What, then, is time?
If no one asks me, I know what it is.
If I wish to explain it to him who asks, I do not know.

Saint Augustine (AD 354-430, The Confessions)
Right now
32
active visitors on site

Top Referrals:

<table>
<thead>
<tr>
<th>Source</th>
<th>Active Visitors</th>
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</thead>
<tbody>
<tr>
<td>google.com</td>
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<tr>
<td>google.com.br</td>
<td>2</td>
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<tr>
<td>google.ca</td>
<td>1</td>
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<tr>
<td>google.com.ar</td>
<td>1</td>
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<tr>
<td>google.com.tw</td>
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</table>

Top Active Pages:

<table>
<thead>
<tr>
<th>Active Page</th>
<th>Active Visitors</th>
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</thead>
<tbody>
<tr>
<td>/</td>
<td>11</td>
</tr>
<tr>
<td>/googlesearch.aspx?category=doodles</td>
<td>7</td>
</tr>
<tr>
<td>/shop.axd/Home</td>
<td>3</td>
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<tr>
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</tr>
<tr>
<td>/Accessories/Chalk+It+Up+Ceramic+Mug.axd</td>
<td>1</td>
</tr>
</tbody>
</table>

NEW  RETURNING
91%  9%
• Linear Spatial Mapping (1D or 2D)
Monthly Unemployment Rates by State, Jan 1976 - Apr 2009

Source: Bureau of Labor Statistics

Notes: The orange band denotes a "normal" unemployment rate (4%-6%);
State code in red: unemployment rate in April 2009 is higher than the US average
• Linear Spatial Mapping (1D or 2D)
• Cyclic Spatial Mapping
Unix Timestamp: Tracks milliseconds since 1/1/1970

1000 per second

60 per minute

60 per hour

24 per day

7 per week

FML per year

10 per decade

10 per century

Seasons
Quarters
Semesters
Unix Timestamp: Tracks milliseconds since 1/1/1970

- 1000 per second
- 60 per minute
- 60 per hour
- 24 per day
  - 7 per week
    - FML per year
- 10 per decade
- 10 per century

Seasons
- Quarters
- Semesters
Unix Timestamp: Tracks milliseconds since 1/1/1970

1000 per second

60 per minute

60 per hour

24 per day

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FML per year

10 per decade

10 per century

Seasons

Quarters

Semesters
• Linear Spatial Mapping (1D or 2D)
• Cyclic Spatial Mapping
• WTF Mapping
<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Start Date</th>
<th>End Date</th>
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<tbody>
<tr>
<td>Jan</td>
<td>Finance</td>
<td>2011</td>
<td>2014</td>
</tr>
<tr>
<td>Jan</td>
<td>Accounting</td>
<td>2015</td>
<td>2018</td>
</tr>
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Internal Time
## Current Department

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## Department History

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• Coding Skillz

• Design Acumen

• Data Model Fortune Teller
  + Bullshit Detector
Surgery: 2 hours

100 Patients

Average Time: 52 minutes
<table>
<thead>
<tr>
<th>Patient</th>
<th>Surgery Start</th>
<th>Surgery End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donald</td>
<td>1:00pm</td>
<td>2:53pm</td>
</tr>
<tr>
<td>Patient</td>
<td>Surgery Start</td>
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  + Bullshit Detector
• Data Model

Ordinal
“Valentina went to sleep before Arvid arrived”

“Jane left after Arvid arrived”

“Valentina woke up before Jane left”
• Data Model
Monday

Patient admitted

Tuesday

Patient discharged

Wednesday

Thursday

Friday

Pizza Day!
• **Data Model**

  - Ordinal
  - Discrete
  - Continuous
• **Data Model**

- Ordinal
- Discrete
- Continuous
- Points
- Intervals
“Thursday”
“She was taking Sudafed and Mucinex”
• **Data Model**

- Ordinal
- Discrete
- Continuous
- Points
- Intervals

Choose one
The patient had anesthesia before surgery.
The patient experienced bleeding during surgery.
The patient had no pain after surgery.
The patient had surgery last Tuesday.
The patient started taking Vicodin.

Dr. Geico Caveman, 12/20/2000
- Before
- After
- Contains
- Contained-By
- Overlap
- Begins-On
- Ends-On
- Before-Overlap
• Pain Before Surgery
• Before Tuesday, for an hour

• Contained-by Tuesday, twice an hour

• Overlaps Tuesday, twice
• Before “A year ago”

• Contained-by “Winter”

• Overlaps “lately”
- Negated
- Hedged, Hypothetical
- Generic
- “might not have pain”
Good grief, there’s more?

- Orphan Time Span
  - No Related Events

- Getting a tad frustrated
TASKS

Comparison
Highlighting
Details
Alignment
Ranking
Filtering

QUERY
select distinct t1.patid,  
t1.drug,  
t1.dispense_date,  
t1.next_drug,  
t1.next_dispense_date  
from (select distinct patid,  
dispense_date,  
lead(dispense_date,1) over (order by patid, dispense_date, drug)  
next_dispense_date,  
drug,  
lead(drug,1) over (order by patid, dispense_date, drug) next_drug  
from DRUG_TBL  
where drug in ('DRUG A', 'DRUG B')) t1,  
EVENT t2  
where t1.patid = t2.patid and  
t2.ICD9 = 'STROKE' and  
((t1.drug = 'DRUG A' and t1.next_drug = 'DRUG B') and  
(t1.dispense_date = t1.next_dispense_date) and  
(t1.next_dispense_date < t2.event_start or t1.dispense_date > t2.event_end));
10 records selected
select distinct t1.patid,
    t1.drug,
    t1.dispense_date,
    t1.next_drug,
    t1.nextDispenseDate
from (select distinct patid,
    dispense_date,
    lead(dispense_date,1) over (order by
        patid, dispense_date, drug)
    nextDispenseDate,
    drug,
    lead(drug,1) over (order by patid,
        dispense_date, drug) nextDrug
from DRUG_TBL
where drug in ('DRUG A', 'DRUG B')) t1,
EVENT t2
where t1.patid = t2.patid and
    t2.ICD9 = 'STROKE' and
    ((t1.drug = 'DRUG A' and t1.next_drug = 'DRUG B')
        and
    (t1.dispense_date = t1.
        nextDispenseDate) and
    (t1.nextDispenseDate < t2.
        event_start or t1.
        dispense_date > t2.event_end));
EventFlow: https://vimeo.com/67086795
TimeSearcher: https://www.youtube.com/watch?v=VWx1TMcrb74