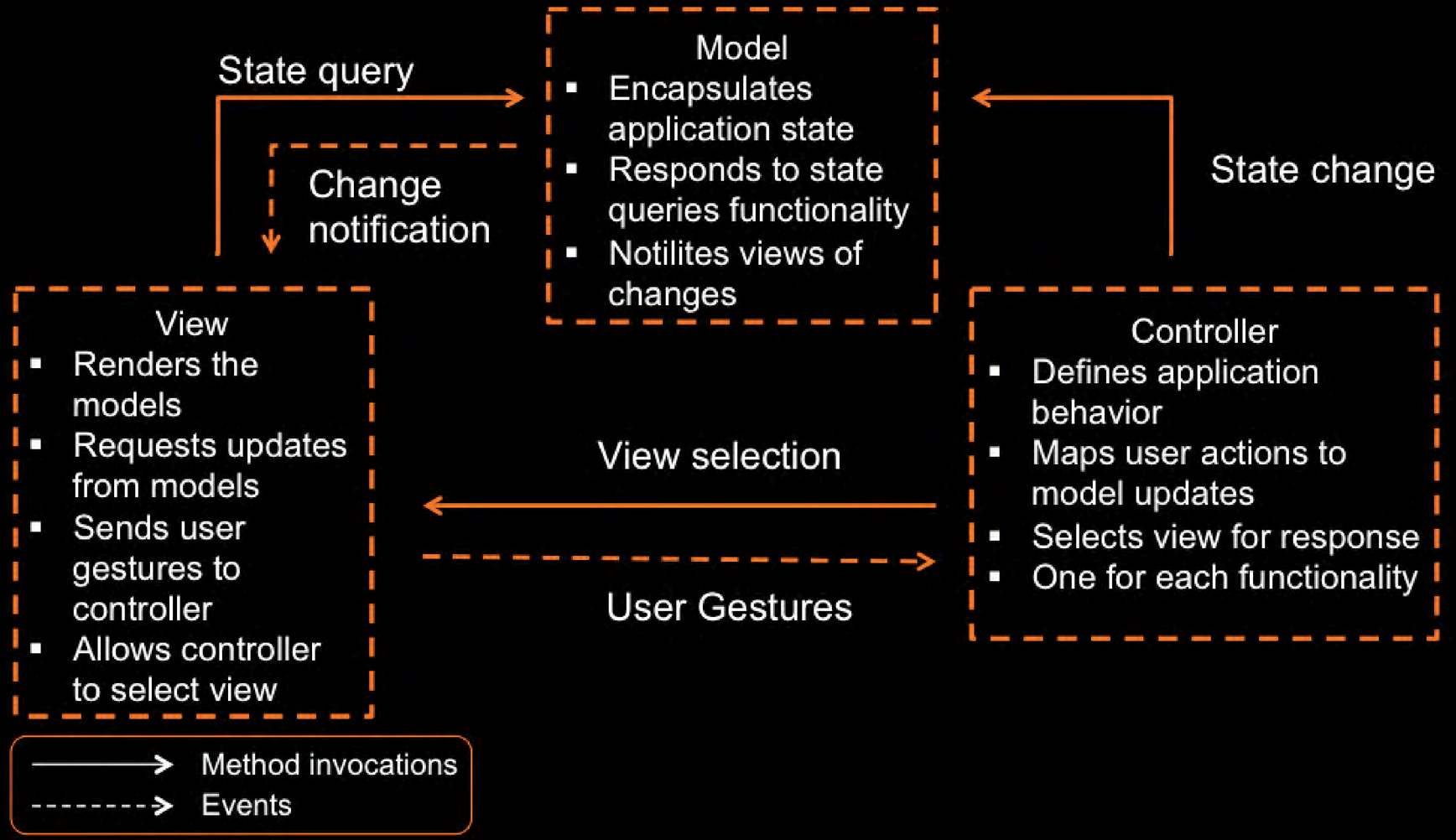
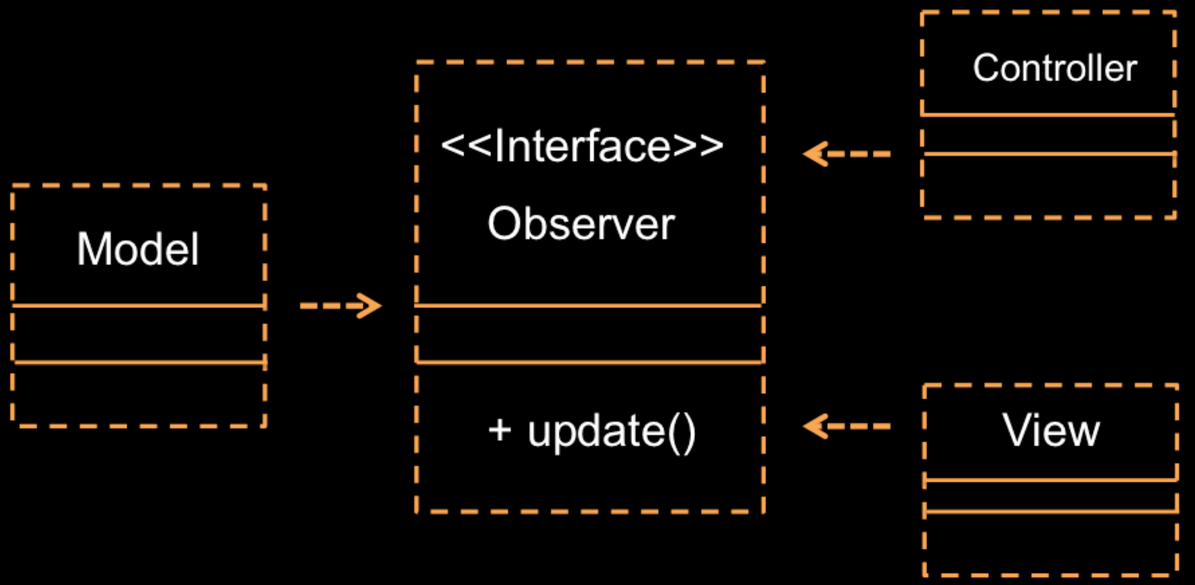
软件开发之禅

形似 与 神似

失之毫厘，谬之千里


State query
Model
Encapsulates application state
Responds to state queries functionality
Notilites views of changes
Change notification
State change
View
Renders the models
Requests updates from models
Sends user gestures to controller
Allows controller to select view
View selection
User Gestures
Controller
Defines application behavior
Maps user actions to model updates
Selects view for response
One for each functionality
Method invocations
Events

```
public class Model {
    ...
  if (isDirty){
    graphView.reload();
    reportView.reload();
    ...
  }
}
```


Controller
<<Interface>>
Observer
Model
+ update()
View

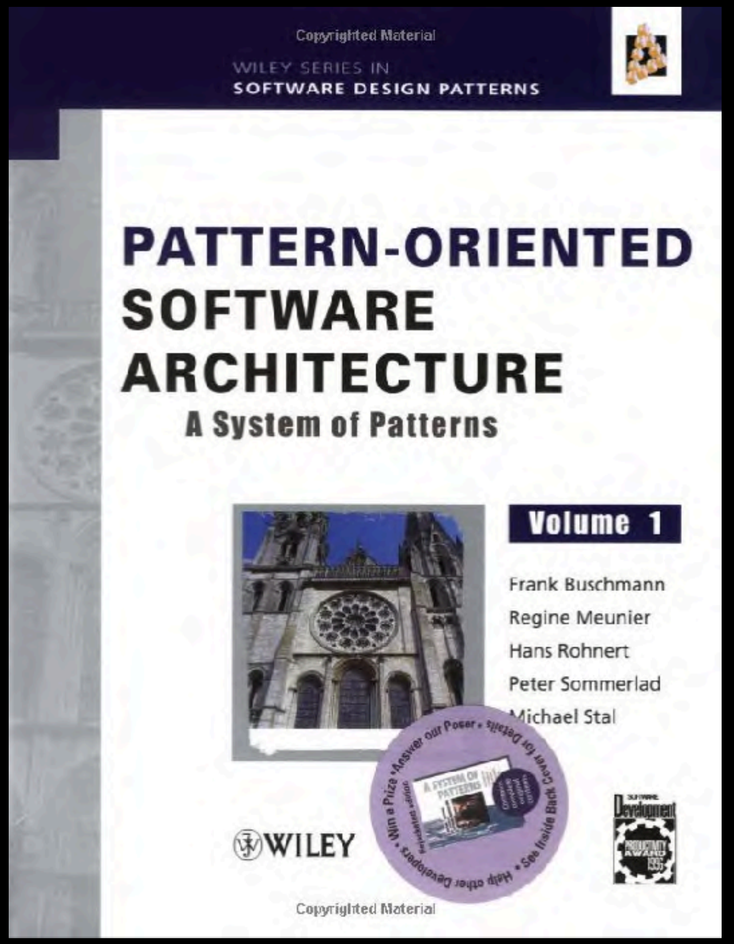
```
public interface ModelObserver {
    public void update();
}


public class Model {
    ...
   if (isDirty){
       for (ModelObserver observer:observers){
         observer.update();
       }
   }
}
```

```
public class Model {
    ...
   if (isDirty){
       graphView.reload();
       reportView.reload();
       ...
   }
}
```

教条 与 变通

舟已行矣，而剑不行，求剑若此，不亦惑乎？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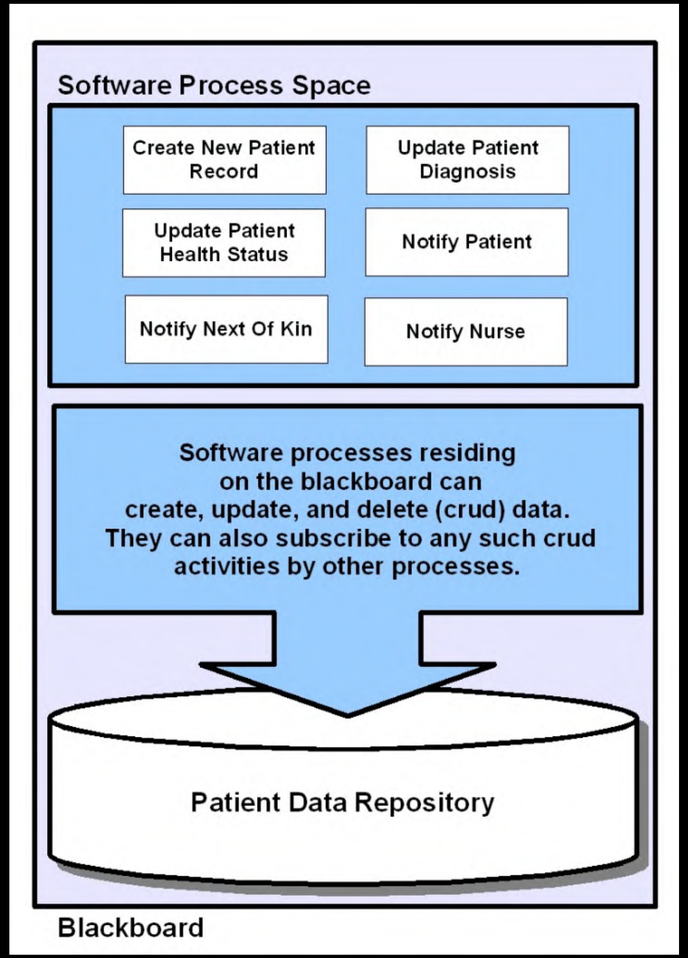
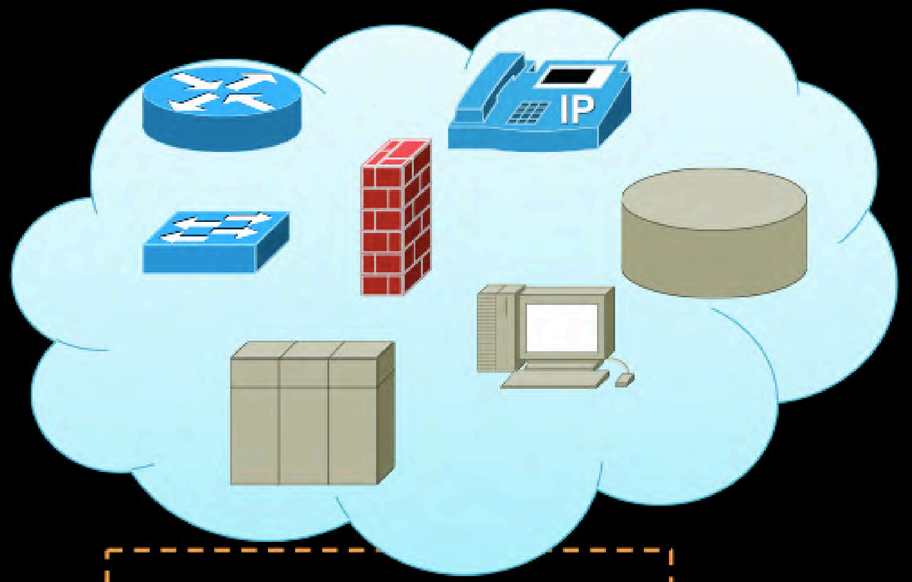
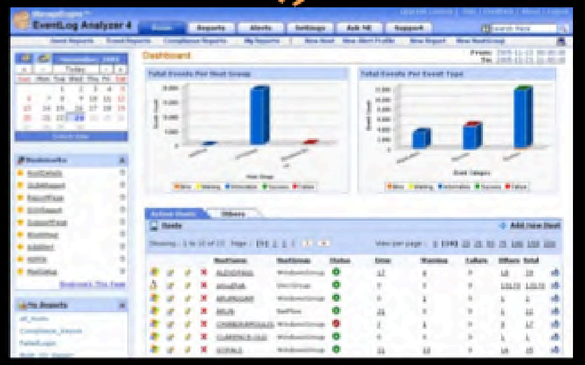
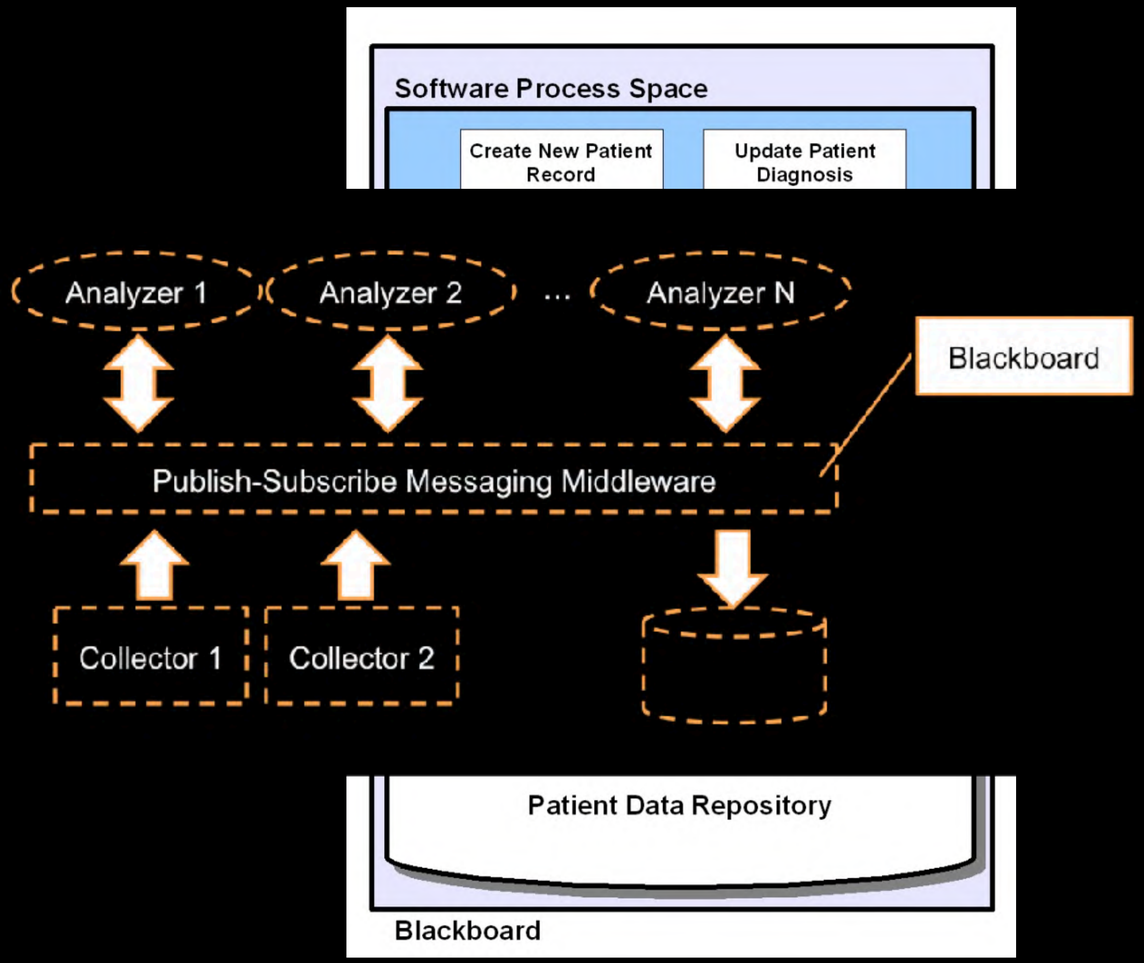

Software Process Space
Create New Patient Record
Update Patient Diagnosis
Update Patient Health Status
Notify Patient
Notify Next Of Kin
Notify Nurse
Software processes residing on the blackboard can create, update, and delete (crud) data. They can also subscribe to any such crud activities by other processes.
Patient Data Repository
Blackboard

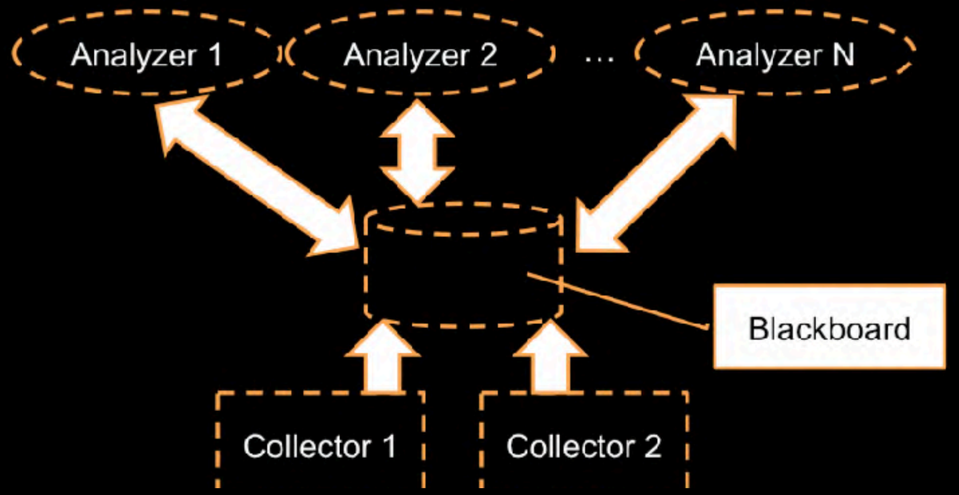


Events

Collect
Analyze
Correlate

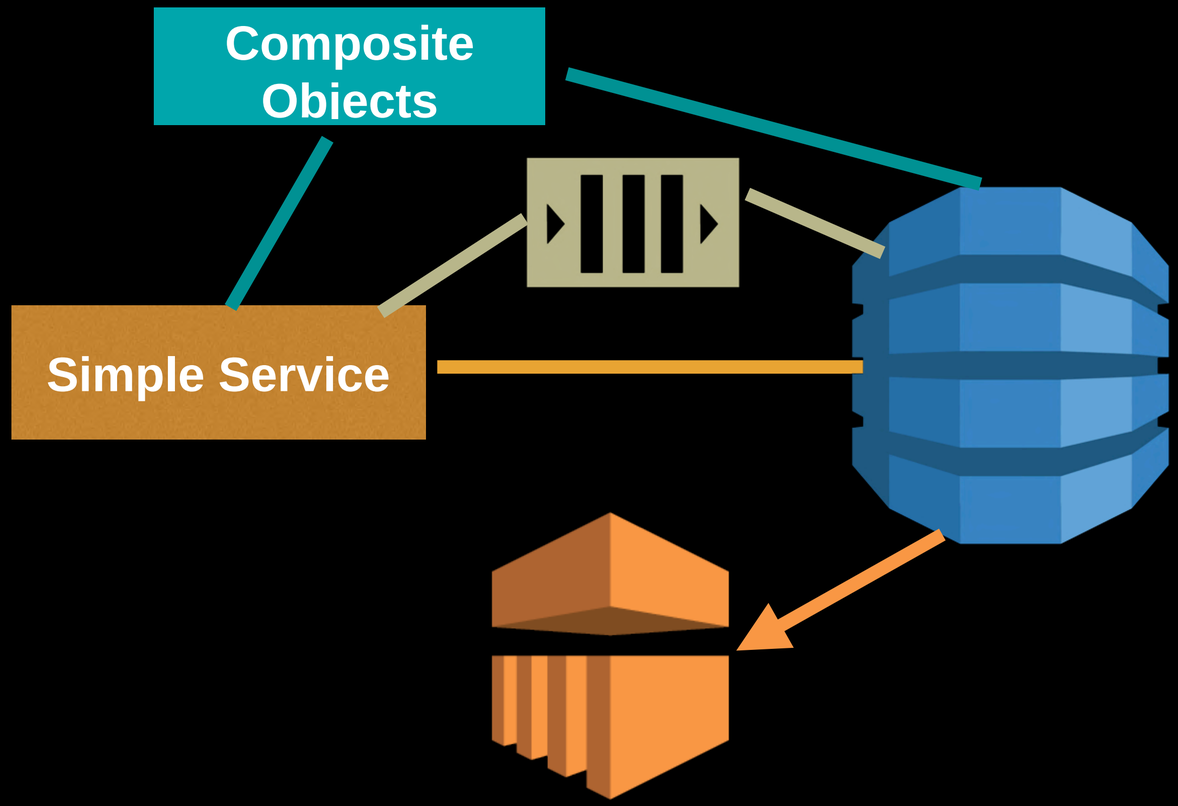



Software Process Space
Create New Patient Record
Update Patient Diagnosis
Analyzer 1
Analyzer 2
...
Analyzer N
Blackboard
Publish-Subscribe Messaging Middleware
Collector 1
Collector 2
Patient Data Repository
Blackboard


Analyzer 1
Analyzer 2
...
Analyzer N
Blackboard
Collector 1
Collector 2

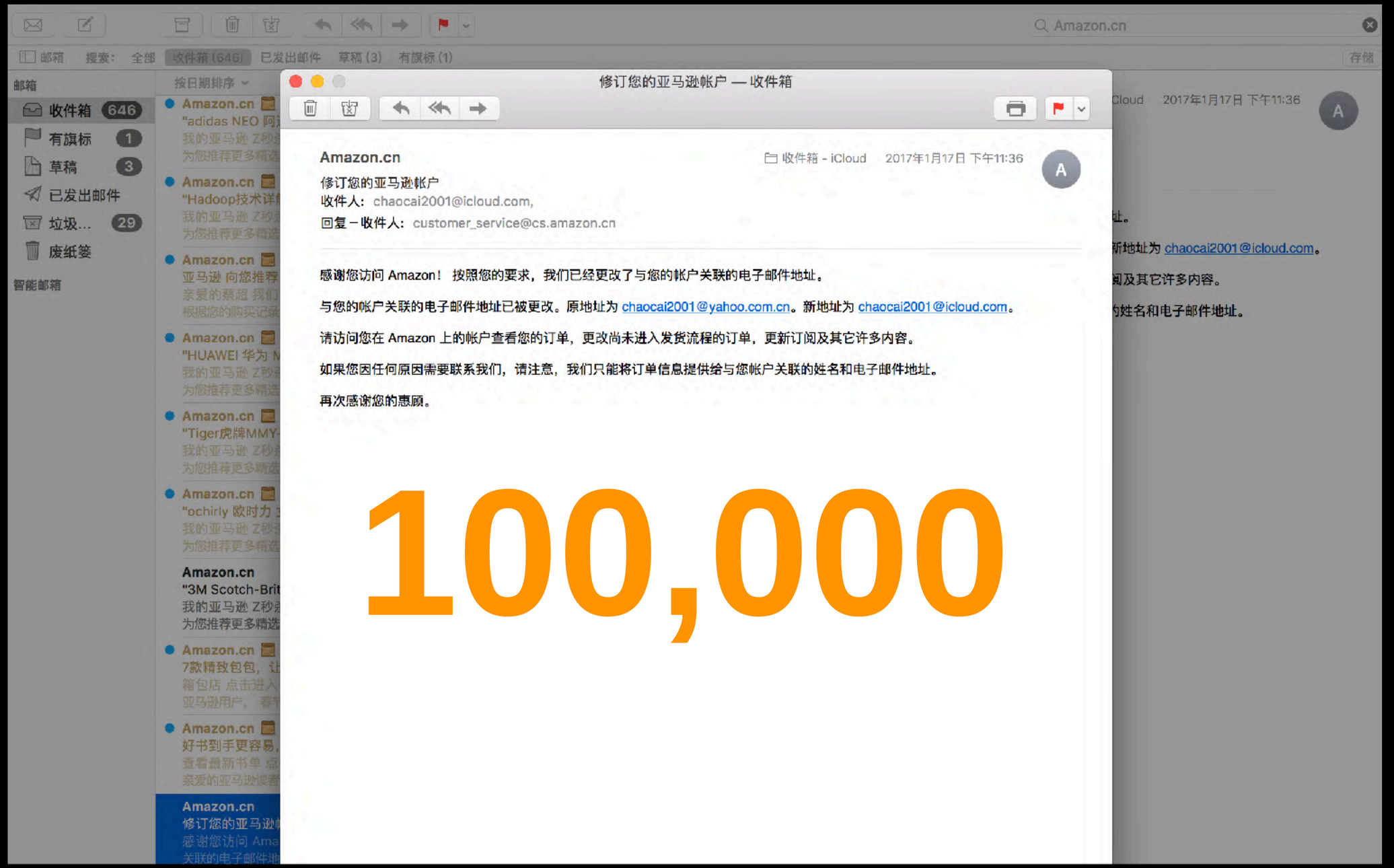
优势 与 劣势

一叶蔽目，不见泰山；两豆塞耳，不闻雷霆


Composite
Objects
Simple Service

数据 与 模型

今之治经者亦众矣；然而买椟还珠之蔽；人人皆是。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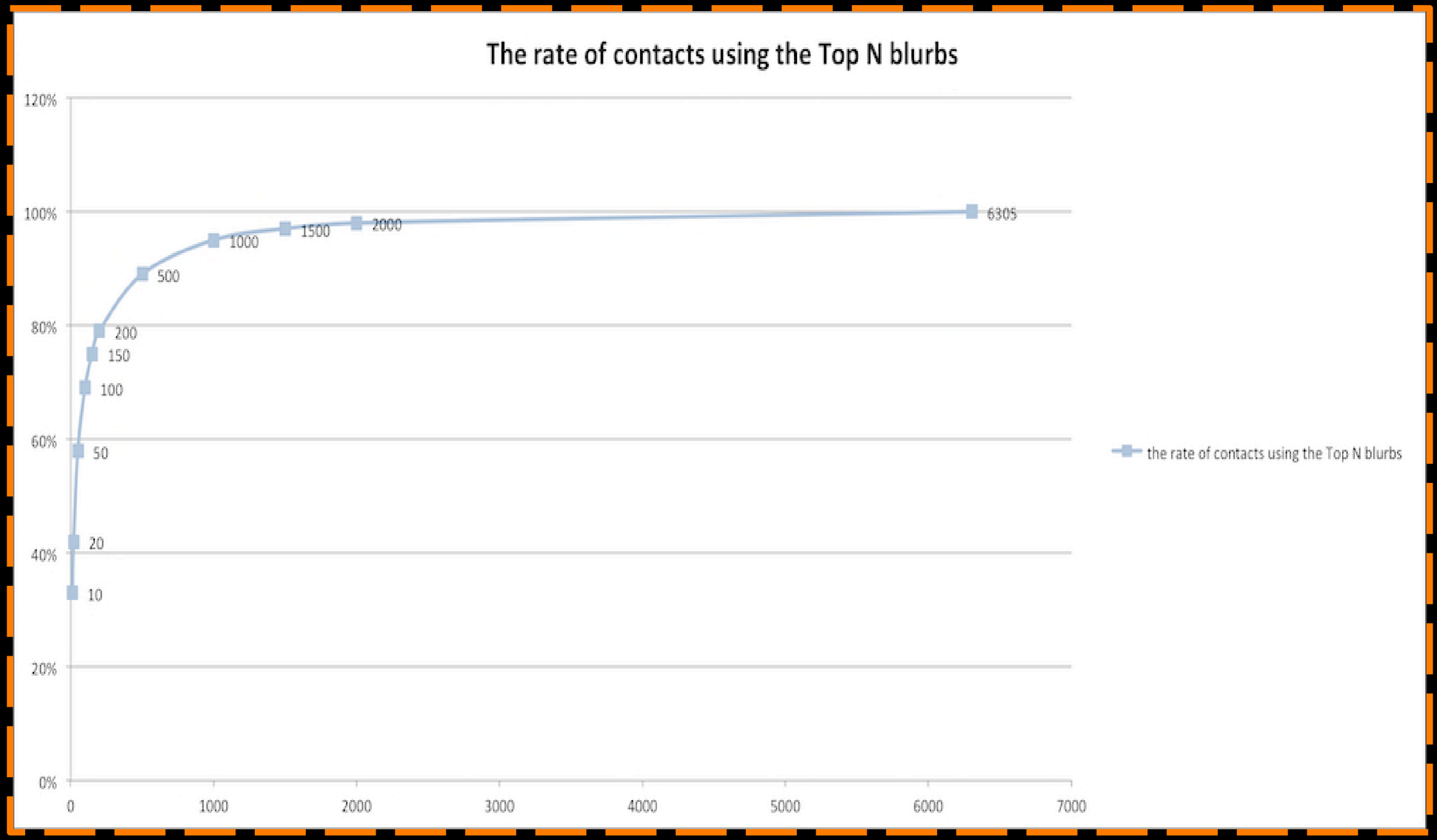
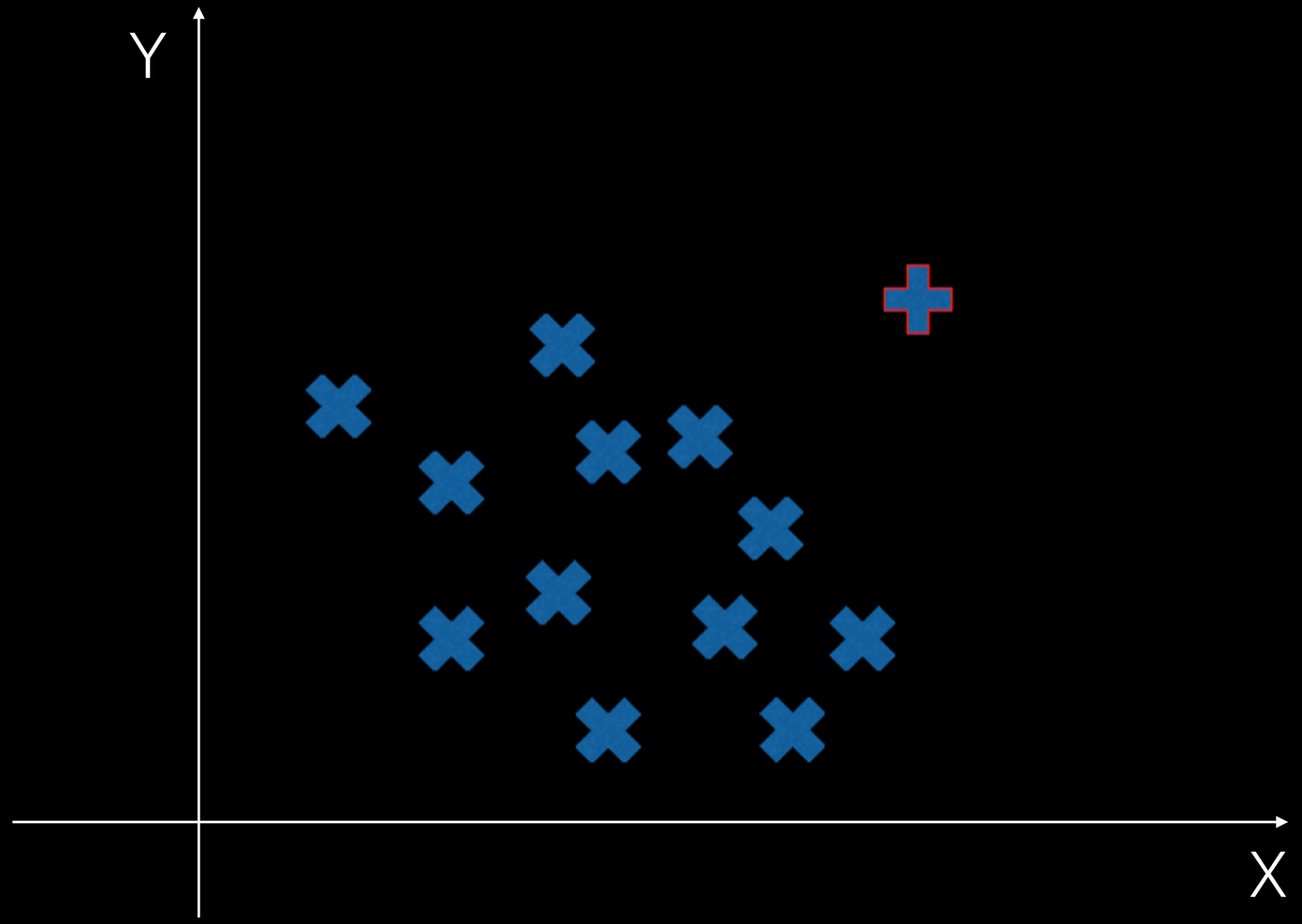
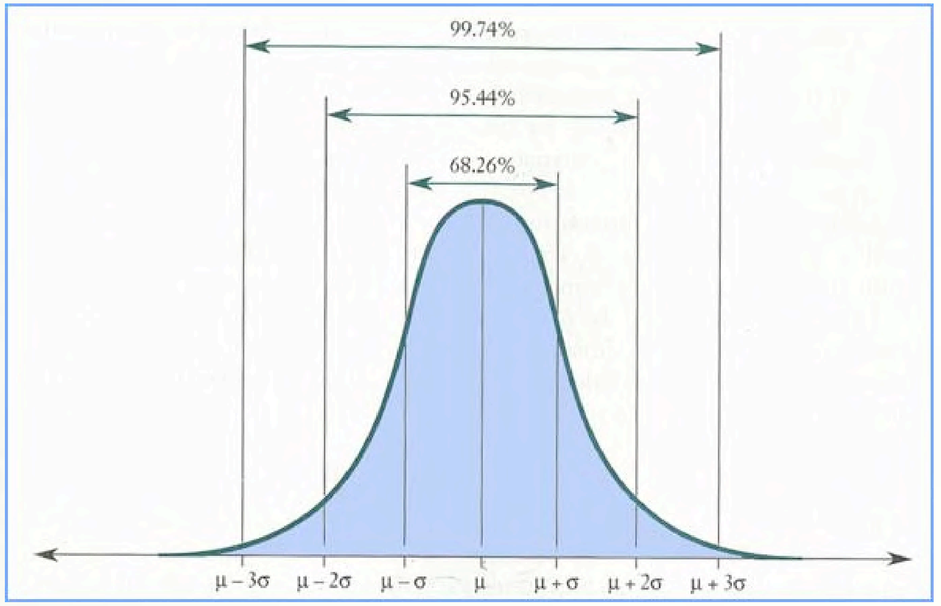
100,000

No

Yes


The rate of contacts using the Top N blurbs
120%
100%
80%
60%
40%
20%
0%
0
1000
2000
3000
4000
5000
6000
7000
10
20
50
100
150
200
500
1000
1500
2000
6305
the rate of contacts using the Top N blurbs


Y
X



$$f(x, \mu, \sigma) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

Feature Vector X $\{X_1, X_2, X_3 \ldots X_n\}$

Given new example x, compute $p(x)$:

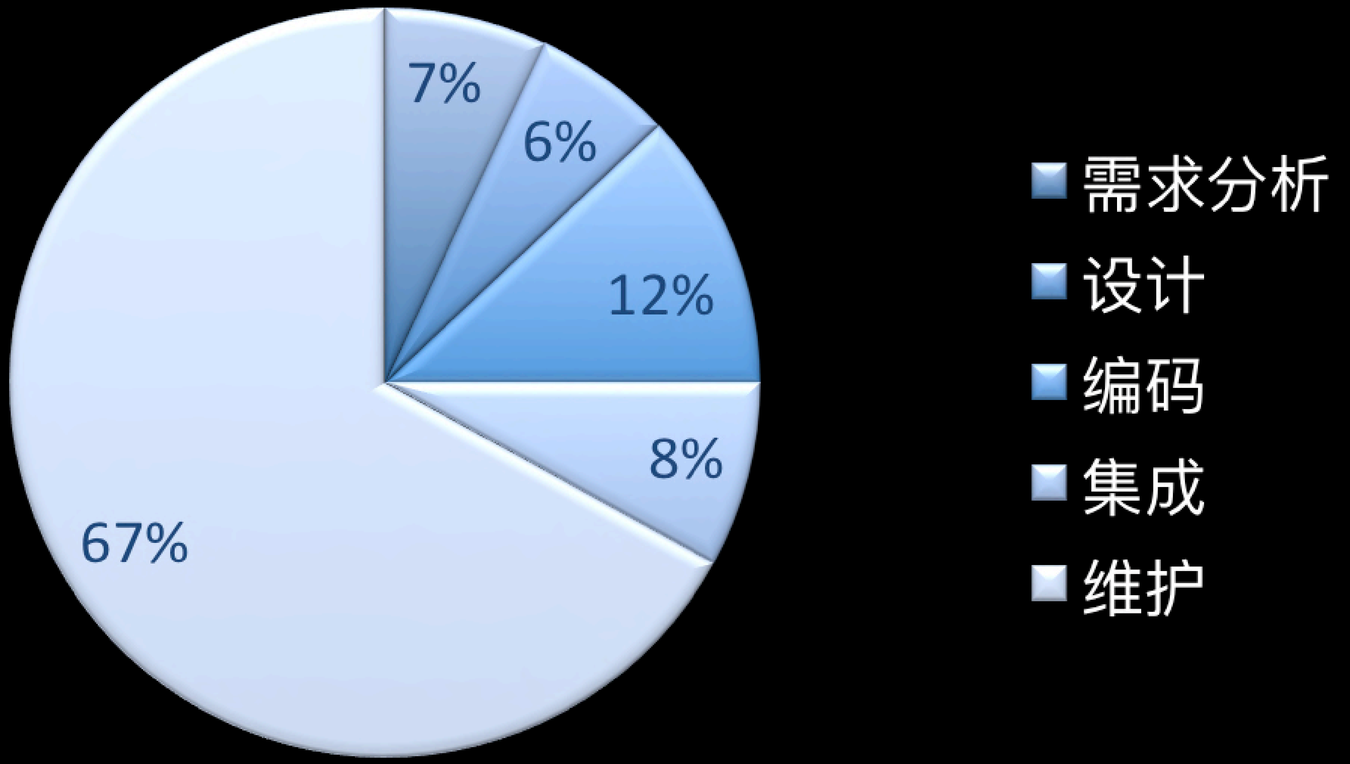
$$p(x) = \prod_{j=1}^{n} p(x_j; \mu_j, \sigma_j^2) = \prod_{j=1}^{n} \frac{1}{\sqrt{2\pi}\sigma_j} \exp\left(-\frac{(x_j - \mu_j)^2}{2\sigma_j^2}\right)$$

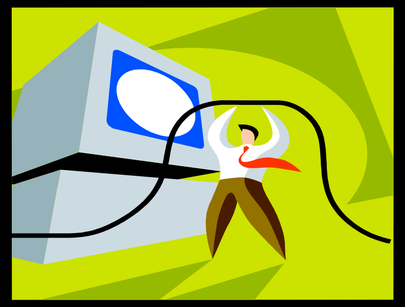
Anomaly if $p(x) < \varepsilon$

简单 与 容易

管中窥豹，时见一斑

软件系统生命周期

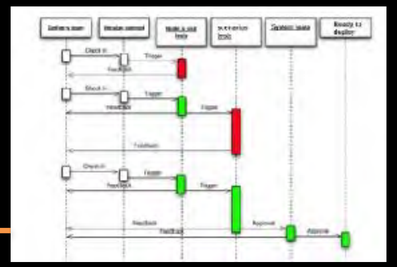




Telecomm carrier

New business requirement

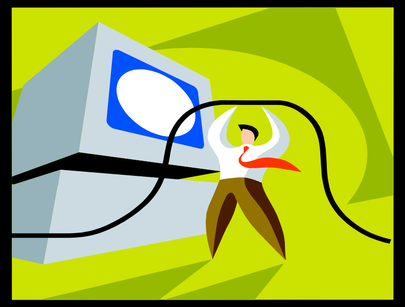
process protocol designer



Software Engineer

Translate the model

Java



Telecomm carrier

New business requirement

process protocol designer

Model described by DSL

Translate the model

Java