

What are OLTP and OLAP.

What is the difference between them?

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Actually what do they mean? All articles I find about them don't give me an idea, or my knowledge is too insufficient to understand it.

Will some one give me some resources with which I can learn this from scratch.

[database](#)[database-design](#)[database-schema](#)[olap](#)[oltp](#)

edited Aug 31 '15 at 5:04



[shgnInc](#)

1,097 1 14 27

asked Feb 20 '14 at 6:41



[Amarnath R Shenoy](#)

2,075 4 17 30

8 Refer to [datawarehouse4u.info/OLTP-vs-OLAP.html](#) to get started and then just Google around for more links about details and differences – [Incognito](#) Feb 20 '14 at 6:44

1 Ok so simple DB operations are in OLTP category And complex large data processing is in

OLAP, That's the
Base concept right
?? –

[Amarnath R Shenoy](#)

Feb 20 '14 at 6:55

1 @AmarnathRSheno
y yeah
insert,update,delete
will deal with OLTP –
[Nagaraj S](#) Feb 20
'14 at 6:57

5 @AmarnathRSheno
y You should really
put more initial effort
into researching a
topic. The two
resources provided
by Nagaraj S's
answer were literally
the top two pages
returned by google.
You're cheating
yourself out of
knowledge when you
let someone else do
the work for you. For
tips on writing better
SO questions,
consult the [SO help
page: How to Ask?](#). –
[Austin A](#) Sep 12 '14
at 3:31

5 Answers



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Here you will find a
better solution [OLTP
vs. OLAP](#)

- **OLTP** (On-line Transaction Processing) is involved in the operation of a particular system. OLTP is characterized by a large number of short on-line transactions (INSERT, UPDATE,

DELETE). The main emphasis for OLTP systems is put on very fast query processing, maintaining data integrity in multi-access environments and an effectiveness measured by number of transactions per second. In OLTP database there is detailed and current data, and schema used to store transactional databases is the entity model (usually 3NF). It involves Queries accessing individual record like Update your Email in Company database.

- **OLAP** (On-line Analytical Processing) deals with Historical Data or Archival Data. OLAP is characterized by relatively low volume of transactions. Queries are often very complex and involve aggregations. For OLAP systems a response time is an effectiveness measure. OLAP applications are

widely used by Data Mining techniques. In OLAP database there is aggregated, historical data, stored in multi-dimensional schemas (usually star schema). Sometime query need to access large amount of data in Management records like what was the profit of your company in last year.

edited May 3 '16 at 12:54



Clarkie

4,806 7 29 49

answered Feb 20 '14 at 6:44



Nagaraj S

10.5k 6 26 50

4 Very clear information. Thank you for sharing it helped me clear my doubts. –
[CapturedTree](#) Jul 23 '16 at 4:25



Very short answer :

172

Different databases have different uses. I'm not a database expert. Rule of thumb:

- if you are doing analytics (ex. aggregating historical data) use OLAP

- if you are doing transactions (ex. adding/removing orders on an e-commerce cart) use OLTP

Short answer :

Let's consider two examples scenarios :

Scenario 1 :

You are building an online store/website, and you want to be able to :

- store user data, passwords, previous transactions...
- store actual products, their associated price

You want to be able to find data for a particular user, change its name... Basically perform INSERT, UPDATE, DELETE operations on a user data. Same with products, etc.

You want to be able to make transactions, possibly involving a user buying a product (that's a relation). Then OLTP is probably a good fit.

Scenario 2 :

You have an online store/website, and you want to compute things like

- the "total money spend for all users"
- "what is the most sold product"

This falls into the analytics/business intelligence domain, therefore OLAP is probably more suited.

If you think in terms of "It would be nice to know how/what/how much"..., and that involves all "object" of one or more kind (ex. all the users and most of the products to know the total spent) then OLAP is probably better suited.

Longer answer :

Of course things are not so simple. That's why we have to put small tags like OLTP and OLAP in the first place. Each database should be evaluated independently in the end.

So what could be the fundamental difference between OLAP and OLTP ?

Well databases have to store data somewhere. It shouldn't be surprising that the way the data is stored heavily reflects on the possible use of said database. Data is usually stored on a

hard drive. Let's think of a hard drive as a really wide sheet of paper, where we can read and write things. There are two ways to organize our reads and writes so that they can be efficient and fast.

One way is to make a book that is a bit like a *phone book*. On each page of the book we store the information regarding a particular user. Now that's nice, we can find the information for a particular user very easily ! Just jump to the page ! We can even have a special page at the beginning to tell us which page the users are if we want. But on the other hand, if we want to find, say, how much money all of our users spent then we would have to read every page, ie. the whole book ! That would be a row-based book/database (OLTP). The optional page at the beginning would be the index.

Another way to use our big sheet of paper is to make an *accounting book*. I'm no accountant, but let's imagine that we would have a page for "expenditures", "purchases"... That's nice because now we can query things like

"give me the total revenue" very quickly (just read the "purchases" page). We can also ask for more involved things like "give me the top ten products sold" and still have acceptable performance. But now consider how painful it would be to find the expenditures for a particular user. You would have to go through the whole list of everyone's expenditures and filter the ones of that particular user, then sum them. Which basically amounts to "read the whole book" again. That would be a column-based database (OLAP).

It follows that :

- OLTP databases are meant to be used to do many small transactions, and usually serve as a "single source of truth".
- OLAP databases on the other hand are more suited for analytics, data mining, less queries but they are usually bigger (they operate on more data).

It's a bit more involved than that of course and that's a 20 000 feet overview of how

databases differ, but it allows me not to get lost in a sea of acronyms.

Speaking of acronyms :

- OLTP = Online transaction processing
- OLAP = Online analytical processing

To read a bit further, here are some relevant links which heavily inspired my answer :

- <http://datawarehose4u.info/OLTP-vs-OLAP.html>
- <http://www.ibm.com/systemsmag.com/BigData/You-and-Your-Database-orientation-row-vs-column/>
- <http://martinfowler.com/bliki/DataLake.html>

edited Feb 11 at 23:33

answered Jul 2 '15 at 18:56



nha

10.9k 6 59 82

27 nice approach using different levels of explanation, accessible language and with concrete examples. a model for people answering questions in stackoverflow. – [ribamar](#) Feb 19 '16

at 15:23

2 Awesome, awesome answer! Best one by far that I've find in SO until now! Give this man a medal! – [Pedro Gordo](#) Mar 15 '16 at 15:24

1 I found it very easy to understand! – [The One](#) Jun 27 '16 at 9:05

3 "When in doubt, I just use SQL." - SQL is a language and this doesn't answer the question. There's all kinds of data mgmt systems that know how interpret SQL and to translate it for working with all kinds of datasources behind the hood. One can make sql queries even on spark dataframes. That's like saying "when in doubt, I just use html" . Ok, it is the short answer but it's silly – [Radu Simionescu](#) May 17 '18 at 7:09

1 Yes, what you propose would be an improvement, on both counts. It would not do justice to the topic of course, but that is beside the point. Cheers ! – [Cbhihe](#) Feb 11 at 20:43



The difference is quite simple.

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OLTP (On-line Transaction Processing).

OLTP is a class of information systems that facilitate and manage transaction-oriented applications. OLTP has also been used to refer to processing in which the system responds immediately to user requests. Online transaction processing applications are high throughput and insert or update-intensive in database management. Some examples of OLTP systems include order entry, retail sales, and financial transaction systems.

OLAP (On-line Analytical Processing)

OLAP is part of the broader category of business intelligence, which also encompasses relational database, report writing and data mining. Typical applications of OLAP include business reporting for sales, marketing, management reporting, business process management (BPM), budgeting and forecasting, financial reporting and similar areas.

See more details [OLTP and OLAP](#)

edited Apr 5 '16 at 7:40



Nagaraj S

10.5k 6 26 50

answered May 13 '15 at 17:06



Serhii Burkovskyi

201 2 3



7



OLTP-: The oltp stands for online transaction processings which is used for managing the current day to day data information .
OLAP-: The olap stand for online analytical processing which is used to maintain the past history of the data and mainly used for data analysis and it can also be called as warehouse.

answered May 24 '15 at 12:59



rakesh singh

71 1 1



-3



oltp- mostly used for business transaction.used to collect business data.In sql we use insert,update and delete command for retrieving small source of data.like wise they are highly normalised.... OLTP Mostly used for maintaining the data integrity.

olap- mostly use for reporting,data mining and business analytic purpose. for the large or bulk

data.deliberately it is
de-normalised. it
stores Historical data..

answered Nov 30 '15 at 18:16



[vikrant solanke](#)

37

protected by [Aniket Thakur](#) Dec 14 '17 at 5:22

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