**Frank Bai**

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**QUALIFICATION**

 Professional experiences in software development and architecture work.

 Knowledge of software development through its full life cycle (SDLC)

--- what is SDLC?

 Thorough knowledge of OO design, Frameworks, Design Patterns.

----why use Design Patterns

1. Capture design experience from the past
2. promote reuse without having to reinvent wheel
3. define the system structure better
4. provide a common design vocabulary

----why use framework?

1. simply programming model by hiding the complexities behind the framework API
2. leverage the services framework provides, avoid re-invent wheel.
3. minimize the amount code an application developer has to write

 Solid technical background in real-time trading, post-trade web application design.

**SKILLS**

1. **Languages**: Java/J2EE, XML, XSL, XPath, XQuery, JSP, Servlets, JDBC, JavaScript, ActionScript3, Ant, C++, C, PL/SQL, Perl, UML.
2. **Frameworks/Tools:**  EJB**,** POJO, Spring, WebWork, Hibernate, ORM, AOP, SOA, Web Services, Design patterns**,** IOC, Java Reflection, JAXP, XMLBean, JIBX, XStream, Log4J, Jakarta Apache Projects, AJAX, DWR, GWT, Adobe Flex3.0, MXML, Action Script3.0, Ant, JDOM, SAX, XSLT, RMI, JNI, CORBA, IBM MQ, RPC, Socket, Rational Rose.

**Why not use hibernate?**

1. hibernate is not applicable to case that heavy use of set access on large data set, batch updates of many rows
2. our app doesn’t need for a significant amout of caching in object mapping layer
3. at that time, hibernate didn’t support SP

why use JNI?

Used RMI between UNIX and windows which running C++, to dynamically generate contract. In NT , needed a java wrapper to call C++ code.

1. **GUI:** Java Swing, Java AWT, Motif/X-Windows
2. **Network:** RMI, CORBA, Sockets, RPC, TCP/IP
3. **Database:** DB2, Sybase, Oracle
4. **IDE:** IBM RAD7.0, Eclipse, NetBeans.
5. **OS**: Solaris, Windows, Linux.

**EXPERIENCE**

***Sr. Technical Specialist*, Citigroup, New York 06/2000-present**

**GWM Finance Management Portal System**

Multi-years effort for the development of Smith Barney Finance Management Link system which delivers a centralized web application to integrate and process market information per day in real time; provides management workflow and surveillance mechanism for compliance and regulatory functions, specifically have to perform on daily basis. The system infrastructure is J2EE based on DB2, IBM MQ, Websphere6.1 application server, and Solaris. Role requires a mix of lead and hands-on application development tasks.

---data feed is from data wherehouse for market information, post-trade information

----FA use it as reference, major client is management team, used as workflow/surveiliance for regulation/compliance function

 Extensively involved in the user requirement analysis, R&D on system bottleneck issue.

----bottleneck issue, such as performance issue, multi-thread environment issue etc.

<http://java-success.blogspot.com/2012/03/java-interview-questions-and-answers.html>

<http://java-success.blogspot.com.au/2012/02/spring-and-hibernate-interview.html>

http://java-success.blogspot.com.au/2011/11/spring-interview-questions-and-answers\_30.html

tips regarding Java performance:

1. **Don't compromise on design**
2. **Use immutable objects where applicable**
3. **Check your regexes and SQL**
4. **Use proven libraries, frameworks, built-in algorithms, and data structures** as opposed to creating your own.
5. Always have a performance focus by developing proper load testing scripts and benchmarks, **Tune your application server, database server, application, etc where required** with proper bench marking and load testing scripts

http://stackoverflow.com/questions/2511315/method-for-finding-memory-leak-in-large-java-heap-dumps

http://stackoverflow.com/questions/2713940/eclipse-java-profiler

----performance issue: for instance, we have an Archive/audit function which provide the service for history of report and audit, this function was used frequently and user complained some times it was slow. After investigated I found that the issue was because 2 DB SP were repeatedly called ( calls was made to return the category and the report list for that category every time) during every user transaction and those 2 SP calls were expensive which meant involved table join,. So my design was to call 2 SPs once when server startup, then cached the data in middle tier.

**The advantage are obvious for use cache in margin calculation:**

**0.although in general data should be lazily load but this eagerly load data can minimize the network trips to database and remove overhead of joining tables**

1. **data was loaded once at server start up. Ie. Table was joined only once.**
2. **performance is much much better since data is accessed in cache not through table join everytime**
3. **remove hardcode parameters in code, make the application really data-driven.**
4. **Extends new function based on this new design . for instance, since data exists in cache, it is pretty easy to “quick search” any report if user knew the name of it. That was a new function I provided to user which they really like it. Before, they had to make 2 calls and select the report, now they just type in the name or part of the name , then hit return key.**

**Actually if based on old design, there is no way to provide this function since too many tables join involved , the performance would be terrible.**

----multi-thread: we got issue like duplicated information was inserted to database by different user. I found that some static methods in utility class were not implemented as synchronized method. So those static methods were called by different users concurrently would cause this issue.

------performance issue:

we used XSLT transform the XML data combining with xls style sheet to make the html output, the XSLT stylesheet did the paging function on the xml data, since the data set was large, the paging performance was bad.

After investigated the issue, I found that the data set was fully retrieved every time when did the paging by XSLT, huge data in xml made the performance bad, so instead of retrieveing the whole data set, I move the paging operation into data access layer, ie. Only return the required paged data, so only one page data was returned every time.

**----for example， in option calculation process, some tasks were time consuming calculation task because more table join involved to get the data, after investigation, I split the each tasks into mulit tasks, one task only work on part of data, then main thread to combine the result once each individual task completed, it is using cyclic barrier.**

 Designed and developed modularized application context. Centralized application configuration management with Jakarta Apache Configuration API; preloaded XML based declarative reports functionalities and layout, business transactions, Data Access layer definition and other utility definition on application initialization while application server start up.

-----1.Context is singleton which is instantiated by startup servlet’s init() method, parameter is servletContext, this context object is cached. this servlet is the first servlet loaded by servlet container

PortalServer?homepage-CommandFactory create business TX for home page  get Home each Pane configuration from pane.xml, ie. Happened in Home TX class , then forward to Home.jsp-load tabs , get Tabs configuration from tab.xml, for each tab, call DB2 to get the report information which configured in pane.xml created ReportLoader-build URL-Call concentral control servlet  it does data binding to create Command object which is reusable, create business TX, pass Command in , these TX classes are created by the configuration in XML each TX instance is unique for that transaction, ie individual controller, data validation in business object, call DAO interface , returned domain object - forward to JSP template , JSP template looks for report.xml and do the parse.

For example, the TX configuration:

TX interface {

Execute(Command command);

}

< TX ID=”xxxx” class=”com.ssmb.portal.tx.SpecialReportTX” >

</>

/>

----There is single class which loads those XML configuration files into objects at sever startup, called Context, it really pull application together. For example, we use a JSP template as generic report JSP display engine, it will access context to retrieve report configuration; such as approvable, if yes, the approve function will be implemented on that report, what the column header will be displayed; what the tabs for this report; which transaction class will be used to data access layer.

----advantage:

1.share configuration objects between layers at runtime, such as report.xml was used by JSP template, the data access configuration xml was used by the abstract OO layer of JDBC; transaction XML was used by middle tier Business Object layer

2.centralized configuration file into one place make it is easy to maintain

when use singleton?

1. it make the accessing application specific properties through a single object
2. it can provide the accessing in memory object cache through a single object

-----what is the Apache Configuration API?

It enables java application to read configuration from different sources. ConfiguraitonFacotry—setURL—>Configuration

It is in Apache Commons project

-----how to initialize log4j?

1.MDC ie mapped diagnostic context is to distinguish different client source on thread base

2 DOMConfigurator is to initialize log4j with dom tree of log4j.xml

<http://stackoverflow.com/questions/9343951/log4j-is-it-synchronized-for-multithreaded-calls>

<http://java.dzone.com/articles/log4j-thread-deadlock-case>

http://stackoverflow.com/questions/4970513/java-logging-levels-confusion

 Took lead of designing and developed abstract data types of both Business services layer and Data access layer for reuse, validation, formatting to streamline teamwork involved and play functionality.

-----I designed the abstract data type for this application.

-----advantage: 0. Implementation against interface instead of concrete class

1. make code reusable in different application context

2. keep code base consistent

 Took lead of designing and developed IOC (Inverse Of Control) driven architecture. Objects composed declaratively in XML for dynamic reports display engine, custom report functionality and Data access layer. Implemented interface based business object layer. By wiring up application Java object defined in application level XML, simplified the business object logic in middle tier and separated application concerns. Used XML based configuration to module reports layout and business functionality (notes, approvals, email etc); simplified future changes to exiting reports.

why needs this design? What is the necessary?

Reason to design:

1. duplicate code in many place, similar JDBC **operations** were taken in many place.
2. JDBC expcetion control, it is better to move this handling into generic framwork
3. so I want to create some generic framework which code could be 1. reusable and 2.if similiar JDBC **operations** to be done, it should be easy to configured to to that versus code to be re-created. and 3.keep exception handling, resouce clean up etc in one place

so how did you do?

----1.Map JDBC API, like name, inparms to XML structure declaration

-----2.Model RDBMS operations as objects based on OO design which hide the detail of JDBC from application

3.it taks care of resouce cleanup and translate SQLExcepiton into generic exception in application

-----4.create DAO based on those OO operation object, those DAO is interface to business objects, hides the underlying data access operations, exception handling etc

advantage:

1.easier to extend, easy to use, and easy to maintain xml than java object, meaning add SP definition into XML configuration

2.code is reusable, and less code in general

3. handle resouce cleanup and exception handling in one place, avoid mistake made by team individual if working on JDBC directly

background info:

0. get idea from Rod Johnson

1. IOC is meaning that control of program is invert that move from the client code to the framework/container.

2. I think the name is better to be as dependency injection.

3. good example was my data access layer

general advange:

1.IOC follows the design principle that separation of interfaces from implementation ie. Decouple objects

2,IOC ensure that the configuration of data access object is separated from their use, after configuration, Objects are then wired and ready to use.. ie. Centralize configuration

4.auto-wire dependency together into the component because the object itself doesn’t need to know what the dependency it needs for

4anyway what I want is to declaratively indicate what client code needs, and the correct object instance gets pushed to client code

advantage. in the business object layer:

1. it move the dependency between objects outside the objects so Implementation of the managed object stays focused on solving its core problem

2. auto wire object or at least make it transparent to client code

3. because of the result of above, it makes application layers more clear, will ensure each object has a clear set of responsibility, i.e. for business object , it would concentrate on business logic

cons:

1. code in xml
2. mix business logic in xml

"why am I writing this in XML instead of Java"

i believe you missed the all point IoC. IoC isn't going make developer's life easy, but it's going create application that are "configurable" without any modifications of the code. That's the idea.

"If i rename a class": Well you don't. :)

You don't use IoC inside your own POJOs or in your own package. You use IoC on more "component" scale.

What is the difference between IOC and JNDI lookup?

JNDI disadvantage:

1. the client and service being looked up must agree on a name, which is contract not enforced by the compiler or any checks, it will have to wait until runtime to discover any error in the name and the JNDI registry
2. the retrieved service object are not type checked at compile time

IOC advantage:

It is more elegant because it promotes the loose coupling with minimal effort and is the least intrusive mechinaism.

What is the difference between IOC and factory?

1.The factory pattern is more intrusive because components or services need to be requested explicitly whereas in IOC the dependency is injected into the requesting code.

2. if work with large software system, as system grows, the number of factory classes can become quite large.

 Designed and developed high level, two-layer abstraction Data Access framework design. Using XML as declarative JDBC workflow mapped core JDBC API, designed generic Object Oriented layer that is re-useable objects modeling RDBMS operations; on the top, implemented thin layer DAO which hidden JDBC exception handling, extremely simplified application code so that team can concentrate on Java business component without knowing of JDBC specific knowledge.

-----1.Map JDBC API, like name, inparms to XML structure declaration

-----2.Model RDBMS operations as objects based on OO design which hide the detail of JDBC from application

it taks care of resouce cleanup and translate SQLExcepiton into generic exception in application

-----3.create DAO based on those OO operation object, those DAO is interface to business objects, hides the underlying data access operations, exception handling etc

why add another layer DAO?

DAO class provides access to data source without coupling the data access layer API to the business logic in business object layer. Because DAO follow the principal that code to the interface not implementation. DAO abstract the underlying data access operation for the business object s to enable transparent access to the datasouce. The business objects also delegate the data access operation to the DAO.

Domain object was transferred between them.

 Designed and developed XML/Java Object binding architecture design, evaluated XML/Java Object data binding frameworks, like JIBX; XMLBean and XStream. Designed Java-centric object model to unmarshal/marshal XML data, performed XSLT to transform XML/XSL to HTML by JAXP. Applied XQuery to JavaBean model to avoid unnecessary model creation in Data Access layer.

----compare the Jibx, XMLBean, Xstream.

-----Xstrem is binding at runtime, no mapping required, object are plain pojo, but memory consuming

Jibx is binding at complie time, need mapping file.

Jibx framework: BindingFacotry(domain.class) Factory- createUnmarshallingContext, createMarshallingContext,then do marshall object to create XML, or unmarshaldocument to create object.

XMLBean XML schema that has been compiled to generate Java object, but it jar file is conflicting with Websphere 5.1 class loader. needs to configure class loader from parent\_fisrt to parent\_last . It support Xquery/xpath.

Create build.xml by Ant using tasktype, compile the schema to generate java object

<?xml version="1.0" encoding="UTF-8"?>

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

<xsd:element name="sheet">

<xsd:complexType>

<xsd:sequence>

<xsd:element maxOccurs="unbounded" ref="row"/>

</xsd:sequence>

<xsd:attribute name="name" type="xsd:string"/>

<xsd:attribute name="index" type="xsd:string"/>

</xsd:complexType>

</xsd:element>

<xsd:element name="row">

<xsd:complexType>

<xsd:sequence>

<xsd:element maxOccurs="unbounded" ref="column"/>

</xsd:sequence>

<xsd:attribute name="id" type="xsd:string"/>

</xsd:complexType>

</xsd:element>

<xsd:element name="workbook">

<xsd:complexType>

<xsd:sequence>

<xsd:element ref="sheet"/>

</xsd:sequence>

</xsd:complexType>

</xsd:element>

<xsd:element name="column">

<xsd:complexType mixed="true">

<xsd:attribute name="id" type="xsd:string"/>

</xsd:complexType>

</xsd:element>

</xsd:schema>

<project name="special" default="build\_all\_schemas" basedir="." >

<taskdef name="xmlbean" classname="org.apache.xmlbeans.impl.tool.XMLBean" />

<target name="build\_all\_schemas" >

<xmlbean schema="schemas" destfile="dist/special.jar" classgendir="build" srcgendir="src" javasource="1.4" />

</target>

</project>

 Designed and developed Front Controller, HTTP parameter/JavaBean Object data binding; designed semantic validator object in business object not web tier. Externalized XML configuration for application HTTP transaction that automatically validated, binding/validation object wired up highly reused in different user transactions.

---implemented server side validation, applied Front Controller patterns

---advantage:

1.when business logic is involved in validation ie the validation is required on semantics not syntax/format

2. Front Controller: Front Controller centralize services like security, auiting, logging, etc to improve manageability and improves reusability by moving common behavior into centralized controller or helper class.

why server side validator is good?

1.validation code can be reuse.

2..no need to duplicate the business logic on client side just to do the validation.

1. errors are registered and the rejected values are kept for redisplay in a separated errors handlers
2. client side validation can be passed easily by the attacker.

Bad:

Network round trip.

 Designed and developed desktop application-like; RPC (no page refresh) web component, developed asynchronous report approval; report updates and error handling by DWR. Designed and developed server push ( Java call back Javascript ) user interface using DWR Reverse Ajax.

Why use DWR? Why Ajax is not good enough?

DWR is Easy Ajax for Java.

Ajax is part of javascript, disadvantage:

Advantage:

1. reduce the load on the server and improve the productivity of the user due to faster response. Because the payload from server is much smaller than bringing down the entire html page in traditional architecture.

Disadvantage:

1.javascript development tools are limited, and debugging is pain. There is no framework for developing ajax application.

1. Ajax lack of fundamental program model
2. Ajax doesn’t support server push.

What is reverse Ajax?

1. DWR allow to asynchronously call javascript from java. The transfer data mode can be polling and comet, piggyback all based on HTTP, default revese ajax is through polling and comet, decided by DWR.

why needs this design?

1. the project needs a mechanism that server can transfer data to browser when server has a update. In my case when the file uploading complete or error happens at server side.

2.iframe can do the samething but it has timeout limit

what is the pros:

1.easy web implementation in multi-user/browser environment

 Designed and developed crosscutting report view system (separated concern with report approval) by Dynamic Proxies based on AOP concepts

Why needs this design?

---we have View function to all reports, it is cross-cuting aspect throughout application, explain audit function here.

Why use AOP?

1. AOP separates business logic code from this system level code or other aspect code, allow the OOP focus on business logic. The business classes are unaware of the presence of aspects.

2.AOP move the scattered system level code into one place

<http://stackoverflow.com/questions/3291637/alternatives-to-java-lang-reflect-proxy-for-creating-proxies-of-abstract-classes>

how to do it?

1. model View operation as invocation handler, the transaction class is the target.
2. create a proxy transaction class instance which implemented Transation class interface through dynamic Proxy factory class

What difference with Decorator?

1.the problem is the Decorator and the Transaction class has to have same interface and the Decorator will have to provide the implementation to method of interface in decorator class.

The problem is Decorator has to implements all methods in the decorated object interface which is not really needed.

And AOP only implements what it focus on

 Designed and developed Object-Oriented SQL representation for report Filter function. Query Object is an interpreter that forms itself into SQL.

----use Query object to form itself into SQL query

1. initialize the query object by domain class ie. QueryObject =new QueryObject(TradeBlotter.class);
2. add criteria operation on the query object ie.> (field name, value);
3. generate the SQL

Advantage:

Query the database in terms of domain object

 Designed role-based user entitlements engine. Developed Java reusable components available to all areas of portal upon initial login to determine user privilege, with portal’s application layer to apply dynamically business logic.

 Integrated compliance monitor alert on report by Web Services. Obtained data from web services (XML) and transformed with XSLT by JAXP, transformation engine was Apache Xalan.



Why needs this design?

---Other application wants to post data into our application and they have built web service interface to publish the data

How to implement web service?

----web service is implemented by XML- RPC in java

----use Apache XML-RPC library, Apache XML-RPC is a Java implementation of XML-RPC, a popular protocol that uses XML over HTTP to implement remote procedure calls.

-----code example:

XmlRpcClientConfigImpl config = new XmlRpcClientConfigImpl();

config.setServerURL(new URL("http://127.0.0.1:8080/xmlrpc"));

XmlRpcClient client = new XmlRpcClient();

client.setConfig(config);

Object[] params = new Object[]{new Integer(33), new Integer(9)};

Integer result = (Integer) client.execute("Calculator.add", params);

 Implement Flex version of report administration tool using MXML/Action Script3.0, interacted with Java server side components through Flex Remote Object.

----ascynchronous call based on protocol HTTP AMF which is faster

-----client side Actionscript calls Java side component through DS on AMF protocol, parameters are marshal /unmarshal by DS, the result is returned by callback function.

-----not really call remote method, but send message to the server, requesting a call of the specific java method. Not only the client’s request executed asynchronously but alos the event sending to the server is done asynchronously.

what is DS?

Flex Data services provides transaparent access to POJOs, EJB , JMS.

 Extensively utilized Design Pattern. Composite View pattern for display; other design patterns are used at server side, Delegation, Interpreter, Visitor, Façade, Command, Factory, Adapter, Decorator, Builder, Producer/Consumer

---Front Controller: Front Controller centralize services like security, auiting, logging, etc to improve manageability and improves reusability by moving common behavior into centralized controller or helper class.

---adapter: is used to allow client class to treat a object that doesn’t implement an interface as object does implement the interface

-------Adapter: a class implements an interface known to its clients and provides the access to an instance of a class which is not known to its clients. It provides the functionality promised by interface but without assume that which class is to implement that functionality.

Adapter can let classes work together that could not otherwise because of the incompatible interface.

-----decorator: same interface, extends the functionality of object that is transparent to it clients

-----Decorator: For example , did the modification of MQ message when it was retrieved from MQ just before go to next phase.

----delegation: opposite to inheritance, sometimes the method in super class doesn’t make sense to subclass, so instead of inheriting the super class, it can delegate the call to superclass method, by doing this, it make it clear that you are making only partial use of the delegated class. Ie. You have the control that which aspects of the interface to expose and which to ignore.

The advantage:

1. invoking session beans in session façade
2. acting as service locator and cache home stubs to improve performance
3. handling exceptions from the server side, translate specific exception to application level exception

-----Interpreter: define class for elements of complex structure, then those class instances may be combine to form interpretable expression. For example, in Query Object, it has And/Or operand object.

------Visitor: devide the accumulation structure into separate classes, it is to provide the logic in each class to support the whole operation. Move the accumulation task into a Visitor that can visit each class to accumulate the information.

The advantage:

1. remove the conditional logic
2. remove the instanceOf operation

For example, XML utility class.

Each class has information to provide, the visitor does the accumulation through each class ‘s same interface.

-------façade; simplify access to a set of objects by providing one object outside that use to communicated with the set.

The advantage :

1. improve menageablity by reducing the coupling , hiding the implementation detail , exposing uniform interface and exposing fewer method to client
2. managing transaction and security in a centralized mananer
3. minimize the network trip , improve performance by minizing fine-grained method over network

4. encapsulate the complexities between the client code and the server interactions

For example, DAO

------Command: (to remove the conditional logic), create command for each action, decouple objects

objects are used to represent actions. This allows you to issue requests to objects(receiver) without knowing anything about the operation being  
requested or the receiver of the request. i.e. the sender needs know nothing about receiver, and the receiver needs know nothing about the operation sender requested.

For example, Command object is created by databinder. each Business Transaction class take a command object as inparm,

Command is object behavioral pattern that allows you to achieve complete decoupling between the sender and receiver.

------Factory: the type of created object depends on the type or contents of data but the object ‘client doesn’t need to be aware of the actual type of object created. The client code is unware of the actual implementation class, just the interface expose to client code, this reduce the coupling or dependency between the client code and called objects.

For example, business Transaction class is created by Factory depending on report ID.

Abstract Factory: like Factory, but add additional interface on Factory, AbstractFactory is used to create a set of different objects.

For example, we have different Facotries, it is corresponding to different central controller. Ie Serverlet

.

For example, (implement against to interface ,) I used Adapter to switch to different implementation while keep my client code unchanged.

-----Builder: to construct a complex object by specifying only its type, the client is hidden from the detail of objects construction.

The difference between builder and factory:

Builder give user choice to create the type of object but in the construction process is the same. So client code has choice to builde object by using builder.

Facotry decides how to create one of possible class based on data type. So the client code doesn’t care what the created object type is.

For example, to create the Databinder object using Builder by passing into HttpServletRequest as inparm

-----Producer/Consumer: coordinate the exchange of information between objects ascynchronously.

For example, used in one project.

-----Strategy: encapsulate related algorithrms in class that implements a common interface. The implementation is selected at runtime.

For example, remove the conditional logic. Create a stretagy for each variant and make the method delegate to the one Strategy instance.

For example , we defined the different strategy calculation method for CDS, BONDs, when different security production call calculation() method, we pass in different strategy in it.

For example calculation( new StrategyMethod()).

This will remove the conditional logic.

For example, The Status Checker.

----Flyweight: an instance of class that contain same information can be used interchangeable.

The reusable and variable parts of a class are broken into two classes to save resources.

<http://www.fluffycat.com/Java-Design-Patterns/Flyweight/>

to save resources, we can define less instance of object which has common information that could be reusable, and this limited instances can be created by factory, and the variant operations can be passed or injected into the instance as different context which has same interface.. So that common information can be used in this different context interchangeable , so that it saves resource.

------Delegate: Reduce the coupling between the presentation tier components and the business services tier , business object hides the underlying implementation details of the business services, such as look-up and access detail.

 Designed and developed asynchronous real time data transfer in multithread environment by JMS

Why needs this design?

1. In this project, 2 parts need to be done: one is read message from MQ, two is decorate and categorize data then insert into database.

I want to separate the concern of this program, I want the process to be decoupled, it make sense that each part should dedicate its job.

So I need 2 dedicated thread to work together.

2 in this project, rate of reading data from MQ is not parallel to the rate of inserting into database. I want the process wont be affected by this difference and those 2 process should not be blocked each other. Ie. Message should be read ASAP since the queue size is concerned, not wait for the inserting complete. So those 2 process should be asynchronous.

NOTE: this is not same as java Exchanger, exchanger is doing swap by 2 threads.

3.the design is point to point producer and consumer.

The producer consumer problem is a classic synchronization problem. The producer and consumer processes share a common buffer (with eight slots in our workbench). The producer executes an infinite loop in which it puts new items into the buffer and the consumer executes and infinite loop in which it removes items from the buffer. The following important conditions have to be satisfied by the producer and consumer:

Advantage:

1.the components is intended to be asynchronous in nature, code that is written to connect the piece together assumes that there is a one way message that requires no immediate response, ie **there is no blocking**.

2. asynchronous message also allow for **parallel processing** ie client can continue processing while the previous requrest is being satisfied. This promote the performance

1. At most one process (producer or consumer) may be accessing the shared buffer at any time. This condition is called **mutual exclusion**.
2. When the buffer is full (all eight slots are taken), the producer should be put to sleep. It should only wake up when an empty slot becomes available. This is called **synchronization**.
3. When the buffer is empty, the consumer should be put to sleep. It should only wake up when at least one slot becomes full. This is also called **synchronization**.

code:

1.ThreadStarter

a. create TrustManager , and make client trusted and server trusted to trust all certificate

b. create SSLContext by passing in trust Manager

c. create SSL socket from SocketFactory , this factory is created from SSLContext

d. open outputStream, issue a get command to start servlet ie “GET /servlet/MQServlet/ HTTP/1.0 \r\n\r\n”

2.Stop thread by using interrupt() method.

3.Producer thread read message from MQ in the loop in run() method, and push() it into the myqueue, ie.keep reading.

4.Consumer thread pull() modified object from myqueue and insert it into table in the run() method.

5.MyQueue is singleton, push() and read() method are synchronized.

Synchronized Push(){

Queue.add(message);

notifyAll();

}

synchronized pull(){

if queue.size == 0

wait();

else

get the 0 index message from queue;

}

 Designed and developed user session management by HttpSession, Cookies.

 Set up software development standard for group, built application logging system with Log4J.

1. define priority in root
2. define appender-ref in root
3. define appender in separate part
4. in appender, define file path, layout
5. define specific logger for specific java package code as logger in roor., it has name attribute and priority element

 Designed and implemented generic utility classes in Java for exception control, data paging, data sorting, cache manage, so that colleagues can speed up their work.

 Developed utility class to export **EXCEL** report into web by using POI HSSF library.

 Developed email system for market information notification to management personnel using Java Mail2

 Integrated development application server with IDE to provide a stable group development environment by integrating RAD7 and SVN1.2 with Websphere5.1.

 Developed package deployment script by using Ant.

Explain this?

Archeivement :

The reports in our system are usually feed by data wherehouse, but some reports are ad hoc, they,are excels, just come to our app directly. We call it special report. Before, this kind of report was sent to Grandcentral for processing; setup metadata in our table and ftp the physical excel file to another group’s file server. Grand central and file server are hosted by other groups. The whole process was time consuming, support was terrible, and the worse was it was black hole since it is out our application. It was really difficult to support this kind of process. I took initiative to suggest my manager to reprogram this process , but he was concerned about the time and money, and I promised to complete the redesign of this process in 3 months. I got3 peoples to work on this project, 2 were from backend, one was front end. I redesigned the process like this:

1. upload excel and convert it to xml message , send to IBM MQ through JMS, save separately data and metadata for the report
2. back end retrieve message and insert it into table as xml object
3. front end use xml java object binding and XSLT to display the report

the project was completed as I promised, users are happier about it because :

1. before , it took 6-8 hours to process 30,000 rows file and now it takes 20 mins.
2. report layout is web page not excel , it is consistent with other reports in our application
3. user can upload this report 24/7, no support needed from different groups.
4. it is easy to add new functions in future

why use XML?

1. data in excel make sense to map to XML data structure, column/row
2. save/retrieve XML in/from database is easy ,
3. 3. it is easy to build business object with XML/java binding tool

Why struts is not perfect?

1. it reliance on deriving from concrete framework class like Action, ActionForm not on interface, it restrict the implementation choice, and ties object to Structs API and servlet API. That means it embed the business logic in a protocol dependent maner.
2. no reusable data binding for HTTP inparms, Actionform object maps request parameters but doesn’t map the parameter into POJOs
3. validator is handled by subclass concrete implementation ( with ValidatorForm) not implementa tion to interface.
4. ? domain object can not serve as form object,
5. Struts only address the presentation aspect of application, not framework that support data access layer

Why create your proprietary MVC framework?

1. struts is not perfect
2. bury servlet API deep down and shield the developer from having to work directly with Servlet API
3. allow the build functionality into components that can be reusable in different context

***Programmer/ Analyst***, **Applied Info Service Inc.** **NJ 09/1999-06/2000**

**Easygrocer Internet Shopping System**

Involved in a real time Solaris-NT cross platform Internet Shopping System that handled shopper online. It utilized NT Oracle as the back end storage. Features included member registration, account maintenance, making order, order history and tracking, shopping cart, order reporting, check out, security and authentication control.

 Developed EJB entity bean in Weblogic Server to persist data in database, provided order report, order tracking.

 Developed EJB session bean to registration, authentication, shopping cart, check out, making order.

 Developed Data Access Object layer to serve as abstraction tier above databases by using JDBC

 Developed payment system using CashRegister3 (CyberCash.com) by CORBA.

 Implemented password, credit card information encryption by Java JCE.

 Developed an electric billing system with MCK.

 Developed Mail system for communication between stores by JavaMail.

**EDUCATION**

**Master of Science**, in Computer Science

**New Jersey Institute of Technology**

1. what is main characteristic of OO programming?

**Encapsulation**

**Accessor**

**Data Abstraction**

**Inheritance**

**Polymorphism**

1. what is difference between linkedlist and array?

<http://www.programcreek.com/2013/03/arraylist-vs-linkedlist-vs-vector/>

<http://www.programcreek.com/2013/02/leetcode-longest-substring-without-repeating-characters-java/>

<http://www.programcreek.com/2014/04/check-if-array-contains-a-value-java/>

http://www.programcreek.com/2013/02/leetcode-4sum-java/

<http://www.programcreek.com/2013/02/leetcode-minimum-depth-of-binary-tree-java/>

<http://www.programcreek.com/2012/12/leetcode-solution-for-binary-tree-preorder-traversal-in-java/>

<http://www.programcreek.com/2013/01/leetcode-remove-duplicates-from-sorted-list/>

http://www.programcreek.com/2012/12/leetcode-merge-two-sorted-lists-java/

<http://beginnersbook.com/2013/12/difference-between-arraylist-and-linkedlist-in-java/>

http://www.programcreek.com/2013/01/leetcode-convert-sorted-list-to-binary-search-tree-java/

The **ArrayList is actually encapsulating an actualy Array**, an Object[]. When you instanciate ArrayList, an array is created, and when you add values into it, the array changes its size accordingly. This gives you strengths and weaknesses:

1. **Fast Random Access**

You can perform random access without fearing for performence. Calling get(int) will just access the underlying array.

1. **Adding values might be slow** When you don’t know the amount of values the array will contain when you create it, a lot of shifting is going to be done in the memory space when the ArrayList manipulates its internal array.
2. **Slow manipulation** When you’ll want to add a value randomly inside the array, between two already existing values, the array will have to start moving all the values one spot to the right in order to let that happen.

#### **LinkedList**

The **LinkedList is implemented using nodes linked to each other**. Each node contains a *previous node* link, *next node* link, and *value*, which contains the actual data. When new data is inserted, a node is inserted and the links of the surrounding nodes are updated accordingly. When one is removed, the same happens - The surrounding nodes are changing their links and the deleted node is garbage collected. This, as well, gives strengths and weaknesses:

1. **Fast manipulation** As you’d expect, adding and removing new data *anywhere* in the list is instantanious. Change two links, and you have a new value anywhere you want it.
2. **No random access** Even though the get(int) is still there, it now just iterates the list until it reaches the index you specified. It has some optimizations in order to do that, but that’s basically it.

#### **Some Conclusions**

**ArrayList** is very useful **when a well defined set of data is needed in a List interface** as opposed to an array. It *can* be dynamically changed, but try not to do so frequently throughout the life of the application. **LinkedList** is there for you to do just that: **Manipulating it is very easy**, and as long as its used for iteration purposes only and not for random accessing, it’s the best solution. Further, if you need random accessing from time to time, I suggest toArray for that specific moment.

Another point I didn’t raise here is **the Queue issue**. LinkedList implements extended abilities to the normal List interface which allows it to add and remove elements from its beginning and end. **This makes the LinkedList perfect for Queue and Stack purposes** - Although in Java 5 they already added a Stack class.

1. what is XA? How to promote performance in server side if using JMS?

<http://www.precisejava.com/javaperf/j2ee/JMS.htm>

1. use session pool to concurrently process message
2. use auto or duplicate ok acknowledge mode
3. use non transaction mode
4. less destination size and less number of max message in desitination
5. use non durable message delivery mode
6. receive message asynchronously

anyway:

1. Start producer connection after you start consumer.
2. Use concurrent processing of messages.
3. Close the Connection when finished.
4. Choose either DUPS\_OK\_ACKNOWLEDGE or AUTO\_ACKNOWLEDGE rather than CLIENT\_ACKNOWLEDGE.
5. Control transactions by using separate transactional session for transactional messages and non-transactional session for non-transactional messages.
6. Close session object when finished.
7. Make Destination with less capacity and send messages accordingly.
8. Set high Redelivery delay time to reduce network traffic.
9. Set less Redelivery limit for reducing number of message hits.
10. Choose non-durable messages wherever appropriate to avoid persistence overhead.
11. Set optimal message age (TimeToLive value).
12. Receive messages asynchronously.
13. Close Producer/Consumer when finished.
14. Choose message type carefully to avoid unnecessary memory overhead.
15. Use 'transient' key word for variables of ObjectMessage which need not be transferred.

If server down, can message be lost or not?

<http://stackoverflow.com/questions/12673603/when-to-use-persistence-with-java-messaging-and-queuing-systems>

4. what is the singleton ? multiple thread

5. how to scale up J2ee application?

<http://www.theserverside.com/tt/articles/article.tss?l=ScalingYourJavaEEApplications>

**Make synchronized blocks as short as possible**

**Reducing lock granularity**

**Avoid lock on static methods**

**Using lock free data structure in Java SE 5.0**

# Race condition can also cause the scalability problems

# Non-Blocking IO vs. Blocking IO

# Scale Up to More Memory

6. why struts is not perfect?

7. what is foreign key?

8. what is hashcode? If hashCode always returns 0, what is the problem?

It is ok to return 0 always, but the performance is not good if so. Saving objects in hashMap wont efficient.

9. what is comparable used in TreeSet? If not implements Comparable interface, what happens?

A TreeSet object instantiated with the benefit of Comparator object doesn’t require the object in its collections to implement Comparable.

To be eligible for inclusion in a TreeSet collection, an object must be implemented Comparable interface, but instantiate a new TreeSet object using a constructor that receive an incoming Comparator object, that it is no need the objects in the collection to implementathat Comparable.

Neither comparable implemented nor comparator passed in, there will be runtimeExcepiton throws not compile error for the TreeSet when calls add(object) method..

Note: Comparator must implements Serializable interface. Java requires that because object might be used in TreeSet, Treemap.

<http://java67.blogspot.com/2012/08/difference-between-treemap-and-treeset-java.html>

10. if not using synchronized keyword, what other tech to make thread safe?

1. Java 5 concurrent package

2.Java 5 reentrantlock, read/write lock

3.immutable object

4.ThreadLocal class

5.singleton

11. what is dynamic proxy?

12. how to use hashMap, if use same key object in HashMap is it allowed?

<http://stackoverflow.com/questions/15909425/modifying-values-in-concurrenthashmap>

13. what is finalize method? When it is called?

14. prototype in java script

15. closure in java script

16. css selector

17. different bean type in EJB, what is the restriction on stateless and stateful EJB?

18. how to improve the quality of application?

Use framework, design pattern, follow the agile methodology, and utilize Junit test method

19. what is difference between TCP and UDP?

<http://www.cyberciti.biz/faq/key-differences-between-tcp-and-udp-protocols/>

20. difference SAX and DOM?

21. difference HashMap and HashTable

22. difference between checked and unchecked exception?

a. The question should be when to use checked exception and when to use unchecked exception, if client code can take some useful recovery action based on information in exception, then use checked exception, if client code can't do anything base on the exception, then make it as unchecked exception.

b. wrap resouce specific excepiton into applicaiton meaning exception to hide the API specific excepiton so that no tied to the specific excepiton API

c. make the applicaiton level wrapper excepiton as runtime excepiton rather than checked excepition, it makes client code flexible so that it only needs catch the expceitons that may be able to recover from

23. what is the useful for Façade pattern?

Network reduce, Cache object reference, provide Coase grained object interface A facade is a simpler mask given to a complex entity. A facade pattern is based on the basic principle that all the complexities are to be hidden behind a simpler interface.

1. what is the internal mechanism used for Xstream, XMLBean, Jibx?

Xstream uses JAXP DOM parser instead

JiBX is designed for runtime performance. There are three main aspects of this: Efficient unmarshalling, direct access to data, and lean runtime. The first aspect is probably the most difficult to explain. To understand how this applies in JiBX you have to know the difference between the common event-driven approach to parsing XML (as implemented by SAX/SAX2 parsers) and the newer pull parser apprach (as with XMLPull). Event-driven parsers deliver document components (elements and character data content) to your code one at a time, using callbacks. You call the parser from your code, defining a "handler" to process these callbacks. The parser runs through the entire document with a call to your handler for each component, and then returns. It's up to your handler code to organize the information contained in the document components.

The problem with this approach is that it requires your handler code to track where the parser is at in the document and interpret the components appropriately. At the most basic level, the start tag for an element containing a text value is reported first by the parser, followed by one or more chunks of text, followed finally by the end tag. Your handler generally needs to accumulate the text until the end tag is reported, then do something with the text. The "something" it does may be effected by other items, such as the attributes of the start tag, so that's more information that needs to be held. The net result is that handler code for event-driven parsers tends to involve a lot of String matching on element names in chained "if" statements (or the equivalent using a Hashtable lookup). This is both messy to write and maintain, and inefficient.

Pull parsing turns the parse event reporting around. Instead of the parser calling methods in your handler to report document components, you call the parser to get each component in turn - the parser becomes essentially an iterator for moving through the components of a document. When you write code using this approach the state information is actually inherent in the code. To take the case of an element containing text, you can write your code with the knowledge that the element you're processing has text content, and just process it directly - effectively one call to get the start tag, one call to get the content, and a third to get the end tag. Even better, you can write a method that handles *any* element containing a text value - just call the method with the expected element name, and it returns the text content or an error. Since most XML documents use fixed ordering of child elements, processing the children of a particular element becomes as simple as just making once call after another to this method.

JiBX uses a pull parser for unmarshalling so that it can take advantage of this code structure advantage. Because the code for pull parsing can be much simpler than that for event-driven parsing, JiBX is able to use byte code enhancement to add both marshalling and unmarshalling code to your class definitions. Using byte code enhancement in turn lets JiBX make use of the other two performance aspects.

"Direct access to data" just means that JiBX accesses data from your objects in whatever way is most natural. Normally this is by loading and storing field values directly in the marshalling and unmarshalling code added to your classes by byte code enhancement. It can also be by using JavaBean-style get/set methods, if that's a better solution for your code. Because JiBX uses byte code enhancement there's no need to make the fields or get/set methods public, unlike most other data binding frameworks. There's also no runtime cost for accessing the data, unlike the frameworks that use reflection to move data in and out of objects.

The final performance aspect of JiBX is that the runtime is lean and mean - configuration information is normally processed at application assembly time (after compiling classes), and is embedded directly in the code added by byte code enhancment. Other frameworks that read configuration files at runtime (most do not) suffer a performance disadvantage both from the actual processing time and from the added code needed to support this. This can make for a very slow start on execution, as classes are loaded and compiled to native code by the JVM. JiBX's approach of handling all the configuration prior to running the application minimizes startup overhead, both directly and through avoiding unnecessary runtime code. JiBX's use of a pull parser also helps keep the runtime small and efficient, as does its limited validation support - JiBX automatically checks many aspects of a document based on your mapping when unmarshalling, but does not support in-memory validation.

Xalan implement both Dom and Sax .

25.how to make object immutable?

a. make class final, b. make variable final c. don’t provide methods to modify object state, e.g. by initializing object through blank final and without any method to modify the state.

26. where to use JMX?

27. if issue appears, how to debug the application on high level?

Set up site scope, find the problem on the high level

28. how your producer and consumer implemented? How these 2 threads communicate each other?

29. Datasource in my project?

Web.xml specify the datasouce name, Application get this datasource names from web.xml, use the datasource name in web.xml and the runtime environment type to filter out the user name, password and the server data source , the real name of datasouce from db.properties file.

So the datasouce name configured in server is the real data source name.

Use the datasouce object and user name, password to do test connection.

This way, we can define all 3 dev , staging, prod datasouce in server configuration. And when we need we get the want one by modifying db.properties

29. MVC framework for Flex: --- has one article

http://flexscript.wordpress.com/2008/10/17/behavioral-design-patterns-command-design-pattern/

1). One central controller is to take the command , run the command, centraliz the event handler

2). View is take the model, and display

3) commnd is having reference to view, communicate with server, handle result to create model

4) model is holding data. It knows nothing about view.

5) client code is SATMain.mxml,is to create command, set command to Controller

6) invoker is Controller, is to receive command from client which is not good because the view is sometimes client code. Invoker run the execute () method, know nothing about the Command itself.

7) receiver is the view, it receives the Command, but command knows nothing about view.??? ( command knows view)….Command has reference to the view, so Command can invoker some method on the view.

Invoker 🡪Command 🡪Receiver’s something method

So controller separate view and command, it just distrubte the command, controller know nothing about command.

This frame work has disadvantage is the view sometimes has to create command and set it to Controller, it expose the Controller API in the view. It is not good.

This frame work has the big advantage is that Command return the dataprovider right way, then in the command’s event handler function to change the data provider’s internal state, so the view will get data provider right after fire command, so that view would not need to wait the command execute() get completed.

Another framework, get idea from Mate: www.insideria.com/print/33985.html

1. Controller has a dispatcher which receives ALL event ( no matter framework level or customized) ; ie. setting up a singleton to handle events for models, this is a good design
2. SATMain -🡪enter frame🡪 create views🡪 fire events🡪Controller : 1: create command depending on receiving event 2. add listener for the command’s result 3. remove listener for the command
3. the process from view is:

any event fired by view 🡪Controller listen by Dispatcher once it get , create Command with inparms and target from the event which is the view-🡪Call remote object🡪 back result to listener for the remote Object on Command🡪 command fire up notification event to Controller and set result to view directly since it has reference or fire event on view so that view can register listener to listen.

1. The advantage: no need listener all over the place, separate the view, model, controller, view doesn’t know Controller anymore.

.

30. why do I choose the current Flex framework but not for the more MVC one?

The MVC one is to utilize the MVC at application level, the 2 one is to utilize MVC at component level and at application level, it to provide the event frame work.

31. the difference between hashMap , hashtable?

hashMap is not synchronized, hashTable is synchronized.

1. the difference between arrayList, linkedList?
2. merge sort

http://www.vogella.com/tutorials/JavaAlgorithmsMergesort/article.html

1. tree search
2. binary tree search, b. same level node search

<http://stackoverflow.com/questions/5938486/how-to-search-for-a-node-in-a-tree-and-return-it>

<http://www.geeksforgeeks.org/get-level-of-a-node-in-a-binary-tree/>

1. recursive method
2. how to do flex object clone?

http://blog.comtaste.com/2007/10/improving\_object\_copy.html

http://blog.another-d-mention.ro/programming/how-to-clone-duplicate-an-object-in-actionscript-3/

1. how to prevent singleton get clone? Override the clone method, throw exception
2. java object swap? Content swap? Address swap?

<http://stackoverflow.com/questions/3624525/how-to-write-a-basic-swap-function-in-java>

<http://stackoverflow.com/questions/3901850/function-that-swaps-two-integers>

Can not write swap method to swap object,int, it can be done if we wrap int in wrapper like array, when pass them into method as input parameters.

also it can be done without method to swap primitive type or object reference , can swap real reference without method.

Content swap can be done. Address can be done too.

http://www.javaworld.com/article/2077424/learn-java/does-java-pass-by-reference-or-pass-by-value.html

1. what is the different dispatcher in servletcontext, httpRequest?

I would think that your first question is simply a matter of scope. The ServletContext is a much more broad scoped object (the whole servlet context) than a ServletRequest, which is simply a single request. Use getContext to obtain a RequestDispatcher for resources in **foreign contexts**

Foreign context means another application running in the same server and not in another server. Currently there is no way that you can retrieve the servlet context object for an application on another server. But also note that within the same server also if there are security restrictions you may not be able to get the context object for another application. In this case when you try to get the foreign context object using the getServletContext method of ServletContext it would return null.

If you use absolute path ("/index.jsp"), there is no difference.

If you use relative path, you must use HttpServletRequest.getRequestDispatcher(). ServletContext.getRequestDispatcher() doesn't allow it.

1. thread join() , yield()?

Join() is to for calling thread to wait this thread to die, not release the lock. Yield() is to pause and give other thread a chance to run

<http://stackoverflow.com/questions/1908515/java-how-to-use-thread-join>

<http://stackoverflow.com/questions/536327/is-it-a-good-way-to-use-java-util-concurrent-futuretask>

<http://stackoverflow.com/questions/6346927/java-callable-futuretask-excecuter-how-to-listen-to-finished-task>

<http://stackoverflow.com/questions/6346927/java-callable-futuretask-excecuter-how-to-listen-to-finished-task>

1. the difference between builder, factory?

The builder design pattern describes an object that knows how to craft another object of a specific type over several steps. It holds the needed state for the target item at each intermediate step.

The factory design pattern describes an object that knows how to create several different but related kinds of object in one step, where the specific type is chosen based on given parameters.

The factory is concerned with what is made, the builder with how it is   
made. Design patterns points out that (page 105) Abstract factory is   
similar to builder in that it too may construct complex objects. The   
primary difference is that the Builder pattern focuses on constructing a   
complex object step by step. Abstract factor's emphasis is on families of   
product objects(either simple.

1. how to provent derive from class? 1. final 2, private constructor
2. flex use Jason to transfer data ?

no, flex uses AMF which is binary format to transfer data

1. how to prevent message lost? If one process care the lose, one dosnt care the lose , how to implement JMS?

<http://www2.sys-con.com/itsg/virtualcd/java/archives/0604/chappell/index.html>

* + - 1. acknoledgekment: meant toboth, sender and receiver, once it
      2. get the message , it will send acknowledge to sender , if no receiver , the message lost.

receiver will send server acknowledge also if receiver get message, if not get acknowledge, sever re-sent message.

* + - 1. durable delivery:, meant to receiver , only receiver get message, it will send acknowledge to server. Also meant to server, that server will hold the message until get acknowledge from receiver. even message is not persistent, it will save into database if receiver is not ready to get.
      2. Persistent mode: only mean to jms server if it fail before send out, the non persistent message may lost. But for publish/subscribe, only durable message will be guarantied only if in persistent mode.
      3. **Transacted Messages:**

 transactional send: Messages delivered to the message server in a transaction are not forwarded to the consumers until the producer commits the transaction

From the transacted receiver's perspective the messages are delivered to it as expeditiously as possible, yet they are held by the JMS provider until the receiver issues a commit() on the session object. If a failure occurs or a rollback() is issued, the provider will attempt to redeliver the messages, in which case the messages will have the redelivered flag set.

Transacted producers and transacted consumers can be grouped together in a single transaction if they are created from the same session object

So use 2 different transactional sessions for sending and receiving .

* + - 1. No matter what, once server is down, it will try to resend.

1. how to prevent the duplicate JMS message at client side?

<http://stackoverflow.com/questions/4934386/avoiding-duplicated-messages-on-jms-activemq>

* 1. use unique id for each message
  2. before sending message, save the unique id into Set, if no error throw, meaning the id is unique , so send out message, other wise drop the message.
  3. Same funcation can be implemented at receiver side, get message id,save into Set, if error , drop the received message.

1. Package level, protected level difference?, public level access? What is the difference between package and protected level?

<http://stackoverflow.com/questions/13309609/why-protected-can-be-access-in-same-package-without-inheritance-in-java>

1. what is outter join, left join, inner join?

<http://stackoverflow.com/questions/38549/difference-between-inner-and-outer-join>

1. Spring, how to initialize the bean factory?

<http://stackoverflow.com/questions/9885203/initializing-spring-bean-from-static-method-from-another-class>

<bean id="exampleBean"

class="examples.ExampleBean2"

factory-method="createInstance"/>

The mechanism for supplying (optional) arguments to the factory method, or setting properties of the object instance after it has been returned from the factory, will be described shortly.

#### Bean creation via instance factory method

Quite similar to using a static factory method to create a bean, is the use of an instance (non-static) factory method, where a factory method of an existing bean from the factory is called to create the new bean.

To use this mechanism, the class attribute must be left empty, and the factory-bean attribute must specify the name of a bean in the current or an ancestor bean factory which contains the factory method. The factory method itself should still be set via the factory-method attribute.

Following is an example:

<!-- The factory bean, which contains a method called

createInstance -->

<bean id="myFactoryBean"

class="...">

...

</bean>

<!-- The bean to be created via the factory bean -->

<bean id="exampleBean"

factory-bean="myFactoryBean"

factory-method="createInstance"/>

1. how to configure the jdbc data source?
2. String intern() call usage?

<http://stackoverflow.com/questions/1091045/is-it-good-practice-to-use-java-lang-string-intern>

1. What is permgen? Why cause memory leak of it?

Avoid too many dynamic classes

<http://www.javacodegeeks.com/2013/12/decoding-java-lang-outofmemoryerror-permgen-space.html>

The permanent Generation contains the following class information:

* Methods of a class.
* Names of the classes.
* Constants pool information.
* Object arrays and type arrays associated with a class.
* Internal objects used by JVM.
* Information used for optimization by the compilers.

1. how to make string object use “==” when initialize use new () operator?
2. flex loading application process? How many events it fires? Why bubble is in event flow? What is the internal bindable?
3. hashcode(), equal() method meaning? If hashcode() equal, what happened to save object to map? If equal() is equal, what happened to save object in map?

<http://stackoverflow.com/questions/2265503/why-do-i-need-to-override-the-equals-and-hashcode-method-in-java>

if only override hashcode(), 2 key object will save 2 value into map in different places, even they supposed to be replace the first one with second. But still use those 2 keys can find the value they saved.

If only override equals(), 2 key object will save 2 values into map in different places, but that 2 value will not be found by those 2 keys, since default hashcode () method return different value every time.

1. select the duplicate number from 2 sets number:

SetA: 11,17, 32, 56, 103

SetB; 17, 56, 63, 107, how to find 17, 56

Save into treeset, throw exception meaning duplicated number.

1. how to print linked list to reverse order?

<http://stackoverflow.com/questions/354875/reversing-a-linked-list-in-java-recursively>

* + - 1. recursive 2. make the pointer point back to each node, then print 3. Use stack

1. how to convert integer to string ?

http://codereview.stackexchange.com/questions/10351/converting-int-value-to-string-without-using-tostring-and-parseint-method

1. how the drag drop lifecycle in flex?
2. how to avoid the dead lock? What is downside of sequence of locking?

<http://stackoverflow.com/questions/16742474/invoking-sequence-of-calls-in-the-lock-two-cases>

the second case may introduce corrupt state? worng

1. how about the binding data in flex if {A+B}, A and B both changes?
2. what is the outte join?
3. what is the thread lifecycle?
4. how to implement hashtable? Is always O(1)?

<http://stackoverflow.com/questions/2771368/can-hash-tables-really-be-o1>

<http://stackoverflow.com/questions/5407421/design-a-hashtable>

hashtable only can be array of lists , or array of linked lists, the array holds each list, and the array position is the hashcode as index. Only array can provide the O（1） search time. And linked list provide O(n) comparation time.

1. <http://stackoverflow.com/questions/10901752/what-is-the-significance-of-load-factor-in-hashmap>
2. <http://stackoverflow.com/questions/3613102/why-use-a-prime-number-in-hashcode>
3. http://java67.blogspot.com/2014/01/how-hashset-is-implemented-or-works-internally-java.html
4. difference between array and hashtable?
5. how to implement arraylist?
6. how to handle the stackoverflow?

<http://stackoverflow.com/questions/951635/how-to-handle-stackoverflowerror-in-java>

use anthor thread , ship the work to another thread which will has it own stack

1. string intern?
2. alternative of inheritance? Delegation
3. why not design all listener in flex as strong reference?
4. how to communication between 2 flex app?
5. how to keep flex app data fresh? Meaning each time it has fresh data
6. what is different as stoppropagation and stopproppogationimmediate?
7. why string design as immutable? Safety in multithread,

## The main reason why String made immutable was security.

1. hashset, hashMap ‘s sorting function?

<http://stackoverflow.com/questions/18648521/how-is-this-hashset-producing-sorted-output>

NOTE: hashSet is back up by hashMap, but hashSet just save object as key in hashmap, so in hashSet , the value is arbitrary for the saved key.

1. hashMap and currentHashMap difference?

<http://stackoverflow.com/questions/1378310/performance-concurrenthashmap-vs-hashmap>

<http://www.codercorp.com/blog/java/why-concurrenthashmap-is-better-than-hashtable-and-just-as-good-hashmap.html>

1. what is weak reference? Soft reference? Difference?

Where to use weakreference? Soft referecen?

* + - 1. Use data to build another object, the data can be saved in the weakhashmap to implement a resource free cache builder
      2. Use weakreference in listener for object reference.
      3. Use softreference for expensive cache holder/loader, it stays longer enough but with out cause out of memory error.

It is guaranteed though that all SoftReferences will get cleared before OutOfMemoryError is thrown, so they theoretically can't cause an OOME[\*].

<http://stackoverflow.com/questions/299659/what-is-the-difference-between-a-soft-reference-and-a-weak-reference-in-java>

<http://stackoverflow.com/questions/154724/when-would-you-use-a-weakhashmap-or-a-weakreference>

class wrapper{

public Object O = new Object();

}

WeakRefernce wO= new WeakRefernce(wrapper.O);

So once the wrapper get GC, the wO has no reason to stay.

what is canonical java instance?

<http://stackoverflow.com/questions/280107/what-does-the-term-canonical-form-or-canonical-representation-in-java-mean>

1. What is difference between mutex and semaphore?

<http://stackoverflow.com/questions/771347/what-is-tmutex-and-semaphore-in-java-what-is-the-main-difference>

1. What is cachethreadpool, fixedthreadpool?

<http://stackoverflow.com/questions/949355/newcachedthreadpool-v-s-newfixedthreadpool>

1. What is distributed cache?\

<http://java.dzone.com/articles/process-caching-vs-distributed>

<http://stackoverflow.com/questions/649398/java-distributed-cache-for-low-latency-high-availability>

1. <https://forums.oracle.com/forums/thread.jspa?messageID=1812597>

<http://stackoverflow.com/questions/234622/how-to-use-explain-plan-to-optimize-queries>

<http://www.oracle.com/technetwork/database/bi-datawarehousing/twp-explain-the-explain-plan-052011-393674.pdf>

 look for steps in the plan that are going through way more bytes or more rows than you'd guess. Then think about how you can reduce that number... via an index or partitioning.

1. <http://www.techtamasha.com/difference-between-string-and-stringbufferstringbuilder-in-java/28>
2. [http://ubuntuforums.org/archive/index.php/t-.html](http://ubuntuforums.org/archive/index.php/t-344184.html)344184
3. <http://stackoverflow.com/questions/578904/how-do-synchronized-static-methods-work-in-java>

<http://stackoverflow.com/questions/10119787/optimistic-locking-in-hibernate-by-default>

<http://turgaykivrak.wordpress.com/2009/05/16/72/>

<http://stackoverflow.com/questions/18759095/is-hibernate-using-pessimistic-or-optimistic-locking>

http://javacompleteexamples.blogspot.com/2009/07/how-db-locking-system-works-in.html

1. <http://stackoverflow.com/questions/104184/is-it-safe-to-get-values-from-a-java-util-hashmap-from-multiple-threads-no-modi>
2. <http://stackoverflow.com/questions/104184/is-it-safe-to-get-values-from-a-java-util-hashmap-from-multiple-threads-no-modi>
3. **will threads be reused/recreated or recycled in thread pool. Reused in fixedthread pool, recreated in cachedthreadpool**

<http://thecafetechno.com/tutorials/java-core/difference-between-fixedthreadpool-and-cachedthreadpool/>

<http://stackoverflow.com/questions/1800317/impossible-to-make-a-cached-thread-pool-with-a-size-limit>

<http://stackoverflow.com/questions/2001086/how-to-make-threadpoolexecutors-submit-method-block-if-it-is-saturated>

https://today.java.net/pub/a/today/2008/10/23/creating-a-notifying-blocking-thread-pool-executor.html

<http://thecafetechno.com/tutorials/java-core/3-ways-to-create-thread-in-java/>

<http://stackoverflow.com/questions/18225673/what-is-the-use-of-allowcorethreadtimeout-in-threadpoolexecutor>

1. <http://stackoverflow.com/questions/13481966/is-there-a-way-to-put-tasks-back-in-the-executor-queue>
2. <http://stackoverflow.com/questions/5102519/how-to-use-scheduledexecutorservice-in-java-to-call-a-callable-implementation-at>
3. http://stackoverflow.com/questions/1679579/removing-all-queued-tasks-of-an-threadpoolexecutor
4. **executor.**
5. **Concurrent collections**
6. **Thread dead lock detection. use thread dump.  How to generate the thread dump.**
7. **Rehypothycation. Percentage of client long, Prime brokerage can use.**
8. **What is a distributed system. Why we need a distributed system.**
9. **What is an interface. The difference between an interface and an abstract class.**

<http://stackoverflow.com/questions/1913098/what-is-the-difference-between-an-interface-and-abstract-class>

1. **Time difference of accessing Linked list and array list. The access time for Linked list is linear. double linked list has 2 heads. The worst case happens when the value we look for is in the middle. So the graph is like ^ shape the access time for array list is constant. So the graph is like – shape**
2. **What will happen for different JMS transaction and acknowledgement combinations.**

<http://www.atomikos.com/Publications/ReliableJmsWithTransactions>

1. What is advantage and disadvantage on hibernate?

<http://stackoverflow.com/questions/7642620/advantages-and-disadvantages-of-detached-object-in-hibernate>

<https://community.jboss.org/wiki/OpenSessionInView?_sscc=t>

<http://www.careerride.com/Hibernate-transient-vs-detached-objects.aspx>

1. How to make message in order in MQ?

Use ThreadPoolExecutor and initialize priorityblokingQueue with future task implements comparable in threadpoolexecutor constructor.

Each task with comparable interface will be handled by threadpoolexecutor concurrently and in the order, each task run() method will send a message , so the message will be ordered. the list of tasks will be sent to thread pool submit() method by looping which means concurrently running.

* 1. Priority blocking queue must be instantiate comparator class
  2. Create custome future task which priority and implements RUnnableFuture
  3. Override the newTaskFor（）of executor to create new wrapper future task to wrap the custome priority future task so that task used in the queue

This is only override the one method of executor.

* protected <V> RunnableFuture<V> newTaskFor(Callable<V> c) {
* //Override the default FutureTask creation and retrofit it with
* //a custom task. This is done so that prioritization can be accomplished.
* return new CustomFutureTask(c);
* }

1. make sure the size of core thread is 0, max size is 1, and queue size is large than tasks number

wrong, we don’t need 5, as long as the wrapped tasks are prioritized when in threadpool, because on matter what, all tasks must be first put into queue then submit to thread for run.

1. There are some inherent limitations to this mechanism. For instance, the first runnable/callable passed to the executor doesn't go in the queue. Thus the priority mechanism will only apply when tasks are queued, and this happens when the number of current runners is exceeds the number of max thread in the pool size (here 1). –  [Snicolas](http://stackoverflow.com/users/693752/snicolas) [May 20 '13 at 16:03](http://stackoverflow.com/questions/807223/how-do-i-implement-task-prioritization-using-an-executorservice-in-java-5#comment23955014_9446753)

6 is wrong.

<http://stackoverflow.com/questions/3198660/java-executors-how-can-i-set-task-priority>

http://stackoverflow.com/questions/807223/how-do-i-implement-task-prioritization-using-an-executorservice-in-java-5Serializble uid?

<http://stackoverflow.com/questions/3545623/how-to-implement-priorityblockingqueue-with-threadpoolexecutor-and-custom-tasks>

JDK 6 corrects this omission by providing new newTaskFor methods in AbstractExecutorService that let you control how the submitted tasks are wrapped, and thus let you [return](http://stackoverflow.com/questions/807223/how-do-i-implement-task-prioritization-using-an-executorservice-in-java-5) instances that are Comparable and can be easily ordered by a custom PriorityQueue

http://stackoverflow.com/questions/16693307/priorityqueue-and-priorityblockingqueue

1. VC log
2. <http://www.behance.net/gallery/100-answers-to-100-common-interview-questions/817299>
3. <http://javarevisited.blogspot.com/2012/11/difference-between-treeset-hashset-vs-linkedhashset-java.html>
4. <http://javarevisited.blogspot.sg/2012/02/fail-safe-vs-fail-fast-iterator-in-java.html>
5. http://javarevisited.blogspot.com/2012/02/why-wait-notify-and-notifyall-is.html
6. http://java67.blogspot.com/2012/08/difference-between-treemap-and-treeset-java.html
7. <http://stackoverflow.com/questions/1055243/is-a-java-hashmap-really-o1>

TreeSet provides guaranteed O(log(n)) time for common operations like add, remove and contains, while HashSet and LinkedHashSet [offer](http://javarevisited.blogspot.com/2012/11/difference-between-treeset-hashset-vs-linkedhashset-java.html) constant time performance e.g. O(1) for add, contains and remove given hash function uniformly distribute elements in bucket.

Hashmap is O(1) for lookup,retrieve.

In hashmap, hashcode collisions don't prevent the container from having o(1) operations, as long as the average number of keys per bucket remains within a fixed bound.

All the choice depends on what you would want to do with that collection of data. They performs differently on different action.

For example, an indexed (not lookup) access in ArrayList is O(1), in HashSet (though not meaningful) is O(n), (just for your interest, in LinkedList is O(n), in TreeSet is O(nlogn) )

For adding new element, both ArrayList and HashSet is O(1) operation. Inserting in the middle is O(n) for ArrayList, while it doesn't make sense in HashSet. Both will suffer from reallocation, and both of them need O(n) for the reallocation (HashSet is normally slower in reallocation, because it involve calculation of hash for each element again).

To find if certain element exists(not by index) in the collection, ArrayList is O(n) and HashSet is O(1).

Arraylist linkedList HashMap hashSet treeSet

Lookup by index o(1) o(n) o(n) o(n) o(nlogn)

Lookup by value o(n) o(n) o(1) o(1) o(logn)

Add/remove o(1) o(1) o(1) o(1) o(logn)

Insert between o(n) o(1)

To arraylist and linkedlist see :

<http://stackoverflow.com/questions/322715/when-to-use-linkedlist-over-arraylist>

http://stackoverflow.com/questions/200384/constant-amortized-time

Read more: <http://javarevisited.blogspot.com/2012/11/difference-between-treeset-hashset-vs-linkedhashset-java.html#ixzz2yA4v7mnT>

http://stackoverflow.com/questions/13863506/why-doesnt-java-util-hashset-have-a-getobject-o-method

1. <http://java67.blogspot.com/2012/08/difference-between-hashset-and-treeset-java.html>
2. <http://stackoverflow.com/questions/18706870/java-hashset-vs-array-performance>
3. <http://stackoverflow.com/questions/1746219/java-access-local-variables-from-anon-inner-class-priorityqueue>
4. <http://docs.oracle.com/javase/tutorial/collections/interfaces/set.html>
5. <http://www.digizol.com/2008/07/java-sorting-comparator-vs-comparable.html>
6. <http://stackoverflow.com/questions/948194/difference-between-java-enumeration-and-iterator>
7. [**http://javarevisited.blogspot.com/2011/04/top-20-core-java-interview-questions.html**](http://javarevisited.blogspot.com/2011/04/top-20-core-java-interview-questions.html)
8. [**http://javarevisited.blogspot.com/2011/05/wait-notify-and-notifyall-in-java.html**](http://javarevisited.blogspot.com/2011/05/wait-notify-and-notifyall-in-java.html)

the condition check and the wait/notify must be atomic.Or some condition is true, but when you invoke notify/wait,the condition has changed.   
  
  
Read more: <http://javarevisited.blogspot.com/2011/05/wait-notify-and-notifyall-in-java.html#ixzz309Ug6suj>

1. [**http://javarevisited.blogspot.sg/2011/10/how-substring-in-java-works.html**](http://javarevisited.blogspot.sg/2011/10/how-substring-in-java-works.html)
2. [**http://javarevisited.blogspot.com/2011/09/javalangoutofmemoryerror-permgen-space.html**](http://javarevisited.blogspot.com/2011/09/javalangoutofmemoryerror-permgen-space.html)
3. [**http://javarevisited.blogspot.sg/2011/07/java-multi-threading-interview.html**](http://javarevisited.blogspot.sg/2011/07/java-multi-threading-interview.html)

[**http://stackoverflow.com/questions/930915/which-java-thread-is-hogging-the-cpu**](http://stackoverflow.com/questions/930915/which-java-thread-is-hogging-the-cpu)

**or use ThreadMXBean**

**http://stackoverflow.com/questions/1649133/what-is-the-benefit-of-threadgroup-in-java-over-creating-separate-threads**

1. [**http://javarevisited.blogspot.com/2011/03/10-interview-questions-on-singleton.html**](http://javarevisited.blogspot.com/2011/03/10-interview-questions-on-singleton.html)
2. **http://stackoverflow.com/questions/12295824/create-heap-dump-from-within-application-without-hotspotdiagnosticmxbean**
3. [**http://stackoverflow.com/questions/6994393/singleton-how-to-stop-create-instance-via-reflection**](http://stackoverflow.com/questions/6994393/singleton-how-to-stop-create-instance-via-reflection)
4. [**http://stackoverflow.com/questions/1168348/java-serialization-readobject-vs-readresolve**](http://stackoverflow.com/questions/1168348/java-serialization-readobject-vs-readresolve)
5. [**http://javarevisited.blogspot.com/2012/07/why-enum-singleton-are-better-in-java.html**](http://javarevisited.blogspot.com/2012/07/why-enum-singleton-are-better-in-java.html)
6. **http://stackoverflow.com/questions/427902/what-is-the-best-approach-for-using-an-enum-as-a-singleton-in-java**
7. [**http://stackoverflow.com/questions/2912281/thread-safety-in-singleton**](http://stackoverflow.com/questions/2912281/thread-safety-in-singleton)
8. [**http://stackoverflow.com/questions/2531873/how-thread-safe-is-enum-in-java**](http://stackoverflow.com/questions/2531873/how-thread-safe-is-enum-in-java)
9. **http://codereview.stackexchange.com/questions/27296/is-this-correct-implementation-of-singleton-using-enum**
10. **http://stackoverflow.com/questions/16851377/instantiate-enum-class**
11. **http://programmers.stackexchange.com/questions/150115/why-would-one-ever-want-to-use-a-synchronized-method-in-enum**
12. **http://stackoverflow.com/questions/12295824/create-heap-dump-from-within-application-without-hotspotdiagnosticmxbean**

I read it in SCJP for Java 6 book by Kathy Sierra page 434. I am copying and pasting same here..  
  
----------------------  
String s = "abc";   
  
// creates one String object and one reference variable. In this simple case, "abc" will go in the pool and s will refer to it.  
  
  
String s = new String("abc");   
  
// creates two objects, and one reference variable. In this case, because we used the new keyword, Java will create a new String object  
in normal (nonpool) memory, and s will refer to it. In addition, the literal "abc" will  
be placed in the pool.  
  
Read more: <http://javarevisited.blogspot.com/2011/04/top-20-core-java-interview-questions.html#ixzz2zCHpdlWB>

1. <http://javarevisited.blogspot.sg/2011/07/java-multi-threading-interview.html>

<http://javarevisited.blogspot.sg/2012/02/what-is-race-condition-in.html>

1. <http://stackoverflow.com/questions/8025878/what-is-the-advantage-of-new-lock-interface-over-synchronized-block-in-java>

you may of course interrupt a thread blocked waiting for an intrinsic monitor, but the thread won't be responsive to the interruption. That's what I meant: the interrupt method will be called, but the thread won't be able to interrupt itself until it acquires the lock

1. <http://stackoverflow.com/questions/7599608/how-to-analyze-a-java-thread-dump>

1.thread id, native thread id, thread state, the lock notification where ‘waiting on’ happens

1. <http://stackoverflow.com/questions/15052317/whats-the-difference-between-executor-and-executorservice>
2. http://stackoverflow.com/questions/6155951/difference-between-deadlock-and-livelock
3. <http://javarevisited.blogspot.sg/2012/02/what-is-blocking-methods-in-java-and.html>
4. <http://javarevisited.blogspot.com/2011/06/volatile-keyword-java-example-tutorial.html>
5. <http://stackoverflow.com/questions/6662539/java-thread-exceptions>

caught exception can be handled by Command pattern, and uncaughtException can be handled by uncaughtExceptionHandler

1. <http://java-success.blogspot.com/2012/03/java-5-executor-framework-why-use.html>
2. http://stackoverflow.com/questions/19528304/how-to-get-the-threadpoolexecutor-to-increase-threads-to-max-before-queueing
3. [**http://stackoverflow.com/questions/2104676/java-executor-best-practices**](http://stackoverflow.com/questions/2104676/java-executor-best-practices)

a.In the infinite loop, catch Errors too, not just exceptions. Sometimes unexcepted things happen and Java throws an Error at you, not an Exception.

Use a back-off switch, so if something goes wrong and is non-recoverable, you don't escalate the situation by eagerly starting another loop. Instead, you need to wait until the situation goes back to normal and then start again.

1. <http://java-success.blogspot.com/2012/03/java-5-executor-framework-why-use.html>
2. <http://www.fromdev.com/2012/02/java-interview-question-answer.html>
3. http://www.fromdev.com/2008/05/java-collections-questions.html
4. <http://java.dzone.com/articles/top-10-causes-java-ee>
5. <http://www.theserverside.com/news/thread.tss?thread_id=45187>
6. <http://java.dzone.com/articles/introduction-spring-aop>
7. <http://stackoverflow.com/questions/1055243/is-a-java-hashmap-really-o1>
8. <http://stackoverflow.com/questions/2307283/what-does-olog-n-mean-exactly>
9. <http://stackoverflow.com/questions/14661036/is-thread-starvation-deadlock-happening-here-in-the-codes>
10. What is agile and test-driven development?

<http://agilemethodology.org/>

Agile development methodology provides opportunities to assess the direction of a project throughout the development lifecycle. This is achieved through regular cadences of work, known as sprints or iterations, at the end of which teams must present a potentially shippable product increment. By focusing on the repetition of abbreviated work cycles as well as the functional product they yield, agile methodology is described as “iterative” and “incremental.” In waterfall, development teams only have one chance to get each aspect of a project right. In an agile paradigm, every aspect of development — requirements, design, etc. — is continually revisited throughout the lifecycle. When a team stops and re-evaluates the direction of a project every two weeks, there’s always time to steer it in another direction.

The results of this “inspect-and-adapt” approach to development greatly reduce both development costs and time to market. Because teams can develop software at the same time they’re gathering requirements, the phenomenon known as “analysis paralysis” is less likely to impede a team from making progress. And because a team’s work cycle is limited to two weeks, it gives stakeholders recurring opportunities to calibrate releases for success in the real world. Agile development methodology helps companies build the right product. Instead of committing to market a piece of software that hasn’t even been written yet, agile empowers teams to continuously replan their release to optimize its value throughout development, allowing them to be as competitive as possible in the marketplace. Development using an agile methodology preserves a product’s critical market relevance and ensures a team’s work doesn’t wind up on a shelf, never released.

<http://www.agiledata.org/essays/tdd.html>

test - driven

When you first go to implement a new feature, the first question that you ask is whether the existing design is the best design possible that enables you to implement that functionality. If so, you proceed via a TFD approach.  If not, you refactor it locally to change the portion of the design affected by the new feature, enabling you to add that feature as easy as possible. As a result you will always be improving the quality of your design, thereby making it easier to work with in the future. - See more at: http://www.agiledata.org/essays/tdd.html#sthash.D24CxhX3.dpuf

1. how to sort elements in collection?

Collection.sort(), array.sort()

<http://stackoverflow.com/questions/6957631/sort-java-collection>

1. Refection in java
2. Why wait(), notify() is on Object not on thread class?
3. How to avoid Dirty data read in database?

<http://stackoverflow.com/questions/2471055/why-use-a-read-uncommitted-isolation-level>

user pessimistic lock in hibernate

1. Xpath
2. Observable , observer pattern
3. Outer join, materialized view?

<http://stackoverflow.com/questions/38549/difference-between-inner-and-outer-join>

http://en.wikipedia.org/wiki/Materialized\_view

1. Wirte sql to query the first 2 results?

<http://stackoverflow.com/questions/9545637/sql-order-by-count>

and use top(), rownum?

1. <http://stackoverflow.com/questions/3376586/how-to-start-two-threads-at-exactly-the-same-time>
2. <http://stackoverflow.com/questions/3243803/java-concurrency-in-practice-listing-14-9-explanation>
3. <http://stackoverflow.com/questions/4168772/java-concurrency-countdown-latch-vs-cyclic-barrier>
4. <http://javarevisited.blogspot.com/2012/07/cyclicbarrier-example-java-5-concurrency-tutorial.html>
5. <http://www.javamex.com/tutorials/threads/CyclicBarrier_error_handling.shtml>

interruptedException before calling await() , this cause await() returns with interruption.

1. <http://stackoverflow.com/questions/8620158/electing-a-thread-for-barrier-action-execution-java-cyclicbarrier>

the barrier ‘s runnable action is run once per barrier point, after the last thread in the party arrives, but before any threads are released. i.e. not return from await() .

It means it runs before any await() returns in all waiting threads. Means all waiting thread still wait untill it start to run, yet be care of all threads don’t need to wait it finish.

If the barrier action does not rely on the parties being suspended when it is executed, then any of the threads in the party could execute that action when it is released. To facilitate this, each invocation of await() returns the arrival index of that thread at the barrier. You can then choose which thread should execute the barrier action, for example:

is run once per barrier point, after the last thread in the party arrives, but before any threads are released

So, while the threads are suspended (although since it's run by the last thread to arrive, that one isn't suspendd; but at least its normal flow of execution is suspended until the barrier action finishes).

So looks like the barrier runnable action is executed by the last arrived thread, it is not true by the example provided by <http://www.javamex.com/tutorials/threads/CyclicBarrier_error_handling.shtml>

In the second example, the error code is exact used to check which thread is the controller thread which running the barrier action runnable. The one which error code was set is the thread.

### Error in the result amalgamation Runnable

There's actually a race condition that we haven't dealt with in the above code. When the last thread to get to the barrier calls the await()method, the barrier's Runnable (if any) is run *before* the await() method returns. If an unchecked exception is thrown by that Runnable, then the barrier is broken— in other words, other waiting threads potentially signalled— *before* that exception is thrown up to the caller of await(). In other words, **the controller thread could be awoken *before* the error variable has been set**.

To get round this problem, albeit in a slightly inelegant way, we can set *another* variable specially for errors that occur inside the Runnable. So that method looks as follows:

1. <http://www.quora.com/Java-Platform-Enterprise-Edition-1/What-are-the-areas-in-Core-Java-an-Architect-should-have-a-deep-grasp-upon>
2. <http://stackoverflow.com/questions/14762649/java-ee-replacement-for-scala>
3. <http://www.akkaessentials.in/2012/12/adding-turbchargers-to-jee-apps.html>
4. <https://devcenter.heroku.com/articles/scaling-out-with-scala-and-akka>
5. Spring instance scope?
6. Why prime number used to generate hashcode?
7. Builder in multithread ?
8. <http://www.benstopford.com/sample-answers-are-you-an-hpc-architect/>
9. How hashcode () implements default?
10. <http://stackoverflow.com/questions/15130764/what-is-the-default-implementation-of-hashcode>
11. Jvm memory structure?
12. How to clone big object? Visitor?
13. How to implemenet hashmap?
14. What is substring implemented?
15. Blocking queue and produce/consumer pattern implemention?
16. How concurrentmodificationexcepion implementation? How fail first implementation?
17. When and where to use distributed transcation API?
18. Grid server total: 10 phisical machine linux, 158 engines, 14 engine instance for per machine, one has 32 engines running, cpu: total is 384, each machins has 32 cpu, one has 96 cpu, total RAM 354 GB
19. <http://stackoverflow.com/questions/5547663/java-final-method-what-promises-it>
20. <http://stackoverflow.com/questions/11097369/lazy-class-instance-creation-and-initialization-via-proxy-in-spring>

Proxy: The problem is that proxy itself is an instance of your class. So Sptring creates proxy for NewClass - descendant of NewClass.

So proxy must be defined as the descendant of some interface, that way , in proxybeanfactory, the constructor of descendant of interface will be called , because the constructor is the one defined in Object object , so no real instance will be created until you call the method of real instance which implements the interface.

1. <http://stackoverflow.com/questions/19480462/why-does-spring-initialize-the-instances-as-singletons-what-are-some-reasons-th>
2. <http://stackoverflow.com/questions/15516769/spring-autowire-two-beans-of-the-same-class-which-are-not-defined-in-applicatio>
3. AOP interception category?
4. How serialization work when retrieve object from stream?

Use reflection

http://www.onlamp.com/pub/a/onjava/excerpt/JavaRMI\_10/index.html?page=5

<http://www.java-questions.com/Serialization_interview_questions.html>

difference between Serializble and Externalizable ?

Externalization gets rid of some of this. It writes out the identity of the class (which boils down to the name of the class and the appropriate serialVersionUID). It also stores the superclass structure and all the information about the class hierarchy. But instead of visiting each superclass and using that superclass to store some of the state information, it simply calls writeExternal( )on the local class definition. In a nutshell: it stores all the metadata, but writes out only the local instance information.

1. How singleton work in multithread environment ? it is loaded by different class loader, it can co exist in different class loader not in VM

<http://stackoverflow.com/questions/11072262/singleton-multithreading-in-java>

The basic difference is that with the wrapper class version, the singleton instance is created when the wrapper class is loaded, which when the first call the getInstance() is made, but with the non-wrapped version - ie a simple static initialization - the instance is created when the main class is loaded.

1. How to clone object if cant obtain source code of it?

Use reflection to obtain information and pass them to builder to create object.

http://stackoverflow.com/questions/2156120/java-recommended-solution-for-deep-cloning-copying-an-instance

1. How to tune performance in case of big data in memory?
   * + 1. Use weakreference or soft reference
       2. Use flyweight pattern to reduce the common information in difference instance
       3. Use distributed cache.

1. <http://stackoverflow.com/questions/3222512/thread-safe-hash-map>
2. <http://stackoverflow.com/questions/1770166/is-concurrenthashmap-get-guaranteed-to-see-a-previous-concurrenthashmap-put>
3. <http://www.benstopford.com/sample-answers-are-you-an-hpc-architect/>
4. <http://stackoverflow.com/questions/13186941/printing-level-order-binary-search-tree-formatting>
5. <http://stackoverflow.com/questions/10117136/traversing-a-binary-tree-recursively>
6. <http://stackoverflow.com/questions/17721263/singleton-across-jvm-or-application-instance-or-tomcat-instance>

singleton in different jvm or in classloader

1. Spring bean lifecycle and how to modify bean property after it is just initialized?

<http://howtodoinjava.com/2013/05/07/spring-bean-life-cycle/>

* Spring instantiates bean calling its constructor
* postProcessBeforeInitialization(Object bean, String beanName) is called
* bean initialization process:  afterPropertiesSet() (defined by the InitializingBean callback interface), @PostConstruct, custom configured init method
* postProcessAfterInitialization(Object bean, String beanName) is called

implement [BeanPostProcessor](http://static.springsource.org/spring/docs/2.5.x/api/org/springframework/beans/factory/config/BeanPostProcessor.html) to build a service that applies to all beans in the context as they are created.

<http://stackoverflow.com/questions/13409332/difference-between-call-back-method-and-bean-post-processor-in-spring-framework>

http://stackoverflow.com/questions/9761839/beanpostprocessor-confusion

3ways, initialzingBean , and Bean Post Processor interfaces , post Construct annotation

1. How to write 2 threads, one produce odd number and one produce even, then make the result sequential?

User one reentrantLock with two Conditions, one for evenCondition ， one for oddCondition to <http://stackoverflow.com/questions/10770419/multiple-calls-to-countdownlatch-awaitint-with-timeout>

handle 2 threads to produce numbers.

1. <http://stackoverflow.com/questions/6621303/how-do-i-lock-read-write-to-mysql-tables-so-that-i-can-select-and-then-insert-wi>
2. Difference between inheritance and delegation?
3. What is advantage of command pattern?

<http://stackoverflow.com/questions/6293171/i-dont-understand-why-a-command-pattern-is-convenient-in-object-oriented-design>

2 decouples happening: , 1 is to decouple sender and receiver 2 is to decouple the receiver and the operation encapsulated in the Command object.

1. How to find duplicate item in list?

1.http://stackoverflow.com/questions/7281352/finding-duplicate-values-in-arraylist

2. sum the number up, the difference is the sum1-sum2

1. <http://stackoverflow.com/questions/8490852/spring-transactional-isolation-propagation>
2. <http://www.dwbiconcepts.com/tutorial/24-interview-questions/190-top-20-sql-interview-questions-with-answers.html>
3. <http://www.indiabix.com/technical/sql-server-common-questions/>
4. <http://www.katieandemil.com/sql-interview-questions-and-answers>
5. <http://crackaninterview.com/sql-queries-interview-questions-answers/>
6. http://javarevisited.blogspot.com/2012/12/how-to-find-duplicate-records-in-table-mysql-query-example.html
7. <http://java67.blogspot.com/2013/04/10-frequently-asked-sql-query-interview-questions-answers-database.html>
8. <http://javadecodedquestions.blogspot.com/2013/01/database-interview-questions-for-java.html>
9. <http://stackoverflow.com/questions/823612/using-type-on-a-record-field-in-pl-sql>
10. <http://stackoverflow.com/questions/93539/what-is-the-difference-between-views-and-materialized-views-in-oracle>
11. <http://stackoverflow.com/questions/17759687/cross-join-vs-inner-join-in-sql-server-2008>
12. <http://www.tutorialspoint.com/jdbc/jdbc_interview_questions.htm>
13. <http://stackoverflow.com/questions/6087728/what-is-difference-between-setmaxresults-and-setfetchsize-in-org-hibernate-query>
14. <http://stackoverflow.com/questions/8823151/how-to-free-memory-after-fetching-data-via-jdbc>
15. <http://java-success.blogspot.com/2011/10/sql-interview-questions-and-answers.html>
16. <http://java-success.blogspot.com/2013/04/sql-interview-questions-and-answers.html>
17. <http://java-latte.blogspot.com/2013/09/exchanger-in-java-concurrency.html>
18. <http://www.benstopford.com/tag/datasynapse/>
19. <http://blog.griddynamics.com/2008/02/data-aware-routing-datasynapse_14.html>
20. <http://www.freepatentsonline.com/y2008/0313345.html>
21. <http://www.benstopford.com/sample-answers-are-you-an-hpc-architect/>
22. <http://www.hpcwire.com/2006/04/10/the_other_side_of_grid_computing_-_an_edf_approach/>
23. <http://javarevisited.blogspot.com/2012/07/hibernate-get-and-load-difference-interview-question.html>

get() if objet is in session cache, then return it as initialized, if object is not in cache, then hit database.

Load（）return proxy for the first time and save it in cache, It will always return a “proxy” (Hibernate term) without hitting the database.  
In Hibernate, proxy is an object with the given identifier value, its properties are not initialized yet, it just look like a temporary fake object.  
It will always return a proxy object with the given identity value, even the identity value is not exists in database. However, when you try to initialize a proxy by retrieve it’s properties from database, it will hit the database with select statement. If no row is found, a ObjectNotFoundException will throw.  
session.get() :  
It always hit the database(if not found in cache) and return the real object, an object that represent the database row, not proxy.  
If no row found , it return null.http://stackoverflow.com/questions/608947/hibernate-difference-between-session-get-and-session-load

1. <http://javarevisited.blogspot.fr/2011/09/spring-interview-questions-answers-j2ee.html>
2. http://javarevisited.blogspot.sg/2012/03/spring-security-example-tutorial-how-to.html
3. <http://stackoverflow.com/questions/13976758/java-serialization-data-mismatch>
4. How to detect data discrenpency between cache and the one in database?

Reload it data from database, each value in cache implements validation() method interface, this method is to compare the current value with the one from database, if not match , fire some discrepancy event to notify.

1. <http://stackoverflow.com/questions/3964211/when-to-use-atomicreference-in-java>

use the returned Boolean to check whether the value has been changed or not by other operations, the checking will work even in mutil-thread environment.

1. <http://stackoverflow.com/questions/4818699/practical-uses-for-atomicinteger>

the beauty of AtomicInteger is that the thread-safety is built into the actual object itself, rather than you needing to worry about the possible interleavings,

1. how garbage collector get run? Or memory root?

<http://javarevisited.blogspot.com/2011/04/garbage-collection-in-java.html>

if an application has too many short lived object then making Eden space wide enough or larger will reduces number of minor collections. you can also control size of both young and Tenured generation using **JVM** **parameters**for example setting -XX:NewRatio=3 means that the ratio among the young and tenured generation is 1:3 , you got to be careful on sizing these generation. As **making young generation larger will reduce size of tenured generation which will force Major collection** to occur more frequently which pauses application thread during that duration results in degraded or reduced throughput. T  
  
As a fall back, if the **concurrent garbage collector** is unable to finish before the tenured generation fill up, the application is paused and the collection is completed with all the application threads stopped. Such Collections with the application stopped are referred as **full garbage collections** or **full GC** and are a sign that some adjustments need to be made to the concurrent collection parameters  
  
Java doesn't count references: it goes thru the live objects graph starting from roots and mark it, all other objects that aren't accessible via roots marked as garbage and are eligible for collection.  
  
Both Serial Garbage collector and Parallel Garbage collector or Throughput GC are Stop the world GC, it means application thread stopped when Garbage collection happens. Only difference between Serial Garbage Collection and Parallel (Throughput GC) is that in Serial both Young Generation (Eden Space + survivor) or minor collection and full GC (major collection) happens serially which introduced larger pause time while in case of Parallel GC minor collection and major collection happens in parallel which results in lower or reduced pause time. Another worth noting difference between parallel and serial GC is that former is more suited for Servers written in Java while later is best suited for Client application with lesser heap size.   
  
On the other hand Java now has two concurrent Garbage collector as well 1) CMS (Concurrent mark sweep) and Garbage first (G1) Garbage collector which is introduced in Java 7. Both CMS and G1 are concurrent collector as oppose to stop the world Parallel GC and most of there operation performed in parallel of Application thread to further reduce application pause time but that require more overhead in terms of larger heap space because actual freeing of space require more time. By the way G1 Garbage collector is introduced as replacement of CMS GC and it employes different algorithm for garbage collection like it divide whole space in different region and target region which has most Garbage on it. that's why known as Garbage first.  
It's important to choose right kind of Garbage collector based upon your application need. Concurrent Mark Sweep (CMS) or G1 Garbage collector are more suited for high response time java application like Web Servers.  
  
1) Difference between Serial Garbage collector and Parallel Garbage Collector?  
2) What is ConcurrentMarkSweep Garbage Collector, Can you explain how Concurrent Mark Sweep GC works?  
3) What is Garbage collection tuning ?  
4) What is difference between major collection and minor collection in GC ?  
5) Can we run Garbage collector explicitly? How do you recognize full garbage collection because of Runtime.gc() or System.gc()  
6) What is difference between CMS and G1 garbage collector?  
7) What is Eden space in Heap?  
8) Have you ever done Garbage collection tuning? What are the heap sizes you have used?  
9) have you used -XX:+UseCompressedOops in 64 bit JVM? why you should use it?  
10) Can you extend Garbage Collection mechanism to provide your own Garbage collector ?

concurrent-Mark-Sweep collector is most popular garbage collector of Java. CMS collector is popular for its better throughput and less pause time. Because for many applications, end-to-end throughput is not as important as fast response time. For example gaming applications need fast response time to make their gaming experience better, if any game hang for a second only, it lost its charm. As you know young generation collections do not typically cause long pauses, because of its small size and less amount of live objects survived. However, old generation collections is uncertain, can impose long pauses, especially when large heaps are involved. To address this issue, the Java HotSpot JVM includes a collector called the concurrent-mark-sweep (CMS) collector, also known as the low-latency collector  
  
To read more click here http://www.somanyword.com/2014/01/concurrent-mark-sweep-cms-garbage-collector-in-java/  
  
<http://javarevisited.blogspot.com/2012/10/10-garbage-collection-interview-question-answer.html>

<http://javarevisited.blogspot.sg/2011/05/java-heap-space-memory-size-jvm.html>

<http://javarevisited.blogspot.com/2012/10/10-garbage-collection-interview-question-answer.html>

<http://java.dzone.com/articles/how-tame-java-gc-pauses>

Remember you are not using young space for your data, but for garbage only. You should always size old space to be large enough to hold all your application data plus some amount of floating garbage.

<http://engineering.linkedin.com/garbage-collection/garbage-collection-optimization-high-throughput-and-low-latency-java-applications>

# Reducing Garbage-Collection Pause Time

There are two general ways to reduce garbage-collection pause time and the impact it has on[application performance](http://javabook.compuware.com/content/memory/reduce-garbage-collection-pause-time.aspx):

* The garbage collection can itself can leverage the existence of multiple CPUs and be executed in parallel. Although the [application](http://javabook.compuware.com/content/memory/reduce-garbage-collection-pause-time.aspx) threads remain fully suspended during this time, the garbage collection can be done in a fraction of the time, effectively reducing the suspension time.
* The second approach is leave the application running, and execute garbage collection concurrently with the application execution.

a. create the objects as short-lived objects, so that they will die in young generation before the GC running.

b. avoid too small young generation size for application load, The bigger size of young generation will make the GC less frequent, but may increase the length of each GC, so have to find a good size of young generation size.

Remember you are not using young space for your data, but for garbage only. You should always size old space to be large enough to hold all your application data plus some amount of floating garbage.

c. reduce the allocated rate for objects,

Frequent young-generation GCs have two root causes:

1. A too-small young generation for the application load.
2. High churn rate

If the young generation is too small, we see a growing old generation due to prematurely tenured objects.

If too many objects are allocated too quickly (i.e., if there’s a high churn rate), the young generation fills up as quickly and a GC must be triggered. While the GC can still cope without overflowing to the old generation, it has to do so at the expense of the application’s performance.

d. reduce the amount of long-lived objects in old generation.

1. Is there difference when call GC.run() in your programe or let it call by JVM?

No difference.

1. What is abstract bean in Spring?

<http://stackoverflow.com/questions/9397532/what-is-meant-by-abstract-true-in-spring>

<http://stackoverflow.com/questions/19094782/spring-throws-the-error-bean-definition-is-abstract>

<http://stackoverflow.com/questions/17961257/injecting-property-using-value-to-abstract-class>

<http://stackoverflow.com/questions/5061218/spring-ioc-ensuring-all-beans-are-created-before-postconstruct-afterproperies>

<http://howtodoinjava.com/2013/05/07/spring-bean-life-cycle/>

afterPropertySet() and postContruct all are called after the object constructor was called and all properties have been set if not through contructor’s property setting. So the afterpropertySet() and postContruct are the only place can first place to use the bean’s properties.

1. What is deamon thread? How to simulate it in ThreadPoolExecutor() framework?

http://stackoverflow.com/questions/13883293/turning-an-executorservice-to-daemon-in-java

1. What is difference between sql exists and sql in ?

http://stackoverflow.com/questions/24929/difference-between-exists-and-in-in-sql

1. What is the difference between producer/consumer and publish/subscribe?

One is one to one, another is one to many, ie multicast.

1. What is sql temporar value?
2. How to delete duplicate row in table if million rows there?

http://www.dba-oracle.com/t\_delete\_duplicate\_table\_rows.htm

1. How to tune JVM? What is related to your application?

<http://stackoverflow.com/questions/564039/jvm-performance-tuning-for-large-applications>

1. <http://javabook.compuware.com/content/memory/how-garbage-collection-works.aspx>
2. <https://blog.codecentric.de/en/2012/08/useful-jvm-flags-part-5-young-generation-garbage-collection/>
3. <http://blog.csdn.net/linhuanmars/article/details/20525681>
4. Western asset:

    Providing a Message Bus in house would further make integration with many third party products (external data feeds, trading data etc.) much easier.

      ATP4.0 Project requires Real Time Market Data to be delivered to the Application in order to create real time blotter and act upon market data changes,

     Real Time Data Feeds can be distributed (given limited number of users 200-300) using a common API –

   JMS; Moving all trade notifications to a non Web Logic dependant layer, giving many other applications a chance to get notified about trading activity; Using a MOM allows us to decouple modules and improve scalability of our projects;

准备资料：  
leetcode + cc150 + Coursera 的 Algorithms, Part I. LZ其实1月5号左右才开始正  
儿八经准备面试，之前只是上过学校的算法课。不过简历是寒假就准备了的。  
  
准备顺序：   
1. cc150 基础部分（不包括 programming language， memory limit 和 OOD）。 筑  
基过程，非常中庸。  
  
2. leetcode 老80 道题。 LZ一开始以为leetcode就是 leetcode.com 不知道有oj 这  
么个东西，不过 老80道题有些题目真的非常经典，建议有空可以看看。  
  
3. leetcode oj，一共150道题，LZ是每一题都是自己独立做的，除了 string pattern  
类的题目，有一些是抄的。 但是这是绝对的错误，尤其是你去FB的话，string 类的  
题极其容易被考的，不信可以翻mitbbs记录。这也是最痛苦的过程。LZ建议不要干别的  
事这个时间，集中画2周到3周一题题突破。不要拖太长时间，因为你会发现时间越长越  
没动力。  
  
4.CC150 最后两章。LZ是在G 家第一轮面试前发现的这两章，当时吓出了一身冷汗。因  
为之前室友问过LZ自己面试遇到的难题都在这里面发现了，甚至一些比较偏门的也能在  
这发现。强烈建议练习，背诵！  
  
5. CC150 全书，这段时间也是LZ最迷茫的时候，因为不知道该做什么了。最后决定还  
是继续筑基。于是开始重做CC150.  
  
6. leetcode 130道题。如果你之前都是自己做的话，你会发现这个阶段你提高的非常  
明显。LZ 没写一道题都会发现 coding 风格比之前的更加简洁，并且做得更快，130题  
只用了一周多一点点就全部跑过了。  
  
7. Coursera 的Algorithms, Part I， Princeton Univ. 很多人都觉得 leetcode 刷  
通了就能进FLAG。 但是LZ觉得，不管是intern 还是 fulltime， leetcode对付 电面  
完全够了，但是onsite 就比较悬了，必须要从算法根本重新复习。所以LZ F家onsite  
之前花了2天看了公开课的所有视频，有些章节甚至看了两遍。LZ承认，自己onsite没  
用到，但是跟LZ一起onsite的一个CMU的哥们问到了 sparse vector multiplication，  
公开课的原题啊！  
  
基本上顺序就是这些，其实每次电面前三天LZ都会用google doc 敲一遍 CC150最后两  
章的重点题，因为实在是太经典了。之前的章节也会自己带着做一些。  
  
准备建议：   
1。 数据结构必须精通，甚至要回搭建自己简单的数据结构 比如hashmap， linklist  
之类的。   
2. CC150 是神书，最神奇的是最后两章，  
3. 不要浮躁的刷题，有时间多看一些算法课的视频，有些思想没准哪天你就会用到了。  
4. leetcode要练精，第一遍做的时候可以尝试多一些，第二次要尽量做到bug free，  
代码一次成型，这点非常重要。  
5. leetcode上一些复杂的DP其实考得很少，因为45分钟你很难做出来，（面试官当然  
会假设你没做过）而且面试官也不一定能确定你做的是对的。真正重要的就是一些  
string 类型的小题目。很简单，但是容易错，非常考验代码风格。  
6。 做题的时候就要保证代码规范，虽然只有F家注重这些，但是好的代码规范据说会  
加分哦。  
7. 只用写字板写代码，onsite 前可以找白板练练。  
8. coding 要老老实实地练，不管java 还是C++ ，leetcode总有人能跑过的，LZ自己  
就是Java 151/151. 所以，少抱怨些，多静下心来做做题。（如果你有跑不过的，可以  
给LZ留言，LZ可以把自己代码发给你参考下）。

1.What is your expected base salary? And why

*I’m really excited about the prospect of working for your company, so I’m willing to be flexible, but the number I had in mind was $XX. I think I’m worth this because of , Of course, salary is on the one hand, on the other hand, I also value this position can provide a platform for my career development in future.*

*当然工资是一方面，另一方面，我也看重这个职位所能提供的今后发展平台*

*a.15年来在花旗银行，德意志银行的工作上的积累，不止是技术上，在管理上有一些从实践中得来的***最佳实践方法,***心得和体会,*

*15 years working at Citigroup, Deutsche Bank's, gained solid work experiences, not just technically, but also in the management, these are the best practices, ideas and solving skills , come from daily work.*

*b.通过面试，了解到如果我在那个职位上，我的经验和技术会给汇丰银行带来一定的技术革新和改造，尤其是 grid computing 方面，可以减少开发费用，缩短时间，更好的满足客户的需求,* *我的技能，能力，expereicen方面，我期待着帮助汇丰达到目标*

*Through the interview, I learned ，If I were in that position ， my experience and technical skills will bring HSBC some technological innovation and transformation, especially in terms of grid computing , as a result, can reduce development costs and shorten the time to better meet customer needs.*

Experienced I have in the areas which company needs to grow, with my skills, abilities,motivation, I look forward to helping HSBC reach the goals.

*2.what is your bottom line? Why?*

*我没有底线，我相信因为通过面试，hsbc 对我的技术背景，工作经历，业务和管理技能已经有了基本的了解，作为大公司，hsbc一定也有自己的工资结构体系，所以HSBC提出一个合情合理的，有诚意的offer，我肯地会接受的。*

*I have no bottom line, I believe, through the interview, hsbc has good understanding on my technical background, work experience, management skills, especially* Experienced I have in the areas which company needs to grow, as a big company hsbc must also have its own compensation structure system ， *so if HSBC made ​​a reasonable, sincere offer, I would be willing to accept.*

*3.什么事一个合情合理的，有诚意的offer？*

*能满足双方利益的*

*To meet the interests of both sides*

*==================================================================*

福利：五险一金  
月度：80%基本工资+20%绩效工资+餐补+话补+车补等等  
年度：12月基本薪资+n月KPI奖金+m月年终奖金（m和n不一定都有，而且多数企业只讲个范围）  
涨薪：一年两次调薪考核，时间是每年的4月和10月。但是主要依据KPI完成情况，不保证人人普调。  
期权、股票：如有会详细说明计划。说会有但没有明确计划的，都是忽悠。

休假制度

the responsibilities are exactly in line with my skills and interest, and there is definite growth potential.

* 1. ask structue of compensation

what is base, afer review if get raise, it is based on base Or position level?

* 1. paid vacations how many days?
  2. medical insurance
  3. how about review and raise, per year or half of year?

How the bonus get calculated ?

* 1. other benefit like sign in bonus, relocation coverage， 公积金， 交通补贴，手机通信补贴
* 以前是14万加10%-30%bonus， 现在是17.5万，10-30%bonus

excuse: I will lose bonus for this year and 401k vested for 20%, and paid vacation day

so can I have sign on bonus, relocation coverage?