Core Java:

74) What is difference between Checked Exception and Unchecked Exception?

1)Checked Exception

The classes that extend Throwable class except RuntimeException and Error are known as checked exceptions e.g.IOException,SQLException etc. Checked exceptions are checked at compile-time.

2)Unchecked Exception

The classes that extend RuntimeException are known as unchecked exceptions e.g. ArithmeticException,NullPointerException etc. Unchecked exceptions are not checked at compile-time.

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| 79) Is there any case when finally will not be executed? finally block will not be executed if program exits(either by calling System.exit() or by causing a fatal error that causes the process to abort). 84) What is the meaning of immutable in terms of String? The simple meaning of immutable is unmodifiable or unchangeable. Once string object has been created, its value can't be changed. 85) Why string objects are immutable in java? Because java uses the concept of string literal. Suppose there are 5 reference variables,all referes to one object "sachin".If one reference variable changes the value of the object, it will be affected to all the reference variables. That is why string objects are immutable in java.  87) How many objects will be created in the following code?   1. String s1="Welcome"; 2. String s2="Welcome"; 3. String s3="Welcome";   Only one object.  **Java String literal** is created by using double quotes. For Example:   1. String s="welcome";   Each time you create a string literal, the JVM checks the string constant pool first. If the string already exists in the pool, a reference to the pooled instance is returned. If string doesn't exist in the pool, a new string instance is created and placed in the pool. 130)What is Externalizable? Externalizable interface is used to write the state of an object into a byte stream in compressed format.It is not a marker interface.  **Serialization** is a process of writing the state of an object into a byte stream.It is mainly used to travel object's state on the network.  **131)What is the difference between Serializalble and Externalizable interface?**  Serializable is a marker interface but Externalizable is not a marker interface.When you use Serializable interface, your class is serialized automatically by default. But you can override writeObject() and readObject() two methods to control more complex object serailization process. When you use Externalizable interface, you have a complete control over your class's serialization process. 148)What are wrapper classes? Wrapper classes are classes that allow primitive types to be accessed as objects. All the wrapper classes in java are immutable and final. 152)What is singleton class? Singleton class means that any given time only one instance of the class is present, in one JVM. 8) What about the daemon threads? The daemon threads are basically the low priority threads that provides the background support to the user threads. It provides services to the user threads.  There are many java daemon threads running automatically e.g. gc, finalizer etc.  If there is no user thread, why should JVM keep running this thread. Hence, JVM terminates the daemon thread if there is no user thread. 3)What is the difference between preemptive scheduling and time slicing? Under preemptive scheduling, the highest priority task executes until it enters the waiting or dead states or a higher priority task comes into existence. Under time slicing, a task executes for a predefined slice of time and then reenters the pool of ready tasks. The scheduler then determines which task should execute next, based on priority and other factors. 16)What is the difference between notify() and notifyAll()? The notify() is used to unblock one waiting thread whereas notifyAll() method is used to unblock all the threads in waiting state. 11) What is the difference between Collection and Collections? Collection is an interface whereas Collections is a class. Collection interface provides normal functionality of data structure to List, Set and Queue. But, Collections class is to sort and synchronize collection elements. 8) What is the difference between HashSet and HashMap? HashSet contains only values whereas HashMap contains entry(key,value). HashSet can be iterated but HashMap need to convert into Set to be iterated.  10) What is the difference between HashMap and Hashtable?   |  |  |  | | --- | --- | --- | | **No.** | **HashMap** | **Hashtable** | | 1) | HashMap is not synchronized. | Hashtable is synchronized. | | 2) | HashMap can contain one null key and multiple null values. | Hashtable cannot contain any null key or null value. |  14) What does the hashCode() method? The hashCode() method returns a hash code value (an integer number).  The hashCode() method returns the same integer number, if two keys (by calling equals() method) are same.  But, it is possible that two hash code numbers can have different or same keys. 5) What are the JDBC statements? There are 3 JDBC statements.   1. Statement 2. PreparedStatement 3. CallableStatement  6) What is the difference between Statement and PreparedStatement interface? In case of Statement, query is complied each time whereas in case of PreparedStatement, query is complied only once. So performance of PreparedStatement is better than Statement. 7) How can we execute stored procedures and functions? By using **Callable statement** interface, we can execute procedures and functions. |

### What is overloading and overriding in java?

When we have more than one method with same name in a single class but the arguments are different, then it is called as method overloading.

Overriding concept comes in picture with inheritance when we have two methods with same signature, one in parent class and another in child class. We can use @Override annotation in the child class overridden method to make sure if parent class method is changed, so as child class.

### Can we overload main method?

Yes, we can have multiple methods with name “main” in a single class. However if we run the class, java runtime environment will look for main method with syntax as public static void main(String args[]).

### What is an abstract class?

Abstract classes are used in java to create a class with some default method implementation for subclasses. An abstract class can have abstract method without body and it can have methods with implementation also.

abstract keyword is used to create a abstract class. Abstract classes can’t be instantiated and mostly used to provide base for sub-classes to extend and implement the abstract methods and override or use the implemented methods in abstract class.

### Java Compiler is stored in JDK, JRE or JVM?

The task of java compiler is to convert java program into bytecode, we have javac executable for that. So it must be stored in JDK, we don’t need it in JRE and JVM is just the specs.

3) What are the life-cycle methods for a servlet?

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| --- | --- |
| **Method** | **Description** |
| public void init(ServletConfig config) | It is invoked only once when first request comes for the servlet. It is used to initialize the servlet. |
| public void service(ServletRequest request,ServletResponse)throws ServletException,IOException | It is invoked at each request.The service() method is used to service the request. |
| public void destroy() | It is invoked only once when servlet is unloaded. |

6) What is difference between Get and Post method?

|  |  |
| --- | --- |
| **Get** | **Post** |
| 1) Limited amount of data can be sent because data is sent in header. | Large amount of data can be sent because data is sent in body. |
| 2) Not Secured because data is exposed in URL bar. | Secured because data is not exposed in URL bar. |
| 3) Can be bookmarked | Cannot be bookmarked |
| 4) Idempotent | Non-Idempotent |
| 5) It is more efficient and used than Post | It is less efficient and used |

### 11) Can you call a jsp from the servlet?

Yes, one of the way is RequestDispatcher interface for example:

RequestDispatcher rd=request.getRequestDispatcher("/login.jsp");

rd.forward(request,response);

**15) What are Cookies?**

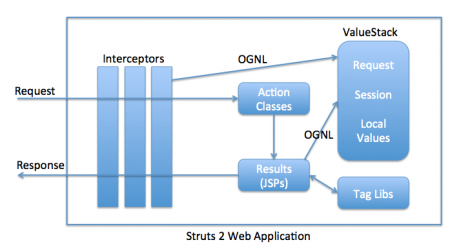
A cookie is a small piece of information that is persisted between the multiple client requests. A cookie has a name, a single value, and optional attributes such as a comment, path and domain qualifiers, a maximum age, and a version number.

Struts2 Interview Questions:

### What is Struts2?

**Apache Struts2** is an open source framework to build web applications in Java. Struts2 is based on **OpenSymphony WebWork** framework. It’s highly improved from Struts1 and that makes it more flexible, easy to use and extend. The core components of Struts2 are Action, Interceptors and Result pages.

Struts2 provides many ways to create Action classes and configure them via struts.xml or through annotations. We can create our own interceptors for common tasks. Struts2 comes with a lot of tags and uses OGNL expression language. We can create our own type converters to render result pages. Result pages can be JSPs and FreeMarker templates.



### What is interceptor in Struts2?

Interceptors are the backbone of Struts2 Framework. Struts2 interceptors are responsible for most of the processing done by the framework, such as passing request params to action classes, making Servlet API request, response, session available to Action classes, validation, i18n support, etc.

### Which design pattern is implemented by Struts2 interceptors?

Struts2 interceptors are based on intercepting filters design pattern. The invocation of interceptors in interceptor stack closely resembles Chain of Responsibility design pattern.

### Does Struts2 action and interceptors are thread safe?

Struts2 Action classes are thread safe because an object is instantiated for every request to handle it.

Struts2 interceptors are singleton classes and a new thread is created to handle the request, so it’s not thread safe and we need to implement them carefully to avoid any issues with shared data.

### Which class is the Front Controller in Struts2?

org.apache.struts2.dispatcher.ng.filter.StrutsPrepareAndExecuteFilter is the Front Controller class in Struts2 and every request processing starts from this class. Earlier versions of Struts2 uses org.apache.struts2.dispatcher.FilterDispatcher as Front Controller class.

### How can we get Servlet API Request, Response, HttpSession etc Objects in action classes?

Struts2 action classes doesn’t provide direct access to Servlet API components such as Request, Response and Session. However sometimes we need these access in action classes such as checking HTTP method or setting cookies in response.

Thats why Struts2 API provides a bunch of \*Aware interfaces that we can implement to access these objects. Struts2 API uses dependency injection to inject Servlet API components in action classes. Some of the important Aware interfaces are SessionAware, ApplicationAware, ServletRequestAware and ServletResponseAware.

### What is struts-default package and what are it’s benefits?

struts-default is an abstract package that defines all the Struts2 interceptors and commonly used interceptor stack. It is advisable to extend this package while configuring our application package to avoid configuring interceptors again. This is provided to help developers by eliminating the trivial task of configuring interceptor and result pages in our application.

### How can we upload files in Struts2 application?

File Upload is one of the common task in a web application. Thats why Struts2 provides built in support for file upload through FileUploadInterceptor. This interceptor is configured in struts-default package and provide options to set the maximum size of a file and file types that can be uploaded to the server.

### Hibernate Interview Questions:

### What are the advantages of Hibernate over JDBC?

Some of the important advantages of Hibernate framework over JDBC are:

1. Hibernate removes a lot of boiler-plate code that comes with JDBC API, the code looks more cleaner and readable.
2. Hibernate supports inheritance, associations and collections. These features are not present with JDBC API.
3. Hibernate implicitly provides transaction management, in fact most of the queries can’t be executed outside transaction. In JDBC API, we need to write code for transaction management using commit and rollback. Read more at [JDBC Transaction Management](http://www.journaldev.com/2483/java-jdbc-transaction-management-savepoint).
4. JDBC API throws SQLException that is a checked exception, so we need to write a lot of try-catch block code. Most of the times it’s redundant in every JDBC call and used for transaction management. Hibernate wraps JDBC exceptions and throw JDBCException orHibernateException un-checked exception, so we don’t need to write code to handle it. Hibernate built-in transaction management removes the usage of try-catch blocks.
5. Hibernate Query Language (HQL) is more object oriented and close to java programming language. For JDBC, we need to write native sql queries.
6. Hibernate supports caching that is better for performance, JDBC queries are not cached hence performance is low.
7. Hibernate provide option through which we can create database tables too, for JDBC tables must exist in the database.
8. Hibernate configuration helps us in using JDBC like connection as well as JNDI DataSource for connection pool. This is very important feature in enterprise application and completely missing in JDBC API.
9. Hibernate supports JPA annotations, so code is independent of implementation and easily replaceable with other ORM tools. JDBC code is very tightly coupled with the application

### What is hibernate configuration file?

Hibernate configuration file contains database specific configurations and used to initialize SessionFactory. We provide database credentials or JNDI resource information in the hibernate configuration xml file. Some other important parts of hibernate configuration file is Dialect information, so that hibernate knows the database type and mapping file or class details.

### What is hibernate mapping file?

Hibernate mapping file is used to define the entity bean fields and database table column mappings. We know that JPA annotations can be used for mapping but sometimes XML mapping file comes handy when we are using third party classes and we can’t use annotations.

JSP Interview questions:

4)What are the JSP implicit objects ?

JSP provides 9 implicit objects by default. They are as follows:

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| **Object** | **Type** |
| 1) out | JspWriter |
| 2) request | HttpServletRequest |
| 3) response | HttpServletResponse |
| 4) config | ServletConfig |
| 5) session | HttpSession |
| 6) application | ServletContext |
| 7) pageContext | PageContext |
| 8) page | Object |
| 9) exception | Throwable |