What is the difference between Caching and Pooling?

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What is the difference between Caching and Pooling?

25

java

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asked Feb 23, 2011 at 19:17

Praneel PIDIKITI

19.5k ● 14 ● 42 ● 61

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32

Cache - store frequently used values, typically because the lookup and/or creation is non-trivial. e.g. if a lookup table from a database is frequently used, or values are read from a file on disk, it's more efficient to keep it in memory and refresh it periodically.

A cache only manages object lifetime in the cache, but does not impose semantics on what is held in the cache. A cache also doesn't create the items, but just stores objects.

Pool - term to describe a group of resources that are managed by the pool itself. e.g. (Database) Connection Pool - When a connection is needed it is obtained from the pool, and when finished with is returned to the pool.

The pool itself handles creation and destruction of the pooled objects, and manages how many objects can be created at any one time.

Pools are typically used to reduce overhead and throttle access to resources. You wouldn't want every servlet request opening a new connection to the database. Because then you have a 1:1 relationship between active requests and open connections. The overhead of creating an destroying these connections is wasteful, plus you could easily overwhelm your database. by using a pool, these open connections can be shared. For example 500 active requests might be sharing as little as 5 database connections, depending on how long a typical request needs the connection.

Cache Pool - mostly seems to describe the number of (independent?) cache's that exist. E.g. an asp.net application has 1 cache per Application Domain (cache isn't shared between asp.net applications). Literally a pool of caches, although this term seems to be used rarely.

edited Feb 23, 2011 at 20:29

bconneen

154 ● 2 ● 12

answered Feb 23, 2011 at 19:20

Tom
488 ● 2 ● 8 ● 11

9

Caching is saving a value/object for reuse - normally to save resources.

Wikipedia says:

> a cache is a component that transparently stores data so that future requests for that data can be served faster.

Polling is similar, where you have a number of such objects (a pool) - once an object has been taken out of the pool and used, it is returned to the pool for later reuse.

Wikipedia says:

> A pool in computer science is a set of initialised resources that are kept ready to use, rather than allocated and destroyed on demand.

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answered Feb 23, 2011 at 19:19

Oded
498k ● 102 ● 893 ● 1k

Both aim for object reuse. The distinction is usually drawn along statefulness; a pool is a collection of stateless

6

objects, a cache is one of stateful objects. See this explanation.

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answered Feb 23, 2011 at 19:20

Haakon

1,741 ● 10 ● 19

2

Caching usually refers to holding onto a static copy of a data for quick retrieval (with the assumption that retrieval or calculation of the value is expensive).

Pooling usually refers to keeping a number of resources around for quick usage (with the assumption that the creation and or disposal of these resources is expensive).

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answered Feb 23, 2011 at 19:21

RQDQ

15.6k ● 2 ● 34 ● 60

1 I think @Haakon answer serves to distuinguish best the difference between a cache & a pool. Statefulness or Not. For example a value in a cache might have it's real value updated on the database thereby making the cache's value stale. Pooled Object by nature do not face that situation – user1561783 Jan 6, 2021 at 19:54

2

Both for reusing and reducing memory footprint of the process (also getting rid of the object creation overhead). One notable diff is a pool uses the same objects over and over again during the lifetime of your context where in a

cache (at least in LRU) you evict objects to make space for newly created ones.

Another diff would be the answer of the following question. Would you like to be returned a specific object or any object would be fine? The answer make it clear what you need - cache or pool.

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edited Feb 5, 2018 at 9:00

answered Feb 4, 2018 at 13:48

stdout

2,601 ● 2 ● 33 ● 44

0

Java code Cache interface:

```
public interface Cache { Resource acquire(Identity id)
Map
```

Pool interface:

```
public interface Pool { Resource acquire() }  // imple
```

They use for resourse(memory,connection,thread etc..) reuse. It means cache must has identity to find,but pool need`t it. so get resource from pool is transparent. the example is a lot of. memory pool, memory cahce, buffer cache pool, connection pool.

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edited May 3, 2020 at 9:00

answered May 3, 2020 at 8:49

LiLi

441 ● 5 ● 11