynamic

A ... is a data file that belongs to a temporary tablespace.

✓temp file

A ... index physically reverses the bytes of each index key while keeping the column order.

✓reverse key

A ... is a piece of a very large table or index.

✓A partition

A ... is an instruction passed to the optimizer through comments in an SQL statement.

✓hint
A ... caches currently and recently used data blocks read from disk.
✓buffer
The Oracle Database user ... owns all base tables and user-accessable views of the data dictionary.same
✓sys
A ... table is a table in which the data rows are stored in no particular order on disk.
✓heap-organized
A ... index has index entries for only some of the search values, typically one entry per block.
✓sparse
A ... is a set of extents allocated for a specific database object, such as atable.
✓segment
A database ... is a logical storage structure whose size and structure are not known to the operating system.
✓data block
RAID level ... means block level striping and no redundancy.
✓0
RAID level ... means block level striping and two distributed parity disks.
✓6
A ... index is an index that computes the value of a function or expression involving one or more columns and stores it in the index.
✓function-based
... is the time while the disk controller positions the head assembly at the proper cylinder
✓seek time
In a ... index, the second and higher levels must be sparse.
✓multi-level
... table is a table whose data are stored in primary key order.
✓index-organized table
A database data block consists of one or more ...
✓disk block

All secondary and tertiary storage devices are ... devices.
nonvolatile ???

The basic strategies for partitioning are the following in alphabetical order: ...
hash,list,range, SUBPARTITIONS (RANGE-HASH) ???

-Range partition, hash parition, list partition, subpartitions

What is the cost of selection operation (SELECT * FROM R WHERE A = 'x') if we use I, a non-unique B+ tree clustered index?
T(R) = 100000, V(R,A) = 1000, HT(I)=5, bf(R) = 100
Single record: HT(I) + 1 = 6
Multiple:
SC(R,A) = T(R)/V(R,A)
HT(I) + ceil (SC(R,A)/bf(R))

What is the average cost of a selection operation (SELECT * FROM R WHERE A='x') if we use I, a B+ tree
primary index? We know the following parameters: T(R)=100000, V(R,A)=100000, HT(I)=5.
Cardinality is one
Single record: HT(I) + 1
Multiple:
SC(R,A) = T(R)/V(R,A)
bf(R) = ?
HT(I) + ceil (SC(R,A)/bf(R))

What is the cost of a Nested Loop join algorithm if we know the following parameters: B(R)=1000, B(S)=10000, M=1200 ?
B(R) + B(S) because 1000 fits into memory

What is the cost of the improved Block Nested Loop join algorithm if we know the following
parameters: B(R)=1000, B(S)=2000, M=101.
B(R)/(M-1) * B(S) + B(R) = 2000

How many different join trees are there if we join 3 relations R,S,T?
3!*2

What is the cost of the external Sort-Merge algorithm if we know the following parameters: B(R)=1000000, M=101?
2 * B(R) + 2*B(R) * | log_base(M-1)(B(R)/M)| - B(R) => (around) = 500000

What is the cost of a Hash join, if we know the following parameters?B(R)=1000, B(S)=1500, M=100
2*(B(R) + B(S)) + (B(R) + B(S)) = 7500

Give estimation for B(RxS), if we know the following parameters: T(R)=1000, T(S)=2000, bf(R)=100, bf(S)=50.
B(RxS) = T(R)*T(S)/bf(W) = T(R)*T(S)L(S)/b + T(S)*T(R)L(R)/b =
= T(R)*T(S)/bf(S) + T(S)*T(R)/bf(R)

Give estimation for the number of rows of a join operation (R natural join S) ifwe assume the "containment of value sets"
and know the following parameters: T(R)=1000,T(S)=2000, V(R,A)=100, V(S,A)=200.
T(W) = T(R)*T(S)/max{V(R,A), V(S,A)}

Give estimation for T(W) if W is the result of the following query:
SELECT * FROM R WHERE A=1 AND B=2;
and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.
T(W) = (T(R)/V(R,A))/V(R,B)

Give estimation for the number of rows of a join operation (R natural join S) if they have a common attribute A, A is key in R, A is foreign key in S, and we know the following parameters: T(R)=1000, T(S)=2000.
T(S)

==========

A database ... is a logical storage structure whose size and structure are not known to the operating system.

✓data block

The basic strategies for partitioning are the following in alphabetical order: ...

✓hash, list, range

A ... is a piece of a very large table or index.

✓partition

A ... is an instruction passed to the optimizer through comments in an SQL statement.

✓hint

A ... index is an index on multiple columns in a table.

✓composite

A ... is an alias for a schema object.

✓synonym

... is a set of files containing records of changes made to data files.

✓online redo log

A ... index is always dense.

✓secondary

In case of a ... index, data records are not sorted by the search key.

✓secondary

RAID level ... means block level striping and two distributed parity disks.

✓6

... is the column or columns that the clustered tables have in common.

✓cluster key

****A ... file means that we sort the tuples of a relation by their primary**

key and store them in data blocks in this order.****

✓sequential

A ... caches currently and recently used data blocks read from disk.

✓buffer

A ... index is an index that computes the value of a function or expression involving one or more columns and stores it in the index.

✓function-based

... table is a table whose data are stored in primary key order.

✓index-organized

What is the cost of a selection operation (SELECT * FROM R WHERE A='x') in worst case, if we use I,

a non-unique B+ tree secondary index? We know the following parameters: T(R)=100000, V(R,A)=1000, HT(I)=5.

Your Answer:

SC(R,A) = T(R) / V(R,A) = 100000/1000 = 100

HT i + SC(A,R)= 5+100 =105

Result: 4 / 4 pts

Comment:

What is the cost of a Hash join, if we know the following parameters? B(R)=1000, B(S)=1500, M=100.

Your Answer:

2(B(R) + B(S)) + (B(R) + B(S)) = 2 2500 +2500 = 7500

Result: 4 / 4 pts

Comment:

Decompress the following run-length encoded bit vector:

1110110101001101 11

Your Answer:

1110

1101 -13

0 -ignr

1 - 1

0 -ignr

011 -3

0 -ignr

111- 6

26

Result: 1 / 4 pts

Comment: Where is the decompressed bitvector?

We have two relations R and S with the following parameters: B(R)=1000, B(S)=2000.

What value of M (memory size) would we need to compute (R natural join S) using the block nested-loop join algorithm with no more than 25000 disk I/O-s?

Your Answer:

B(R)/(M-1) * B(S) + B(R) <= 25000
1000/(m-1)*2000+1000<=25000

Result: 3 / 5 pts

Comment: Why didn't you finish?

Give the number of conflict-serializable schedules for the following pairs of transactions:

(Give some justification in several words too.)

T1: R1(A); W1(A); R1(B); W1(B); T2: R2(C); W2(C); R2(D); W2(D);

Your Answer:

0

Result: 0 / 5 pts

Comment:

What is the precedence graph for the following schedules?

List the edges of the graph in the following format: 1 -> 2, ... etc.

Give the number of serial schedules (how many exists) which are conflict-equivalent to the given schedule?

a) R1(B); R3(A); R4(D); R3(C); R2(B); W2(B); W4(C); R3(D); R2(D); W4(A);

b) R1(A); R2(B); R2(D); R2(A); R1(B); W2(A); W1(C); R3(C); W3(D); R4(B);

Your Answer:

Result: 0 / 8 pts

Comment:

Give estimation for T(W) if W is the result of the following query:

SELECT * FROM R WHERE A=1 AND B=2;

and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.

Your Answer:

T(W)=T(R)/V(R,A)*V(R,B)

T(w) = 100000/100*200

T(W)=10

Result: 3 / 4 pts

Comment: Miscalculated

What is the cost of a Nested Loop join algorithm if we know the following parameters:

B(R)=1000, B(S)=10000, M=1200 ?

Your Answer:

-best case (use it as inner relation) : B(R) + B(s) = 1000+10000=11000 fits into memory

- worst case (S scanned for each tuple in R) : T(R) x B(S) + B(R)=

Result: 4 / 4 pts

Comment:

Decompress the following run-length encoded bit vector:

1110110101001101111

Your Answer:

111011010100110111

---

13 2 4

decompressed -> 0000000000000100100001

Result: 1 / 4 pts

Comment: 13,1,0,7

We have two relations R and S with the following parameters: B(R)=1000, B(S)=2000.

What value of M (memory size) would we need to compute (R natural join S) using the block nested-loop join algorithm with no more than 15000 disk I/O-s?

Your Answer:

B(R)/(M-1) * B(S) + B(R) <= 15000

1000/ (m-1) * 2000 + 1000 <=1500

100/(m-1)*2000 <=500

100/(m-1)<=500/2000

(m-1)<=400

m<=399

Result: 2 / 5 pts

Comment: inequality solved incorrectly

Give the number of conflict-serializable schedules for the following pairs of transactions:

(Give some justification in several words too.)

T1: R1(A); W1(A); R1(B); W1(B); T2: R2(C); W2(C); R2(D); W2(D);

Your Answer:

T1: R1(A); W1(A); R1(B); W1(B);

T2: R2(C); W2(C); R2(D); W2(D);

no of conflicts

T1, T2 3!/2! = 3

T2, T1 3+1 = 4

Only 1, itself. No other conflict-equivalent schedule, because we cannot swap adjacent elements without conflict.

(T1,T2): R1(A); W1(A); R1(B); W1(B); R2(C); W2(C); R2(D); W2(D);

conflict

its conflict serializable and it is recoverable

Result: 0 / 5 pts

Comment:

What is the precedence graph for the following schedules?

List the edges of the graph in the following format: 1 -> 2, ... etc.

Give the number of serial schedules (how many exists) which are conflict-equivalent to the given schedule?

a) R1(B); R3(A); R4(D); R3(C); R2(B); W2(B); W4(C); R3(D); R2(D); W4(A);

b) R1(A); R2(B); R2(D); R2(A); R1(B); W2(A); W1(C); R3(C); W3(D); R4(B);

Your Answer:

a)

1-> 2

3->4

it is conflict-serializable and its is recoverable

no of serial schedules :-

b)

1->2

1->3

2->3

no of serial schedules:-

it is recoverable

it is conflict serializable

Result: 4 / 8 pts

Comment:

Exam 2020.12.21

Due No due date **Points** 60 **Questions** 25
Available Dec 21 at 4pm - Dec 21 at 5:10pm about 1 hour **Time Limit** 60 Minutes

Instructions

Dear Students,

In the exam you will have 20 "fill in the gap" question (2 points each). For the notions you have to type in the gaps, see Exam_questions.pdf on my homepage.

Then you will have 5 practical exercises (4 points each).

You cannot move backwards among the questions!

Grade levels will be the following:

51-60 points --> 5

42-50 points --> 4

33-41 points --> 3

24-32 points --> 2

0-23 point --> 1

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	60 minutes	24 out of 60 *

* Some questions not yet graded

ⓘ Correct answers are hidden.

Score for this quiz: **24** out of 60 *
Submitted Dec 21 at 5:06pm
This attempt took 60 minutes.

Incorrect

Question 1 — 0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

RAID level ... means block level striping and two distributed parity disks.

4

Question 2

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... is a data file that belongs to a temporary tablespace.

temp file

Question 3

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

An ... is a set of logically contiguous data blocks.

extent

Question 4

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

RAID level ... means mirroring and no striping.

1

Question 5

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

... makes it possible to decompose very large tables and indexes into smaller and more manageable pieces.

partitioning

Incorrect

Question 6

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

RAID level ... means block level striping and no redundancy.

5

Incorrect

Question 7

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

In case of a ... index, data records are not sorted by the search key.

dense index

Question 8

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index is an index on multiple columns in a table.

- (●) composite
- ( )
- ( )

Incorrect

Question 9

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A database ... is the combination of the system global area (SGA) and background processes.

database instance

Question 10

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... is a set of extents allocated for a specific database object, such as a table.

segment

Incorrect

Question 11

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index is an index that has been divided into smaller and more manageable pieces.

partitioned index

Incorrect

Question 12

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

... is the time while the first sector of the block moves under the head.

seek time

Question 13

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

RAID level ... means block level striping with dedicated parity disk.

4

Question 14

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... caches currently and recently used data blocks read from disk.

Buffer

Question 15

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index has an index entry for every search key value.

dense

Question 16

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index has index entries for only some of the search values, typically one entry per block.

sparse

Question 17

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

In composite partitioning each partition is further divided into ...

subpartition

Incorrect

Question 18

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... is a group of tables that share common columns and store related data in the same blocks.

Cluster

Incorrect

Question 19

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

All secondary and tertiary storage devices are ... devices.

volatile device

Question 20

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A database ... is a logical storage structure whose size and structure are not known to the operating system.

data block

Question 21

Not yet graded / 4 pts

What is the cost of the external Sort-Merge algorithm if we know the following parameters:
B(R)=1000000, M=101?

Your Answer:

= 2 * B(R) + 2*B(R) * | log(B(R)/M)| - B(R)

=> (around) = 5000000

Question 22

Not yet graded / 4 pts

What is the cost of a Hash join, if we know the following parameters?
B(R)=1000, B(S)=1500, M=100.

Your Answer:

2*(B(R) + B(S)) + (B(R) + B(S))

= 7500

Question 23

Not yet graded / 4 pts

Give estimation for B(RxS), if we know the following parameters: T(R)=1000, T(S)=2000, bf(R)=100, bf(S)=50.

Your Answer:

60000

Question 24

Not yet graded / 4 pts

What is the cost of the improved Block Nested Loop join algorithm if we know the following
parameters: B(R)=1000, B(S)=2000, M=101.

Your Answer:

2000

Question 25

Not yet graded / 4 pts

How many different join trees are there if we join 3 relations R,S,T?

Your Answer:

6

Quiz Score: **24** out of 60

Exam 2020.12.21 Results for Shikhiyev Fardin (V1M0D5)

Correct answers are hidden.

Score for this quiz: **28** out of 60 *
Submitted Dec 21 at 5:10pm
This attempt took 52 minutes.

Incorrect

Question 1

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

... is the time while the disk controller positions the head assembly at the proper cylinder.

Rotation Latency

Question 2

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

In case of a ... index, data records are not sorted by the search key.

secondary

Incorrect

Question 3

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index is an index that computes the value of a function or expression involving one or more columns and stores it in the index.

multi-level

Question 4

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

... is a set of files containing records of changes made to data files.

online redo log

Question 5

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index is an index on multiple columns in a table.

- ○
- ◉ composite
- ○
- ○

Question 6

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index is always dense.

secondary

Question 7

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... caches currently and recently used data blocks read from disk.

buffer

Question 8

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

The Oracle Database user ... owns all base tables and user-accessible views of the data dictionary.

sys

Question 9

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

An ... is a set of logically contiguous data blocks.

extent

Question 10

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... table is a table in which the data rows are stored in no particular order on disk.

heap-organized

Question 11

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index is an index that has been divided into smaller and more manageable pieces.

partitioned

Incorrect

Question 12

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

... is the time while the first sector of the block moves under the head.

rotation latency

Incorrect

Question 13

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A database data block consists of one or more ...

disk block

Incorrect

Question 14

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

... is the time while the first sector of the block moves under the head.

rotation latency

Question 15

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

RAID level ... means block level striping with dedicated parity disk.

4

Question 16

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index has index entries for only some of the search values, typically one entry per block.

sparse

Question 17

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index physically reverses the bytes of each index key while keeping the column order.

reverse key

Incorrect

Question 18

0 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... index determines the location of the records of the data file.

composite

Question 19

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... is a schema object from which multiple users can generate unique integers.

sequence

Question 20

2 / 2 pts

Fill in the blank space (...) with the appropriate notion.

A ... is an instruction passed to the optimizer through comments in an SQL statement.

hint

Question 21

Not yet graded / 4 pts

Give estimation for T(W) if W is the result of the following query:

SELECT * FROM R WHERE A=1 AND B=2;
and we know the following parameters: T(R) = 100000, V(R,A) = 100, V(R,B) = 200.

Your Answer:

10000

Question 22

Not yet graded / 4 pts

What is the cost of a Nested Loop join algorithm if we know the following parameters:
B(R)=1000, B(S)=10000, M=1200 ?

Your Answer:

12000

Question 23

Not yet graded / 4 pts

Give estimation for B(RxS), if we know the following parameters: T(R)=1000, T(S)=2000, bf(R)=100, bf(S)=50.

Your Answer:

1500

Question 24

Not yet graded / 4 pts

What is the average cost of a selection operation (SELECT * FROM R WHERE A='x') if we use I, a B+ tree
primary index? We know the following parameters: T(R)=100000, V(R,A)=100000, HT(I)=5.

Your Answer:

20000

Question 25

Not yet graded / 4 pts

Give estimation for the number of rows of a join operation (R natural join S) if they have a common attribute A, A is key in R, A is foreign key in S, and we know the following parameters: T(R)=1000, T(S)=2000.

Your Answer:

Quiz Score: **28** out of 60