Java – Differences Questions

1. What is difference between JDK, JRE, JVM?

   JDK:
   JDK stands for Java Development Kit.
   It is installable software used for developing java applications. It includes Java Runtime Environment (JRE), an interpreter/loader (Java), a compiler (javac), an achiever (jar), a Document generator (javadoc), and other tools needed for java development.
   JRE:
   It provides very good environment to run java applications only.
   JVM:
   It is an interpreter which is used to execute our program line by line procedure.

2. What is difference length and length()?

length	length()
It is a final variable applicable for arrays.	It is a final method applicable for String objects.
It will return size of an array.	It will return number of characters present in a string.

3. What is difference between == and .equals() method?

==	.equals()
It is used for reference or address comparison.	It is used for content comparison.
We can compare objects and primitives.	We can't compare primitives.

4. What is the difference between C++ and Java?

C++	Java
It was developed by Bjarne Stroustrup.	It was developed by James Gosling.
It is a partial object oriented programming.	It is purely object oriented programming.
It is platform dependent.	It is platform independent.
It supports multiple inheritance.	It does not support multiple inheritance.
It supports pointers.	It does not support pointers.
It supports goto statement.	It does not support goto statement.
It supports operator overloading.	It does not support operator overloading.
Memory allocation and deallocation will take care by a programmer.	Memory allocation and deallocation will take care by a JVM.
It supports three access specifiers i.e public, private and protected.	It supports four access modifiers i.e default, public, private and protected.
It supports three loops i.e do while loop, while loop and for loop.	It supports four loops i.e do while loop, while, for loop and for each loop.
It supports preprocessor directory (#).	It doesn't support preprocessor directory.

5. What is the difference between implicit and explicit typecasting?

Implicit typecasting	Explicit typecasting
If we want to store smaller value into a bigger variable then we need to use implicit typecasting.	If we want to store bigger value into a smaller variable then we need to use explicit typecasting.
A compiler is responsible to perform implicit typecasting.	A programmer is responsible to perform explicit typecasting.
There is no possibility to loss the information.	There is a possibility to loss the information.
It is also known as Widening or Up-casting.	It is also known as Narrowing or Down-casting.

6. What is the difference between class and object?

class	object
It is a blueprint or template for an object.	It is an instance of a class.
It is a logically entity.	It is a physical entity.
It does not allocate the memory.	It allocates the memory.
It can't manipulate.	It can manipulate.
It is declared once.	It is declared many times.
To declare a class we will use class keyword.	To declare object we will use new keyword.

7. What is the difference between Abstraction and Encapsulation?

Abstraction	Encapsulation
Hiding internal implementation and highlighting the set of services is called abstraction.	The process of encapsulating or grouping variables and its associate methods in a single entity is called encapsulation.
It is used to hide the data.	It is used to protect the data.
Using abstract classes and interfaces we can implements abstraction.	Using access modifiers we can implements encapsulation.
It is a process of gaining the information.	It is a process of containing the information.
It solves an issue at design level.	It solves an issue at implementation level.

8. What is the difference between POJO class and Java Bean class?

POJO	Java Bean
It can't be serialized.	It can be serialized.
Fields can have any visibility.	Fields can have only private visibility.
There may or may not have 0-arg constructor.	It must have 0-argument constructor.
It does not extend any other class.	It can extends.
It does not implement any other interface.	It can implements.
It does not use any outside annotation.	It uses outside annotation.

9. What is the difference between Composition and Aggregation?

Composition	Aggregation
Without existing container object there is a no chance of having contained object is called composition and aggregation.	Without existing container object there is a chance of having contained object is called aggregation.
It is strongly association.	It is weakly association.

10. What is the difference between default class and public class?

default class	public class
To declare default class we should not use any access modifier.	To declare public class we should use public access modifier.
It we declare any class as default then we can access that class within the package.	It we declare any class as public then we can access that class within the package and outside the package.

11. What is the difference between final class and abstract class?

final class	abstract class
To declare final class we will use final keyword.	To declare abstract class we will use abstract keyword.
We can't create child class (Not inherited).	We can create child class (inherited).
Object creation is possible (instantiate).	Object creation is not possible.

12. What is the difference between Method overloading and Method overriding?

Method overloading	Method overriding
Having same method names with difference signatures in a single class is called method overloading.	Having same method name with same signatures in two different classes is called method overriding.
It is a compile time polymorphism.	It is runtime polymorphism.
Method resolution taken care by compiler based on reference type.	Method resolution taken care by JVM based on runtime object.
Private and final methods can be overloaded.	Private and final methods can't be overridden.

13. What is the difference between Mutable and Immutable object?

Mutable	Immutable
After object creation if we perform any changes then all changes will reflect in a same object.	After object creation if we perform any changes then for every change a new object will be created.
Fields can be change after object creation.	Fields can't be change after object creation.
It contains setter and getter methods.	It contains only setter method.
StringBuffer, StringBuilder, Date are mutable.	String, Wrapper classes are immutable.

14. What is the difference between StringBuffer and StringBuilder?

StringBuffer	StringBuilder
Every method present in StringBuffer is synchronized.	No method present in StringBuilder is synchronized.
At a time only one thread is allow to operate on the StringBuffer object hence StringBuffer object is Thread safe.	Multiple Threads are allowed to operate simultaneously on the StringBuilder object hence StringBuilder is not Thread safe.
It increases waiting time of the Thread and hence relatively performance is low.	Threads are not required to wait and hence relatively performance is high.
Introduced in 1.0 version.	Introduced in 1.5 version.

15. What is the difference between final, finally and finalize method?

Final:

Final is the modifier applicable for class, methods and variables.
If a class declared as the final then child class creation is not possible.
If a method declared as the final then overriding of that method is not possible.
If a variable declared as the final then reassignment is not possible.

Finally:

It is the block always associated with try catch to maintain clean up code which should be executed always irrespective of whether exception raised or not raised.

Finalize:

It is a method which should be called by garbage collector always just before destroying an object to perform cleanup activities.

16. What is the difference between Interface and Abstract class?

Interface	Abstract class
To declare interface we will use interface keyword.	To declare abstract class we will use abstract keyword.
It is a collection of abstract methods, default methods and static methods.	It is a collection of abstract methods and concrete methods.
We can achieve multiple inheritance.	We can't achieve multiple inheritance.
We can't declare blocks.	We can declare blocks.
We can't declare constructor.	We can declare constructor.
To write the implementation of abstract methods we will use implementation class.	To write the implementation of abstract methods we will use sub class.
If we know only specification (not implementation) then we need to use interface.	If we know partial implementation then we need to use abstract class.

17. What is the difference between checked and unchecked exceptions?

Checked exceptions	Unchecked exceptions
Exceptions which are checked by the compiler at the time of compilation are called checked exceptions.	Exceptions which are checked by the JVM at the time of runtime are called unchecked exceptions.
We can handle checked exceptions using try and catch block.	Not required to handle explicitly.
Program flow will interrupt and control transfer to catch block.	Program execution will halt with an error message.
InterruptedException, IOException, FileNotFoundException are checked exceptions.	ArithmeticException, ClassCastException, IllegalArgumentException are unchecked exceptions.

18. What is the difference between List and Set interface?

List	Set
It is an indexed sequence.	It is a non-indexed sequence.
List allows duplicate objects.	Set does not allow duplicate objects.
Insertion order is preserved.	Insertion order is not preserved.
Multiple null insertion is possible.	Null insertion is possible only once.
List implementations are ArrayList, LinkedList, Vector and Stack.	Set implementations are HashSet, LinkedHashSet and TreeSet.

19. What is the difference between Arrays and Collections?

Arrays	Collections
It is a collection of homogeneous data elements.	It is a collection of homogeneous and heterogeneous data elements.
Arrays are fixed in size.	Collections are growable in nature.
Performance point of view arrays are recommended to use.	Memory point of view collections are recommended to use.
Arrays are type safe.	Collections are not type safe.
Arrays are not implemented based on data structure concept so we can't expect any readymade (utility) methods.	Collections are implemented based on data structure concept so we can expect readymade (utility) methods.
It holds primitive and object types.	It holds only object types but not primitive types.

20. What is the difference between ArrayList and Vector?

ArrayList	Vector
No method is synchronized	Every method is synchronized
At a time multiple Threads are allow to operate on ArrayList object and hence ArrayList object is not Thread safe.	At a time only one Thread is allow to operate on Vector object and hence Vector object is Thread safe.
Relatively performance is high because Threads are not required to wait.	Relatively performance is low because Threads are required to wait.
It is non legacy and introduced in 1.2v.	It is legacy and introduced in 1.0v.

21. What is the difference between ArrayList and LinkedList?

ArrayList	LinkedList
The underlying data structure is resizable array or growable array.	The underlying data structure is doubly linked list.
ArrayList is better for storing and accessing data.	LinkedList is better for manipulating data.
The memory location for the elements of an ArrayList is contiguous.	The location for the elements of a linked list is not contagious.
When an ArrayList is initialized, a default capacity of 10 is assigned to the ArrayList.	There is no case of default capacity in a LinkedList.

22. What is the difference between HashSet and LinkedHashSet?

HashSet	LinkedHashSet
The underlying data structure is Hashtable.	The underlying data structure is Hastable and LinkedList.
Insertion order is not preserved.	Insertion order is preserved.
Introduced in 1.2 version.	Introduced in 1.4 version.

23. What is the difference between HashSet and TreeSet?

HashSet	TreeSet
The underlying data structure is Hashtable.	The underlying data structure is Balanced Tree.
Null insertion is possible.	Null insertion is not possible.
Heterogeneous objects are allowed.	Heterogeneous objects are not allowed.
Insertion order is not preserved.	Insertion order is sorting order of an object.

24. What is the difference between Comparable and Comparator interface?

Comparable	Comparator
It is present in java.lang package	It is present in java.util package
It contains only one method i.e compareTo()	It contains two methods i.e compare() and equals()
If we depend upon natural sorting order then we need to use Comparable interface.	If we depend upon customized sorting order then we need to use Comparator interface.

25. What is the difference between HashMap and LinkedHashMap?

HashMap	LinkedHashMap
The underlying data structure is Hashtable.	The underlying data structure is Hastable and LinkedList.
Insertion order is not preserved.	Insertion order is preserved.
Introduced in 1.2 version.	Introduced in 1.4 version.

26. What is the difference between HashMap and TreeMap?

HashMap	TreeMap
The underlying data structure is Hashtable.	The underlying data structure is Red Black Tree.
Insertion order is not preserved.	Insertion order is sorting order of an object.
Both key and value can be null.	Key can’t be null but value can be null.

27. What is the difference between HashMap and Hashtable?

HashMap	Hashtable
The underlying data structure is Hashtable.	The underlying data structure is Hashtable.
Both key and value can be null	Both key and value can't be null.
It is a non-legacy class.	It is a legacy class
It is introduced in 1.2 version.	It is introduced in 1.0 version
Methods are not synchronized.	All methods are synchronized.

28. What is the difference between Enumeration, Iterator and ListIterator?

Enumeration	Iterator	ListIterator
It is used to read objects one by one from legacy Collection objects.	It is used to read objects one by one from any Collection objects.	It is used to read objects one by one from List Collection objects.
It contains 2 methods i.e hasMoreElements() and nextElement().	It contains 3 methods i.e hasNext(), next() and remove()	It contains 9 methods i.e hasNext(), next(), hasPrevious(), previous(), remove(), set(), add(), previousIndex() and nextIndex().
It performs read operation.	It performs read and remove operation.	It perform read, remove, adding and replacement of new objects.
We can create object by using elements() method.	We can create object by using iterator() method.	We can create object by using listIterator() method.
It is not a universal cursor.	It is a universal cursor.	It is a bi-directional cursor.

29. What is the difference between Collection and Collections?

Collection	Collections
It is a root interface for entire collection framework.	It is a utility class.
It is used to represent a group of individual objects in a single unit.	It defines several utility methods that are used to operate on collection.
It contains abstract methods, static methods and default methods.	It contains only static methods.

30. What is the difference between this key and super keyword in java?

this keyword	super keyword
It is used to refer current class object reference.	It is used to refer super class object reference.
It is used to refer current class variables.	It is used to refer super class variables.
It is used to refer current class methods.	It is used to refer super class methods.
It is used to refer current class constructors.	It is used to refer super class constructors.

31. What is the difference between RDBMS and RDBMS database?

DBMS	RDBMS
DBMS stands Database Management System	RDBMS stands for Relational Database Management System
It stores the data in the form of files	It stores the data in the form of tables
It is designed to handle small amount of data	It is designed to handle large amount of data
It provides support for a single user at a time	It provides support for multiple users at a time
Normalization is not possible for DBMS	Normalization is possible for RDBMS
No security of data	High security of data

32. What is the difference between RDBMS and MongoDB database?

RDBMS	MongoDB
It is a relational database.	It is a non-relational or document based database.
It can't stores the data in key and value pair.	It stores the data in key and value pair.
Not suitable for hierarchical data storage.	Suitable for hierarchical data storage.
It has a predefined(static) schema.	It has a dynamic schema.
It contains tables.	It contains Collections.
It is a row based.	It is a document based.
It is a column based.	It is a field based.
It is slower.	It is faster.
It supports SQL query language.	It supports JSON query language.

33. What is the difference between Normalization and De-normalization?

Normalization	Denormalization
It increases the complexity due to multiple tables	It reduces the complexity due to single table
No redundant data	Redundant data
No waste of memory	Waste of memory
Slower reads	Slower writes
Low data availability	High data availability
Need of joins	No need of joins

34. What is the difference between delete and truncate command?

Delete	truncate
It is a DML command.	It is DDL
It deletes the data temporary.	It deletes the data permanently.
We can rollback the data.	We can't rollback the data.
Where clause can be used.	Where clause can't be used.

35. What is the difference between ROWID and ROWNUM?

ROWID	ROWNUM
It is physical address of row.	It is a sequential number for row.
It is permanent.	It is temporary.
It returns address of row.	It returns numeric value.
It is automatically generated at the time of insert.	It is automatically generated at the time of select.

36. What is the difference between simple view and complex view?

Simple view	Complex view
If a view is created by using one base table is called simple view.	If a view is created by using more than one table is called complex view.
DML operations are allowed.	DML operations are not allowed.
We can't use group functions.	We can use group functions.
It does not include NOT NULL columns from base table.	It includes NOT NULL columns from base table.

37. What is the difference between inner join and outer join?

Inner Join	Outer Join
It is similar to equi join.	It is extension of equi join.
It will return matching record.	It will return matching as well as not matching records.
To create inner join we will use INNER JOIN or JOIN clause.	To create outer join we will use LEFT OUTER JOIN, RIGHT OUTER JOIN , FULL OUTER JOIN clause.

38. What is the difference between SQL and PL/SQL?

SQL	PL/SQL
It is Structured Query Language.	It is Procedural Language extension to the Structured Query Language.
It is data-oriented language.	It is application-oriented language.
It directly interacts with database server.	It does not interact with database server.
It does not provide errors and exceptions.	It provides errors and exceptions.
It does not give programming features like control statements, loops, variables and etc.	It gives programming features like control statements, loops, variables and etc.
It is used to write queries in DML, DDL, DRL, TCL and DCL.	It is used to write procedures, functions, packages, cursors and triggers.

39. What is the difference between stored procedures and functions?

Procedures	Functions
It may or may not returns a value.	It always returns a value.
DML operations are allowed.	DML operations are not allowed.
Can't be invoke by using select command.	Can be invoke by using select command.
It is compiled once.	It is compiled every time.

40. What is the difference between DatabaseMetaData and ResultSetMetaData?

DatabaseMetaData	ResultSetMetaData
It provides metadata of a database.	It provides metadata of a table.
It gives information about database product name, database product version, database driver name, database driver version, username and etc.	It gives information about number of columns, type of columns, size of columns, column counts and etc.
We can create object by using getMetaData() method of Connection object.	We can create object by using getMetaData() method of ResultSet object.

41. What is the difference between Scrollable and Non-Scrollable ResultSet object?

Scrollable ResultSet	Non-Scrollable ResultSet
It is not default ResultSet object.	It is default ResultSet object.
Cursor can move in both forward and backward direction.	Cursor can move only in forward direction.
We can read random records.	We can't read random records.
Performance is high.	Performance is low.

42. What is the difference between ServletConfig and ServletContext object?

ServletConfig	ServletContext
It is created by web container for every servlet.	It is created by web container for every web application.
It is created during the initialization process of servlet.	It is created during the deployment of web application.
As long as servlet is executing, Servletconfig object will be available.	As long as web application is executing, ServletContext object will be available.
It reads configuration information from web.xml file which is local to one servlet.	It reads configuration information from web.xml file which is global to all servlets.
Using getServletConfig() method we will create ServletConfig object.	Using getServletContext() method we will create ServletContext object.

43. What is the difference between Servlets and JSP?

Servlets	JSP
To work with servlets strong java knowledge is required.	To work with JSP strong java knowledge is not required.
It is not suitable for non-java programmers.	It is suitable for non-java programmers.
It does not support tags.	It supports tags.
It does not give any implicit object.	It gives 9 implicit objects.
Configuration of servlet program in web.xml file is mandatory.	Configuration of jsp program in web.xml file is optional.
Handling exceptions are mandatory.	Handing exceptions is optional.
We can't maintain HTML code and Java code separately.	We can maintain HTML code and Java code separately.
It runs faster than JSP.	It runs slower than servlet because it takes time to compile the program and convert into Servlets.

44. What is the difference between GET and POST methodology?

GET	POST
It is a default methodology.	It is not a default methodology.
It sends the request fastly.	It sends the request bit slow.
It carries limited amount of data.	It carries unlimited amount of data.
It is not suitable for secure data.	It is suitable for secure data.
Not suitable for encryption and file uploading.	Suitable for encryption and file uploading.
To process GET methodology we will use doGet(-,-) method.	To process POST methodology we will use doPost(-,-) method.

45. What is the difference between GenericServlet and HttpServlet?

GenericServlet	HttpServlet
It is present in javax.servlet package.	It is present in javax.servlet.http package.
It is protocol independent.	It is protocol dependent.
Session management is not possible.	Session management is possible.
Redirection is not possible.	Redirection is possible.
We can define service() method.	We can define doGet(), doPost(), doPut(), doOption(), doTrace(), doHead() and doDelete() method.

46. What is the difference between forward() and sendRedirect() method?

forward()	sendRedirect()
It sends the request to resource that is present in same server.	It sends the request to resource that is present in same sever or different server.
It passes same request to next resource.	It passes new request to next resource.
To forward the request we will use RequestDispatcher object of HttpServletRequest.	To forward the request we will use sendRedrect() method of HttpServletResponse.
It works within the server.	It works within the server and outside the server.

47. What is the difference between spring framework and spring boot?

Spring framework	Spring boot
Spring is an open-source lightweight framework widely used to develop enterprise applications.	Spring Boot is built on top of spring framework and it is widely used to develop REST APIs.
The most important feature of the Spring Framework is dependency injection.	The most important feature of the Spring Boot is Autoconfiguration.
It helps to create a loosely coupled application.	It helps to create a stand-alone application.
To run the Spring application we need to set the server explicitly.	Spring Boot provides embedded servers such as Tomcat, Jetty and undertow.
It doesn't provide support for the in-memory database.	It provides support for the in-memory database such as H2, HSQL, Derby.
Dependencies will be added by the programmer in pom.xml file.	Dependencies will be added by the spring boot component called starters.

48. What is the difference between @Controller and @RestController?

@Controller	@RestController
It is used to develop spring MVC based applications.	It is used to develop RESTful Web Services.
It is a specialized version of @Component annotation.	It is a specialized version of @Controller annotation.
We need to use @ResponseBody in every handler method.	It is a combination of @Controller and @ResponseBody annotation.
It returns view in spring MVC.	It does not return view.
It is added to Spring 2.5 version.	It is added to Spring 4.0 version.

49. What is the difference between @RequestMapping and @GetMapping?

@RequestMapping	@GetMapping
It is used to map request to controller methods.	It is used for mapping the request onto specific handler method.
It is a class level and method level annotation.	It is a method level annotation.
It is used for all kind of HTTP methods.	It is used only for HTTP GET method.

50. What is the Difference between @RequestBody and @ResponseBody?

@RequestBody	@ResponseBody
This annotation indicates that Spring should deserialize HttpRequest body(JSON) into Java object.	This annotation indicates that Spring should serialize java object into JSON or XML or simple text.
It is used with POST, PUT & PATCH methods.	It is used with GET method.
Application for incoming request data.	Application for outgoing response data.

51. What is the difference between CrudRepository and JpaRepository?

CrudRepository	JpaRepository
It extends Repository interface.	It extends CrudRepository and PagingAndSortingRepository.
It contains methods like save(), findAll(), delete(), count() And etc.	It contains extra methods related to JPA such as delete records in batch and flushing the data directly to the database.
It does not provide methods for implementing pagination and sorting.	It provides all the methods for implementing pagination and sorting.

52. What is the difference between application.properties and application.yml?

application.properties	application.yml
It follows non-hierarchical structure.	It follows hierarchical structure.
We can configure only one spring profile.	We can configure multiple spring profiles.
It is primarily used in java.	It is used in many languages like Java, python, Ruby and etc.
Supports key/val, but doesn't support values beyond the string.	Supports key/val, basically map, List and scalar types (int, string etc.)

53. What is the difference between Spring Bean and POJO class?

Spring Bean	POJO
An object that is managed by the spring IoC container is called spring bean.	An object that is managed by the user is called pojo. Any java object is a pojo.
Spring beans can be inject to other beans using dependency injection mechanism.	POJOs are not managed by the spring so they are not eligible for automatic dependency injection mechanism.
Spring beans have restrictions.	POJOs don't have restrictions.