

Lesson 8: TIMESTAMPADD

There is one more essential thing to learn before we start to create workable queries for the library. `TIMESTAMPADD`. `TIMESTAMPADD` is an SQL function. When techies talk about it, they describe it like this:

```
TIMESTAMPADD(interval, expr, timestamp)
```

But what does that mean? What does `TIMESTAMPADD` do and how can it help the library?



`TIMESTAMPADD` allows you to search by relative dates. For example, how many checkouts in the last seven days? How about the last month? What items were due yesterday? How much money has a selector spent in the last year?

The `TIMESTAMPADD` function allows the query to be dynamic, adding flexibility without providing a specific date. `TIMESTAMPADD` works by looking at the current system date, then counting back a day, a week, a month, a year, and more.

Let's imagine we want a query that provides the items that were due yesterday. We're going to create the query using due date. It would look like this.



```
"Loan Details"."Due Date" = TIMESTAMPADD(SQL_TSI_DAY, -1, (CURRENT_DATE))
```

Let's break that down. `TIMESTAMPADD` is the function.

Now, let's move to the last piece of the function, `CURRENT_DATE`. That means all the calculating will be done with the day the query is run as the starting point.

Now, move back to `SQL_TSI_DAY`.

`SQL_TSI_DAY` is saying that the timestamp interval (TSI) is days. You could also have

- `SQL_TSI_WEEK`
- `SQL_TSI_MONTH`
- `SQL_TSI_QUARTER`
- `SQL_TSI_YEAR`
- `SQL_TSI_MINUTE`
- `SQL_TSI_HOUR`

Since we see are working with SQL_TSI_DAY, we know that any relative dates will be counted back by days.

Yesterday is one day back from today. That's -1 day from today.

July 22
— July 21
1 day

Another example. How about if we wanted everything with a due date two weeks ago?

“Loan Details”.”Due Date” = `TIMESTAMPADD(SQL_TSI_WEEK, -2, (CURRENT_DATE))`

This will result in a list of everything from two weeks ago, or 14 days ago. It will not provide days before or after that one day because of the equal sign.

Here is another, more complex, example.

You want everything due on the first of this month.

“Loan Details”.”Due Date” = `TIMESTAMPADD(SQL_TSI_DAY, -DAYOFMONTH(CURRENT_DATE)+1, CURRENT_DATE)`

While it looks quite different, it works the same way. Let's break it down.

We know it is using days as the basis for counting back. It is using the SQL function DAYOFMONTH to count back. If today is July 22, then 22 is DAYOFMONTH. So it counts back 22 days from today, the current day (-22). That would be July 0, which doesn't exist. So it then adds a day (+1) to arrive at July 1. This query will use the current date, count back that number of days, than add one so it will always be starting with the first of the current month.

July 22
22=DAYOFMONTH

July 22
— 22 days
July 0
+1day
July 1

There are many Web sites that can explain TIMESTAMPADD further. I recommend these:

<https://www.rittmanmead.com/blog/2014/12/timestamps-and-presentation-variables/>

<http://kb.its.psu.edu/node/3349>

With this information, we are going to create a query for Circulation searches in the next video.

Activity 8-1

What does each of these do? Write your answer underneath.

1. "Loan Details"."Due Date" >= TIMESTAPADD(SQL_TSI_DAY, -7, CURRENT_DATE)
2. "Loan Details"."Due Date" >= TIMESTAPADD(SQL_TSI_WEEK, -2, CURRENT_DATE)
3. "Loan Details"." Due Date" >= TIMESTAPADD(SQL_TSI_MONTH, -6, CURRENT_DATE)
4. "Loan Details"." Due Date" >= TIMESTAPADD(SQL_TSI_YEAR, -5, CURRENT_DATE)

Review how this example works by filling in the blanks below.

" Loan Details "." Due Date " = TimestaMpAdd(SQL_TSI_Day, -
DAYOFMONTH (CURRENT_DATE)+1,CURRENT-DATE)

5. We know it is using _____ as the basis for counting back. It is using the SQL function DAYOFMONTH to count back. If today is May 12, then _____ is DAYOFMONTH. So it counts back _____ days from the current day. That would be May _____, which doesn't exist. So it then adds a day (+1) to arrive at May _____.