Questions-

Q1: From what exact processes we can make objects in java?

- **By using new keyword**
- **By using new instances**
- **An object of class is created by calling constructor of the corresponding class through a new operator .it is mainly created by three ways declaration, instantiation and initialization.**

Q2: JIT complier?

-just in time compiler. The JIT compiler is enabled by default, and is activated when a Java method is called. The JIT compiler compiles the byte codes of that method into native machine code, compiling it "just in time" to run. When a method has been compiled, the JVM calls the compiled code of that method directly instead of interpreting it.

Q3: What are the memory areas of jvm?

- **1. Class loader- contain class area,heap area,stack area , pc register and naïve method stack**
- **2.execution engine**
- **3.native method interface**
- **4.java native libraries.**

Q4: Why java is platform independent?

- **Because the process converts source code into byte code, and that byte code can run on any platform directly. it means byte code(.class file) is platform independent . hence java is also platform independent.**

Q5: Which version use for java

:-Java 1.8

Q7: What is JVM

Java virtual machine is a runtime environment in which application or program is executed. it is a platform independent.

It contain : CLASS LOADER-class area,stack area ,heap area,pc register,native method stack.

Q8: What is java

Java is object oriented programming language which was developed by sun microsystem in 1995. It was invented by jame's gosling that is know as "father of java technology".

Q9: What is diff bet c c++ and java

Metrics	C	C++	Java
Programming Paradigm	Procedural language	Object-Oriented Programming (OOP)	Pure Object Oriented Oriented
Origin	Based on assembly language	Based on C language	Based on C and C++
Developer	Dennis Ritchie in 1972	Bjarne Stroustrup in 1979	James Gosling in 1991
Translator	Compiler only	Compiler only	Interpreted language (Compiler + interpreter)
Platform Dependency	Platform Dependent	Platform Dependent	Platform Independent
Code execution	Direct	Direct	Executed by JVM (Java Virtual Machine)
Approach	Top-down approach	Bottom-up approach	Bottom-up approach
File generation	.exe files	.exe files	.class files
Pre-processor directives	Support header files (#include, #define)	Supported (#header, #define)	Use Packages (import)
keywords	Support 32 keywords	Supports 63 keywords	50 defined keywords
Datatypes (union, structure)	Supported	Supported	Not supported
Inheritance	No inheritance	Supported	Supported except Multiple inheritance
Overloading	No overloading	Support Function overloading (Polymorphism)	Operator overloading is not supported

Pointers	Supported	Supported	Not supported
Allocation	Use malloc, calloc	Use new, delete	Garbage collector
Exception Handling	Not supported	Supported	Supported
Templates	Not supported	Supported	Not supported
Destructors	No constructor neither destructor	Supported	Not supported
Multithreading/ Interfaces	Not supported	Not supported	Supported
Database connectivity	Not supported	Not supported	Supported
Storage Classes	Supported (auto, extern)	Supported (auto, extern)	Not supported

Q10: data types other than primitives

Non primitives: String, Array,class , interface

Q11: Volatile keyword

Volatile keyword is used to modify the value of a variable by different threads. It is also used to make classes thread safe. It means that multiple threads can use a method and instance of the classes at the same time without any problem.

When to use it?

- You can use a volatile variable if you want to read and write long and double variable automatically.
- It can be used as an alternative way of achieving synchronization in Java.
- All reader threads will see the updated value of the volatile variable after completing the write operation. If you are not using the volatile keyword, different reader thread may see different values.
- It is used to inform the compiler that multiple threads will access a particular statement. It prevents the compiler from doing any reordering or any optimization.
- If you do not use volatile variable compiler can reorder the code, free

to write in cache value of volatile variable instead of reading from the main memory.

Important points

- You can use the volatile keyword with variables. Using volatile keyword with classes and methods is illegal.
- It guarantees that value of the volatile variable will always be read from the main memory, not from the local thread cache.
- If you declared variable as volatile, Read and Writes are atomic
- It reduces the risk of memory consistency error.
- Any write to volatile variable in Java establishes a happen before the relationship with successive reads of that same variable.
- The volatile variables are always visible to other threads.
- The volatile variable that is an object reference may be null.
- When a variable is not shared between multiple threads, you do not need to use the volatile keyword with that variable

Q12: Jvm jdk jre difference

Parameter	JDK	JRE	JVM
Full-Form	The JDK is an abbreviation for Java Development Kit.	The JRE is an abbreviation for Java Runtime Environment.	The JVM is an abbreviation for Java Virtual Machine.
Definition	The JDK (Java Development Kit) is a software development kit that develops applications in Java. Along with JRE, the JDK also consists of various development tools (Java Debugger, JavaDoc, compilers, etc.)	The Java Runtime Environment (JRE) is an implementation of JVM. It is a type of software package that provides class libraries of Java, JVM, and various other components for running the applications written in Java programming.	The Java Virtual Machine (JVM) is a platform-independent abstract machine that has three notions in the form of specifications. This document describes the requirement of JVM implementation.
Functionality	The JDK primarily assists in executing codes. It primarily functions in development.	JRE has a major responsibility for creating an environment for the execution of code.	JVM specifies all of the implementations. It is responsible for providing all of these implementations to the JRE.
Platform Dependency	The JDK is platform-dependent. It means that for every different platform, you	JRE, just like JDK, is also platform-dependent. It means that for every different platform, you	The JVM is platform-independent. It means that you won't require a different JVM for

	require a different JDK.	require a different JRE.	every different platform.
Tools	Since JDK is primarily responsible for the development, it consists of various tools for debugging, monitoring, and developing java applications.	JRE, on the other hand, does not consist of any tool- like a debugger, compiler, etc. It rather contains various supporting files for JVM, and the class libraries that help JVM in running the program.	JVM does not consist of any tools for software development.
Implementation	**JDK** = Development Tools + JRE (Java Runtime Environment)	**JRE** = Libraries for running the application + JVM (Java Virtual Machine)	**JVM** = Only the runtime environment that helps in executing the Java bytecode.
Why Use It?	Why use JDK? Some crucial reasons to use JDK are: • It consists of various tools required for writing Java programs. • JDK also contains JRE for executing Java programs. • It includes an Appletviewer, Java application launcher, compiler, etc. • The compiler helps in converting the code written in Java into bytecodes. • The Java application launcher helps in opening a JRE. It then loads all of the necessary details and then executes all of its main methods.	Why use JRE? Some crucial reasons to use JRE are: • If a user wants to run the Java applets, then they must install JRE on their system. • The JRE consists of class libraries along with JVM and its supporting files. It has no other tools like a compiler or a debugger for Java development. • JRE uses crucial package classes like util, math, awt, lang, and various runtime libraries.	Why use JVM? Some crucial reasons to use JVM are: • It provides its users with a platform-independent way for executing the Java source code. • JVM consists of various tools, libraries, and multiple frameworks. • The JVM also comes with a Just-in-Time (JIT) compiler for converting the Java source code into a low-level machine language. Thus, it ultimately runs faster than any regular application. • Once you run the Java program, you can run JVM on any given platform to save your time.
Features	Features of JDK • Here are a few crucial features of JDK: • It has all the features that JRE does.	Features of JRE • Here are a few crucial features of JRE: • It is a set of tools that actually helps the JVM to run.	Features of JVM Here are a few crucial features of JVM: • The JVM enables a user to run applications on their device or in

	• JDK enables a user to handle multiple extensions in only one catch block. • It basically provides an environment for developing and executing the Java source code. • It has various development tools like the debugger, compiler, etc. • One can use the Diamond operator to specify a generic interface in place of writing the exact one. • Any user can easily install JDK on Unix, Mac, and Windows OS (Operating Systems).	• The JRE also consists of deployment technology. It includes Java Plug-in and Java Web Start as well. • A developer can easily run a source code in JRE. But it does not allow them to write and compile the concerned Java program. • JRE also contains various integration libraries like the JDBC (Java Database Connectivity), JNDI (Java Naming and Directory Interface), RMI (Remote Method Invocation), and many more. • It consists of the JVM and virtual machine client for Java HotSpot.	a cloud environment. • It helps in converting the bytecode into machine-specific code. • JVM also provides some basic Java functions, such as garbage collection, security, memory management, and many more. • It uses a library along with the files given by JRE (Java Runtime Environment) for running the program. • Both JRE and JDK contain JVM. • It is easily customizable. For instance, a user can feasibly allocate a maximum and minimum memory to it. • JVM can also execute a Java program line by line. It is thus also known as an interpreter. • JVM is also independent of the OS and hardware. It means that once a user writes a Java program, they can easily run it anywhere.

Q13: What is java c?

Javac is the standard Java compiler and part of the Java Development Kit. It creates bytecode for the Java virtual machine from valid Java code. While it is primarily run from the command line, it can run programmatically using the Java compiler API.

Q14: How we can perform java program on command prompt?

- Open a command prompt window and go to the directory where you saved the java program (MyFirstJavaProgram. java). ...
- Type 'javac MyFirstJavaProgram. ...
- Now, type ' java MyFirstJavaProgram ' to run your program.
- You will be able to see the result printed on the window.

Q15: What is j2ee

Java 2 Platform, Enterprise Edition

Java 2 Platform, Enterprise Edition (J2EE) is **the former name for Java EE, Java's platform for servers**. While the Java EE nomenclature, introduced in 2006, simply means Java Platform Enterprise Edition. The enterprise edition of Java is used for creating Web and enterprise applications

Q17: what is Rt.jar file ?

rt. jar **contains all of the compiled class files for the base Java Runtime environment, as well as the bootstrap classes**, which are the run time classes that comprise the Java platform core API.

Q18: Why java is not 100% oops

Because in JAVA we use data types like int, float, double etc which are not object oriented, and of course is what opposite of OOP is. That is why JAVA is not 100% objected oriented. Java is not fully object oriented because it supports primitive data type like it,byte,long etc.,which are not objects.

Q19: In which area of your machine heap object are stored

Heap Space in Java. Heap space is used for the dynamic memory allocation of Java objects and JRE classes at runtime. New objects are always created in heap space, and the references to these objects are stored in **stack memory**.

Q20:Difference between path and classpath

S. No.	PATH	CLASSPATH

1.	An environment variable is used by the operating system to find the executable files.	An environment variable is used by the Java compiler to find the path of classes.
2.	PATH setting up an environment for the operating system. Operating System will look in this PATH for executables.	Classpath setting up the environment for Java. Java will use to find compiled classes.
3.	Refers to the operating system.	Refers to the Developing Environment.
4.	In path variable, we must place .\bin folder path	In classpath, we must place .\lib\jar file or directory path in which .java file is available.
5.	PATH is used by CMD prompt to find binary files.	CLASSPATH is used by the compiler and JVM to find library files.

Q21: working, architecture of JVM -dependent/independent? Why?

how JVM works

First, Java code is compiled into bytecode. This bytecode gets interpreted on different machines

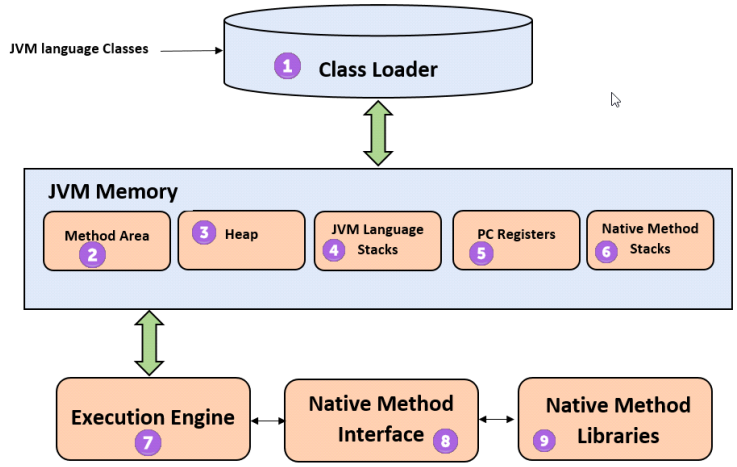
Between host system and Java source, Bytecode is an intermediary language.

JVM in Java is responsible for allocating memory space.

Working of Java Virtual Machine (JVM)

JVM Architecture

Now in this JVM tutorial, let's understand the Architecture of JVM. JVM architecture in Java contains classloader, memory area, execution engine etc.



Java Virtual Machine Architecture

Q22:Heap area and stack area

Heap area : All the Objects, their related instance variables, and arrays are stored in the heap. This memory is common and shared across multiple threads.

Stack area : Java language Stacks store local variables, and it's partial results. Each thread has its own JVM stack, created simultaneously as the thread is created. A new frame is created whenever a method is invoked, and it is deleted when method invocation process is complete.

Q24: what is class and object?

Class: classs is the tamplate or blueprint from which object is created.class contain variables and methods

Object:-

An entity that has state and behavior is known as an object e.g., chair, bike, marker, pen, table, car, etc. It can be physical or logical (tangible and intangible)

Q25: Differences argument and parameters

-

argument	parameters

When a function is called, the values that are passed in the call are called arguments.	The values which are written at the time of the function prototype and the definition of the function.
These are used in function call statement to send value from the calling function to the called function.	These are used in function header of the called function to receive the value from the arguments.
During the time of call each argument is always assigned to the parameter in the function definition. They are also called Actual Parameters	Parameters are local variables which are assigned value of the arguments when the function is called They are also called Formal Parameters

Q26: Is java call by value or call by reference?

There is only call by value in java, not call by reference. If we call a method passing a value, it is known as call by value. The changes being done in the called method, is not affected in the calling method**.**

Q27:What is recursion

In Java, a method that calls itself is known as a recursive method. And, this process is known as recursion. A physical world example would be to place two parallel mirrors facing each other. Any object in between them would be reflected recursively.

Q28: Ternary operator

It includes three operands.

If else statement requires group of line code to execute the statement but by using this, we can write the code into one line only.

TernaryDemo.java

```java

public class TernaryDemo {

    public static void main(String[] args) {

        int x=10;
        int y=20;
        int num=(x>y)?x:y;
        System.out.println(num);
    }
}
```

Q29:Default value of local variables & global variables

The local variables do not have any default values in Java.
global and static variables have '0' as their default values.

Q30: What is variables? Types of variable?

- It is an entity that may vary during execution of program called as variable.
- Variable is a name which is associated with a value that can be changed.

  There are two types of variable as
- Global variable
- Local variable

Q31: What is instance variable?

An instance variable is a variable which is declared in a class but outside of constructors, methods, or blocks. Instance variables are created when an object is instantiated, and are accessible to all the constructors, methods, or blocks in the class.

Q32: What is difference between & and &&.

The key difference between && and & operators is that && supports short-circuit evaluations while & operator does not. Another difference is that && will evaluate the expression exp1, and immediately return a false value if exp1 is false.

Q33: What is difference between pass by value and pass by reference

Pass by value refers to a mechanism of copying the function parameter value to another variable while the pass by reference refers to a mechanism of passing the actual parameters to the function. Thus, this is the main difference between pass by value and pass by reference

Q34)Can we call Constructor from child class?

-In child class we can call constructor from super class by using super keyword

-but the reverse is not possible we can't call constructor of child class from parent class because parent class cannot acquire the properties of child class.

2) Program for constructor

Program for no argument constructor

```
package com.test;

public class Test2 {

	String name;

	public Test2() {
		name = "yash technologies";
	}

	public static void main(String[] args) {

		Test2 test2 = new Test2();
		System.out.println("Name is>>" + test2.name);
	}

}
```

Program for parameterized constructor

```
package com.test;

public class Test2 {

	int id;
	String name;
```

```
    String city;

    public Test2(int userId, String userName, String userCity)
{
        id = userId;
        name = userName;
        city = userCity;
        System.out.println("id>>" + id);
        System.out.println("name>>" + name);
        System.out.println("city>>" + city);
    }

    public static void main(String[] args) {

        Test2 test2 = new Test2(10, "pooja patil", "pune");
    }

}
```

Output-

id>>10

name>>Pooja Patil

city>>pune

Q34:What is public static void main?

main() Method

Before explaining the java main() method, let's first create a simple program to print Hello World. After that, we will explain why the main() method in java is public static void main(String args[]).

```
public class HelloWorld {
    public static void main(String args[]) {
        System.out.println("Hello World");
    }
}
```

- **public:** the public is an access modifier that can be used to specify who can access this main() method. It simply defines the visibility of the method. The JVM calls the

main() method outside the class. Therefore it is necessary to make the java main() method as public.

- **static:** static is a keyword in java. We can make static variables and static methods in java with the help of the static keyword. The main advantage of a static method is that we can call this method without creating an instance of the class. JVM calls the main() method without creating an instance of the class, therefore it is necessary to make the java main() method static.
- **void:** void is a return type of method. The java main() method doesn't return any value. Therefore, it is necessary to have a void return type.
- **main:** main is the name of the method. It is a method where program execution starts.
- **String args[]:** String in java is a class that is used to work on Strings and args is a reference variable that refers to an array of type String. If you want to pass the argument through the command line then it is necessary to make the argument of the main() method as String args[].

Q35) What is constructor chaining ?

Constructor chaining-

A constructor is called from another constructor in the same class this process is known as **constructor chaining.**

It occurs through inheritance.

When we create an instance of a derived class, all the constructors of the inherited class (base class) are first invoked, after that the constructor of the calling class (derived class) is invoked.

Rules for constructor chaining-

- An expression that uses this keyword must be the first line of the constructor.
- Order does not matter in constructor chaining.
- There must exist at least one constructor that does not use this keyword.

How to achieve constructor chaining in two ways

- Within the same class-

  If the constructors belong to the same class, we use this keyword.

- From the base class and derived class-

If the constructor belongs to different classes (parent and child classes), we use the super keyword to call the constructor from the base class.

36)why contructor is not declared in interface?

A **Constructor** is to initialize the non-static members of a particular class with respect to an object.

Constructor in an interface

- An **Interface** in Java doesn't have a **constructor** because all data members in interfaces are **public static final** by default, they are constants (assign the values at the time of declaration).
- There are no data members in an interface to initialize them through the constructor.
- In order to call a method, we need an object, since the methods in the interface don't have a body there is no need for calling the methods in an interface.
- Since we cannot call the methods in the interface, there is no need of creating an object for an interface and there is no need of having a constructor in it.

Q37:Why interfaces can not have the constructor?

- An Interface is a complete abstraction of class. All data members present in the interface are by default public, static, and final. All the static final fields should be assigned values at the time of declaration, otherwise it will throw compilation error saying "*variable **variable_Name** not initialized in default constructor*".
- The methods inside the interface are by default public abstract which means the method implementation cannot be provided by the interface itself, it has to be provided by the implementing class. Therefore, no need of having a constructor inside the interface.
- A constructor is used to initializing non-static data members and as there are no non-static data members in the interface, there is no need of constructor
- Methods present in the interface are only declared not defined, As there is no implementation of methods, there is no need of making objects for calling methods in the interface and thus no point of having constructor in it.
- If we try to create a constructor inside the interface, the compiler will give a compile-time error.
- Java

```
// Java program that demonstrates why
```

```
// interface can not have a constructor



// Creating an interface

interface Subtraction {



    // Creating a method, by default

    // this is a abstract method

    int subtract(int a, int b);

}



// Creating a class that implements

// the Subtraction interface

class GFG implements Subtraction {



    // Defining subtract method

    public int subtract(int a, int b)
```

```
    {

        int k = a - b;

        return k;

    }



    // Driver Code

    public static void main(String[] args)

    {



        // Creating an instance of

        // GFG class

        GFG g = new GFG();

        System.out.println(g.subtract(20, 5));

    }

}
```

Q38:Why abstract classes have a constructor?

- The main purpose of the constructor is to initialize the newly created object. In

abstract class, we have an instance variable, abstract methods, and non-abstract methods. We need to initialize the non-abstract methods and instance variables, therefore abstract classes have a constructor.

- Also, even if we don't provide any constructor the compiler will add default constructor in an abstract class.
- An abstract class can be inherited by any number of sub-classes, thus functionality of constructor present in abstract class can be used by them.
- The constructor inside the abstract class can only be called during constructor chaining i.e. when we create an instance of sub-classes. This is also one of the reasons abstract class can have a constructor.

- Java

```
// A Java program to demonstrates

// an abstract class with constructors




// Creating an abstract class Car

abstract class Car {



  // Creating a constructor in

  // the abstract class

    Car() {

      System.out.println("car is created");

    }

}
```

```
// A class that extends the

// abstract class Car

class Maruti extends Car {



  // Method defining inside

  // the Maruti class

    void run() {

      System.out.println("Maruti is running");

    }

}



class GFG {



    public static void main(String[] args)

    {
```

```
        Maruti c = new Maruti();

        c.run();

    }

}
```

38) can we make constructor final?

No, we cannot make constructor as final in java.
For methods, final keyword is used to prevent them to be overridden by subclass. Constructors are also the special kind of methods but as we know that constructor can not be inherited in subclass, hence there is no use of final keyword with constructor.

39) What is difference between static and non static variable?

Static variable	Non static variable
Static variables can be accessed using class name	Non static variables can be accessed using instance of a class
Static variables can be accessed by static and non static methods	Non static variables cannot be accessed inside a static method.
Static variables reduce the amount of memory used by a program.	Non static variables do not reduce the amount of memory used by a program
Static variables are shared among all instances of a class.	Non static variables are specific to that instance of a class.
Static variable is like a global variable and is available to all methods.	Non static variable is like a local variable and they can be accessed through only instance of a class.

40) why main method is static?

static: static is a keyword in java. We can make static variables and static methods in java with the help of the static keyword. The main advantage of a static method is that we can call this method without creating an instance of the class. JVM calls the main() method without creating an instance of the class, therefore it is necessary to make the java main() method static.

Java **main()** method is always static, so that compiler can call it without the creation of

an object or before the creation of an object of the class.

- In any Java program, the **main()** method is the starting point from where compiler starts program execution. So, the compiler needs to call the main() method.
- If the **main()** is allowed to be non-static, then while calling the **main()** method JVM has to instantiate its class.
- While instantiating it has to call the constructor of that class, There will be ambiguity if the constructor of that class takes an argument.
- Static method of a class can be called by using the class name only without creating an object of a class.

41) What is use of private constructor in singleton class?

In singleton class, we use private constructor so that any target class could not instantiate our class directly by calling constructor, however, the object of our singleton class is provided to the target class by calling a static method in which the logic to provide only one object of singleton class is written/defined.

The main purpose of using a private constructor is **to restrict object creation**. We also use private constructors to implement the singleton design pattern. The use-cases of the private constructor are as follows:

- It can be used with static members-only classes.It can be used with or constant classes.
- It can also be used to create singleton classes.
- It can be used to assign a name, for instance, creation by utilizing factory methods.
- It is also used to avoid sub-classing.
- It incorporates the factory methods.

42) class having constructor, static block and static method then what is flow of execution?

-static block

-static method

-constructor

43) what is constructor in java?

Constructor-

Its name is same as class name called as constructor.

It is invoked by JVM automatically when you create the object of class.

It does not return anything even void also.

There are two types of constructor are as

- Default constructor(No- argument constructor)
- Parameterized constructor

Default constructor (No- argument constructor)

A constructor that does not accept any arguments called as default constructor.

Parameterized constructor-

A constructor with arguments called as parameterized constructor.

44) what is constructor chaining?

Constructor chaining-

A constructor is called from another constructor in the same class this process is known as **constructor chaining.**

It occurs through inheritance.

When we create an instance of a derived class, all the constructors of the inherited class (base class) are first invoked, after that the constructor of the calling class (derived class) is invoked.

Rules for constructor chaining-

- An expression that uses this keyword must be the first line of the constructor.
- Order does not matter in constructor chaining.

- There must exist at least one constructor that does not use this keyword.

How to achieve constructor chaining in two ways

- Within the same class-

  If the constructors belong to the same class, we use this keyword.

- From the base class and derived class-

If the constructor belongs to different classes (parent and child classes), we use the super keyword to call the constructor from the base class.

45) what is advantages of static?

The **static keyword in Java** is used mainly for memory management

It shares the common properties for all objects.

- When a class created then one copy of a static variable created in memory. Static variables would be common for all objects of class because a static variable is associated with a class.

46) How memory is managed by using static keyword?

Memory allocation for static members occur only once when program runs for first time. If you are using it in a class ,then only one instance is created which is shared by every object of the class. so memory consumption is less.

47)Why Main Method Declared Static ?

Because the object is not required to call static method if main() is non-static method, then JVM creates an object first then calls main()

method due to that face the problem of extra memory allocation.

48) What is constructor? Types of constructor.

Constructor -

Its name is same as class name called as constructor.

It is invoked by JVM automatically when you create the object of class.

It does not return anything even void also.

There are two types of constructor are as

- Default constructor(No- argument constructor)
- Parameterized constructor

Default constructor (No- argument constructor)

A constructor that does not accept any arguments called as default constructor.

Parameterized constructor-

A constructor with arguments called as parameterized constructor.

49) explain the access specifier?

Access Specifiers-

Access specifier's plays very important role while performing the operation on variable, methods, classes, etc.

In other words, it is simply used to restrict the access.

There are four types of access specifiers as

Private

Default

Protected

Public

Private-

It apply to global variable, method, constructor and inner class only.

Class cannot be private.

It can access within class only not outside class or outside package as scope is very limited.

Local variables cannot private.

Default-

It apply to global variable, local variable, constructors, method, inner class and outer class.

It can be accessible within the same package only.

When the access specified is not specified then it will be treated as default members.

No need to use keyword default like private.

Protected-

It apply to constructor, global variables, inner class and methods.

It cannot apply to local variables and outer class.

It is accessible within the same package and also possible into another package if inheritance is happened while calling.

Public-

It apply to class, method, constructor, global variable, static variable, inner class, outer class.

It can access anywhere in the class or outside the class or same package or different package

50) where does static is applicable?

-In the global area(inside the class and outside the method for variable)

-Method

-block

Topic Covered- super and this, super() and this() Exception Handling

1. Can we throw exception to main method?

Ans- No, When exception is thrown by main() method, Java Runtime terminates the program and print the exception message and stack trace in system console.

2. write custom exception class

----------Class 1 ----------

```
package com.test;

class Test extends Exception {

public Test(String s) {

super(s);

}

}
```

----------Class 2 ----------

```
package com.test;
```

```
public class Test1 {
public static void main(String[] args) {
try {
throw new Test("Invalid input");
} catch (Exception e) {
e.getMessage();
}
}
}
```

4. What is checked and unchecked exception

1) Checked Exception-The classes which directly inherit from Throwable class except RuntimeException and Error are known as checked exceptions

Checked Exceptions are checked at compile-time.

Example- IOException, SQLException

2)Unchecked Exception-The classes which inherit from RuntimeException are known as unchecked exceptions. Unchecked exceptions are not checked at compile-time, but they are checked at runtime.

Example- ArithmaticException, NullPointerException,

IndexOutOfBondException

5. Exception hierarchy- Ref Question-3

6. Compile time exception means what?

Compile Time Exception is Checked Exception ,The classes which directly inherit from Throwable class except RuntimeException and Error are known as checked exceptions Checked Exceptions are checked at compile-time.

7. What is class not found exception?

ClassNotFoundException is a checked exception and occurs when the Java Virtual Machine (JVM) tries to load a particular class and the specified class cannot be found in the classpath.

8. Why do we use exceptional handling?

exception handling is to maintain the normal flow of the application. An exception normally disrupts the normal flow of the application; that is why we need to handle exceptions

9. Diff bet error & exception..

10. Compile time exception means what?-Ref Q6

11. What is difference between classcastexception and classnotfoundexception

ClassCastException in Java is one of the unchecked exceptions that occur when we try to convert one class type object into another class type.

ClassCast Exception is thrown when we try to cast an object of

the parent class to the child class object. However, it can also be thrown when we try to convert the objects of two individual classes that don't have any relationship between them.

ClassNotFoundException is a checked exception in Java that occurs when the JVM tries to load a particular class but does not find it in the classpath.

12. can we handle multiple exceptions by using single catch block

Yes, Starting from Java 7.0, it is possible for a single catch block to catch multiple exceptions by separating each with | (pipe symbol) in the catch block.

Catching multiple exceptions in a single catch block reduces code duplication and increases efficiency.

13. Types of exception

1)Checked Exception-The classes which directly inherit from Throwable class except RuntimeException and Error are known as checked exceptions Checked Exceptions are checked at compile-time.

Example- IOException, SQLException

2)Unchecked Exception-The classes which inherit from RuntimeException are known as unchecked exceptions.Unchecked exceptions are not checked at compile-time, but they are checked at runtime.

Example- ArithmaticException, NullPointerException,

IndexOutOfBondException

14. how to handle the exception?

The try-catch is the simplest method of handling exceptions. Put the code you want to run in the try block, and any Java exceptions that the code throws are caught by one or more catch blocks. This method will catch any type of Java exceptions that get thrown. This is the simplest mechanism for handling exceptions.

15. Exception in overriding

When Exception handling is involved with Method overriding, ambiguity occurs. The compiler gets confused as to which definition is to be followed

16. Try catch scenario

The try-catch is the simplest method of handling exceptions. Put the code you want to run in the try block, and any Java exceptions that the code throws are caught by one or more catch blocks. This method will catch any type of Java exceptions that get thrown. This is the simplest mechanism for handling exceptions.

17. What is exception n difference between throw n throws keyword

Exception is the abnormal condition that occur during execution of program to stop the entire flow of application is Known As Exception.

Throw_The throw keyword is used to transfer the exception to someone else.

Example:

- throw new ArithmeticException ();

Throws_Throws keyword is used to declare the exception with method.

Example_void x1()throws IOException{

x2();

}

18. throw and throws difference

19. What is try with resources?

The resource is as an object that must be closed after finishing the program.

20. what is exception handling

Exception Handling is a mechanism to handle runtime errors such as ClassNotFoundException, IOException, SQLException, RemoteException, etc.to maintain the normal flow of the application. An exception normally disrupts the normal flow of the application; that is why we need to handle.

21. which are the types of exception do you know-Ref Q 13.

22. difference bet Final Finally Finalize

Sr.

no.

Key final finally finalize

1. Definition final is the keyword

and access modifier

which is used to apply

restrictions on a class,

method or variable.

finally is the block in

Java Exception

Handling to execute the

important code

whether the exception

occurs or not.

finalize is the method in

Java which is used to

perform clean up

processing just before

object is garbage

collected.

2. Applicable to Final keyword is used

with the classes,

methods and variables.

Finally block is always

related to the try and

catch block in

exception handling.

finalize() method is used

with the objects.

3. Functionality (1) Once declared, final

variable becomes

constant and cannot be

modified.

(2) final method cannot

be overridden by sub

class.

(3) final class cannot be

inherited.

(1) finally block runs

the important code

even if exception

occurs or not.

(2) finally block cleans

up all the resources

used in try block

finalize method

performs the cleaning

activities with respect to

the object before its

destruction.

4. Execution Final method is

executed only when we

call it.

Finally block is

executed as soon as the

try-catch block is

executed.

It's execution is not

dependant on the

exception.

finalize method is

executed just before the

object is destroyed.

23. try without catch is it possible?

Yes, it is possible to have try without catch in java by using finally.

You can directly use try with finally block and it will just work fine. You might know that finally block is always executed in case of exception or return statement as well.

24. If try/catch blocks have a return statement, even then the finally block executes?

Yes, first Finally Block executes because Finally Block Dominates return Statements

25. can we catch error in try and catch block

The try... catch construct allows to handle runtime errors. It literally allows to “try” running the code and “catch” errors that may occur in it.

26. if we write system.exit() finally will execute?

No, It will not Execute.

27. How to handle Global exception

In SpringMVC the request is handled by Controller classes method – if any error occurred in any particular method of the controller class then it can be handled in that @Controller class only -this is the local exception handlingAlternatively you can have Multiple @Controller class throwing the same kind of exception, grouping them, and handling them by the group can be called global exception handling. The advantage of global exception handling is all the code necessary for handling any kind of error in the whole of your application can be separated and modularized.

28 Throw & Throws Which Exception They Propagated? Ref Q18 2nd Point.

29 How u handled it?

30. Finally

Finally is the block in Java Exception Handling to execute the important code whether the exception occurs or not.

31 Exception- Ref Q17

32 How u handled it Ref Q14

33 Custom exception how we create it?

Steps to create the user defined exception

1. Create the new class.

2. The user defined exception class must extend

from java.lang.Exception or java.lang.RunTimeException class.

3. While creating custom exception, prefer to create an unchecked, Runtime exception than a checked exception.

4. Every user defined exception class in which parametrized Constructor must called parametrized Constructor of either java.lang.Exception or java.lang.RunTimeException class by using super(string parameter always).

34 How you handled exception in your project? Ref Q14

35 difference between final, finally, finalize

36 What are types of Exception handling?

37 Do u know exception chaining? How u handled it

Chained Exceptions allows to relate one exception with another exception, i.e one exception describes cause of another exception. For example, consider a situation in which a method throws an ArithmeticException because of an attempt to divide by zero but the actual cause of exception was an I/O error which caused the divisor to be zero. The method will throw only ArithmeticException to the caller. So the caller would not come to know about the actual cause of exception. Chained Exception is used in such type of situations.

Constructors Of Throwable class Which support chained exceptions in java :

Throwable(Throwable cause) :- Where cause is the exception that causes the current exception.

Throwable(String msg, Throwable cause) :- Where msg is the exception message and cause is the exception that causes the current exception.

Methods Of Throwable class Which support chained exceptions in java :

getCause() method :- This method returns actual cause of an exception.

initCause(Throwable cause) method :- This method sets the cause for the calling exception.

38 How you handled exception in your project? Ref Q14

39 Why throws decleared with method signature?

The signature lets the method's caller know that an exception may occur as a consequence of the call. If the exception does get thrown, the caller must be prepared to do something about it.

40 can we extend checked exception instead runtime exception

No

41 can we declare multiple exception in single catch block

Java allows you to catch multiple type exceptions in a single catch block. It was introduced in Java 7 and helps to optimize code. You can use vertical bar (|) to separate multiple exceptions in catch block.

42 what is exception propagation

An exception is first thrown from the top of the stack and if it is not caught, it drops down the call stack to the previous method. If not caught there, the exception again drops down to the previous method, and so on until they are caught or until they reach the very bottom of the call stack. This is called exception propagation.

43 What is rethrowing exception?

We all know that exceptions occurred in the try block are caught in catch block. Thus caught exceptions can be re-thrown using throw keyword This Proccess is Known as rethrowing in exception. Re-thrown exception must be handled some where in the program, otherwise program will terminate abruptly.

44 Have u got out of memory exception ? how to solve it?

The name of the error itself conveys that it is an out-of-memory error where the JVM throws such error when it cannot allocate an object in the heap memory. Java.lang.outofmemory error, about heap space & how to fix the error.

Setting/Increase JVM heap size_It is possible to increase heap size allocated by the Java Virtual Machine

(JVM) by using command line options. Following are few options available to change Heap Size.

Getting / Reading default heap size_It is possible to read the default JVM heap size programmatically by using

totalMemory() method of Runtime class. Use following code to read JVM heap size.

45 Suppose I have write multiple catch blocks in try block and I want to

handle IO exception and I have write 1st Catch block with Exception and 2nd block with IO exception So will it work?

46 what do printstacktrace do?

The printStackTrace() method of Java Throwble class is used to print the Throwable along with other details like classname and line number where the exception occurred.

47 when do we get ioexception

Java IOExceptions are Input/Output exceptions (I/O), and they occur whenever an input or output operation is failed or interpreted. For example, if you are trying to read in a file that does not exist, Java would throw an I/O exception

48 when do we get null ponter exception?

NullPointerException is a subclass of RuntimeException class in java. This exception raised when you try to access members from a class using object reference that is initialized to null value. For example

String str=null;

System.out.println("Length :"+str.length());

str.length() will raise a NullPointerException.

49 What are the different ways to handle exception?

By Using try-catch-finally block

50 Exception code with overriding

51 Difference between RuntimeException & CompiletimeException with Example Exception hirerchy

52 When class not found exception occur and to handle it

ClassNotFoundException is a checked exception in Java that occurs when the JVM tries to load a particular class but does not find it in the classpath.

How To handle_1. Find out which JAR file contains the problematic Java class. For example,

in the case of com.mysql.jdbc.driver, the JAR file that contains it is mysql_connector-java.jar.

2. Check whether this JAR is present in the application

classpath. If not, the JAR should be added to the classpath in Java and the application should be recompiled.

3. If that JAR is already present in the classpath, make sure the classpath is not overridden (e.g. by a start-up script). After finding out the exact Java classpath used by the application, the JAR file should be added to it.

53 When classdefnotfoundexception and how to handle it.

Justlike ClassNotFoundException, NoClassDefFoundError occurs at runtime. We get this error when the class is not available in the program at runtime. It is an unchecked exception which a program throws when the requested class is not present at runtime. In this case, the class was successfully compiled by the compiler, and when we try to run the program, the class will not be available. The ClassNotFoundException occurs when the classpath doesn't get updated with the required JAR files. The NoClassDefFoundError is an error

54 can we write methods in catch block? (pending)

55 if write system.exits in finally will it be executed if no reason?

No, Code will not Execute. Because Calling the System.exit method terminates the currently running JVM and exits the program. This method does not return normally.This means that the subsequent code after the System.exit is effectively unreachable and yet, the compiler does not know about it.

56 diff bet final and finally? Ref Q35

57 what exactly finally block does? Ref Q35

58 difference between final and finally? Ref Q35

Method Overriding:-

1) What is method overriding:

If a subclass provides a specific implementation of a method that is already provided by its parent class, it is known as Method Overriding. It is used for runtime polymorphism and to implement the interface methods.

Rules for Method overriding

● The method must have the same name as in the parent class.

● The method must have the same signature as in the parent class.

● Two classes must have an IS-A relationship between them.

2) Can we override the static method?

No, you can't override the static method because they are the part of the class, not

the object.

3)Can we override the overloaded method?

Yes.

4)Can we override the private methods?

No, we cannot override the private methods because the scope of private methods is limited to the class and we cannot access them outside of the class.

5)Can we change the scope of the overridden method in the

subclass?

Yes, we can change the scope of the overridden method in the subclass. However,

we must notice that we cannot decrease the accessibility of the method. The

following point must be taken care of while changing the accessibility of the method.

- The private can be changed to protected, public, or default.
- The protected can be changed to public or default.
- The default can be changed to public.
- The public will always remain public.

6) What is String Pool?

String pool is the space reserved in the heap memory that can be used to store the strings. The main advantage of using the String pool is whenever we 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 the string doesn't exist in the pool, a new string instance is created and placed in the pool. Therefore, it saves

the memory by avoiding the duplicacy.

7) What is the meaning of immutable regarding String?

The simple meaning of immutable is unmodifiable or unchangeable. In Java, String is immutable, i.e., once string object has been created, its value can't be changed.

Consider the following example for better understanding.

```
1. class Testimmutablestring{
2. public static void main(String args[]){
3. String s="Sachin";
4. s.concat(" Tendulkar");//concat() method appends the string at the end
5. System.out.println(s);//will print Sachin because strings are immutable
objects
6. }
7. }
```

Test it Now

Output:

Sachin

8)What is a singleton class?

Singleton class is the class which can not be instantiated more than once. To make a class singleton, we either make its constructor private or use the static getInstance

method

Collection:-

1. What will happened when we try to add duplicate key in HashMap?

Ans: -

public V put (K key, value)

It stores the data in (Key, Value) pairs, and you can access them by an index of another

type (e.g., an Integer). One object is used as a key (index) to another object (value). If you try to insert the duplicate key, it will replace the element of the corresponding key.

It means if I have key values as put (1,5) then if key 1 is duplicate key then my will be replace by value 5 as a key.

2. Is map implements collection interface?

Ans:- The ans is no.

Collection interface provides add, remove, search or iterate

while map has clear, get,

put, remove, etc.

3. Difference between SOAP and REST

What is SOAP?

SOAP is a protocol which was designed before REST and came into the picture. The main idea behind

designing SOAP was to ensure that programs built on different platforms and programming languages

could exchange data in an easy manner. SOAP stands for Simple Object Access Protocol.

What is REST?

REST was designed specifically for working with components such as media components, files, or

even objects on a particular hardware device. Any web service that is defined on the principles of

REST can be called a RestFul web service. A Restful service would use the normal HTTP verbs of

GET, POST, PUT and DELETE for working with the required components. REST stands for

Representational State Transfer.

Below is the main difference between SOAP and REST API

SOAP REST

• SOAP stands for Simple Object
Access Protocol
• REST stands for Representational State
Transfer
• SOAP is a protocol. SOAP was
designed with a specification. It
includes a WSDL file which has the
required information on what the
• REST is an Architectural style in which a
web service can only be treated as a RESTful
service if it follows the constraints of being
1. Client Server
2. Stateless
3. Cacheable
web service does in addition to the
location of the web service.
4. Layered System
5. Uniform Interface
• SOAP cannot make use of REST
since SOAP is a protocol and REST

is an architectural pattern.

• REST can make use of SOAP as the underlying protocol for web services, because in the end it is just an architectural pattern.

• SOAP uses service interfaces to expose its functionality to client applications. In SOAP, the WSDL file provides the client with the necessary information which can be used to understand what services the web service can offer.

• REST use Uniform Service locators to access to the components on the hardware device. For example, if there is an object which represents the data of an employee hosted on a URL as http://demo.guru99 , the below are some of URI that can exist to access them.

• SOAP requires more bandwidth for its usage. Since SOAP Messages contain a lot of information inside

of it, the amount of data transfer
using SOAP is generally a lot.

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope
xmlns:SOAP-ENV
="http://www.w3.org/2001/12/soap-envelo
pe"
SOAP-ENV:encodingStyle
=" http://www.w3.org/2001/12/soap-encodi
ng">
<soap:Body>
<Demo.guru99WebService
xmlns="http://tempuri.org/">
  <EmployeeID>int</EmployeeID>
  </Demo.guru99WebService>
</soap:Body>
</SOAP-ENV:Envelope>
```

• REST does not need much bandwidth when
requests are sent to the server. REST
messages mostly just consist of JSON

messages. Below is an example of a JSON message passed to a web server. You can see that the size of the message is comparatively smaller to SOAP.

```
{"city":"Mumbai","state":"Maharastra"}
```

• SOAP can only work with XML format. As seen from SOAP messages, all data passed is in XML format.

• REST permits different data format such as Plain text, HTML, XML, JSON, etc. But the most preferred format for transferring data is JSON.

How you handle exception in spring boot project?

How you deploy your application on server?

Answers for above question will be merged after done with project understating.

5) How/when can we rollback our transaction?

You can use ROLLBACK TRANSACTION to erase all data modifications made from the start of the

transaction or to a savepoint. It also frees resources held by the transaction. This does not include

changes made to local variables or table variables. These are not erased by this statement.

You just have to write the statement ROLLBACK TRANSACTION, followed by the name of the

transaction that you want to rollback. Now, try to run the AddBook transaction to insert the record

where the name is Book15 (make sure that no book with this name already exists in the Books table).

6) How we handle merging conflict?

https://www.simplilearn.com/tutorials/git-tutorial/merge-conflicts-in-git

7) Have you written any test cases?

Yes,

How to write test cases for software:

Use a Strong Title

A good test case starts with a strong title. As a best practice, it's good to name the test case along the

same lines as the module that you are testing. For example, if you're testing the login page, include

"Login Page" in the title of the test case. In some cases, if the

tool you’re using doesn’t already do this,

it might make sense to include a unique identifier in the title of the test case as well, so the identifier

can be referenced instead of a long title

Include a Strong Description

The description should tell the tester what they’re going to test. Sometimes this section might also

include other pertinent information such as the test environment, test data, and

preconditions/assumptions. A description should be easy to read and immediately communicate the

high-level goal of the test.

Include Assumptions and Preconditions

You should include any assumptions that apply to the test and any preconditions that must be met prior

to the test being executed. This information can include which page the user should start the test on,

dependencies on the test environment, and any special setup requirements that must be done before

running the test. This information also helps keep the test steps short and concise.

Keep the Test Steps Clear and Concise

Test cases should be simple. Keep in mind, the person who wrote the test case might not be the same

person who executes the test itself. The test steps should include the necessary data and information on

how to execute the test. This is perhaps the most important part of a test case. Keep this section clear

and concise, but don't leave out any necessary details. Write the test case so that anyone can go in and

perform the test.

Include the Expected result

The expected result tells the tester what they should experience as a result of the test steps. This is how

the tester determines if the test case is a "pass" or "fail".

Make it Reusable

A good test case is reusable and provides long-term value to the software testing team. When writing a

test case, keep this in mind. You can save time down the road by re-using the test case instead of re_writing it.

Sample of a Test Case

Here is an example of a test case:

Title: Login Page – Authenticate Successfully on gmail.com

Description: A registered user should be able to successfully

login at gmail.com.

Precondition: the user must already be registered with an email address and password.

Assumption: a supported browser is being used.

Test Steps:

1. Navigate to gmail.com

2. In the ’email’ field, enter the email address of the registered user.

3. Click the ‘Next’ button.

4. Enter the password of the registered user

5. Click ‘Sign In’

Expected Result: A page displaying the Gmail user’s inbox should load, showing any new message at

the top of the page.

8) Can we write test case for static method?

Static methods don't need an instance of the class to be invoked — they can be called on the class

itself. Although testing a non-static method (at least one that doesn't call a static method or interact

with external dependencies) is straightforward, testing a static method is not an easy task at all.

9) Do you have any front end exp?

Ans- No,

10.What is join?

We have three referral answers here one is from sql topic other from thread and from string topic.

From Sql join>>>A SQL Join statement is used to combine data or rows from two or more tables

based on a common field between them. Different types of Joins are:

• INNER JOIN

• LEFT JOIN

• RIGHT JOIN

• FULL JOIN

Consider following are two different table we have

#Join from thread topic >>>The join() method waits for a thread to die. In other words, it causes the

currently running threads to stop executing until the thread it joins with completes its task.

#Join from string topic >>>The java.lang.string.join() method concatenates the given elements

with the delimiter and returns the concatenated string. Note that if an element is null, then null is

added. The join() method is included in java string since JDK 1.8.

There are two types of join() methods in java string.

Syntax:

public static String join(CharSequence deli, CharSequence... ele)

and

public static String join

(CharSequence deli, Iterable<? extends CharSequence> ele)

Parameters:

deli- delimiter to be attached with each element

ele- string or char to be attached with delimiter

Returns : string joined with delimiter.

```
// Java program to demonstrate
// working of join() method
class Gfg1 {
  public static void main(String args[])
  {
  // delimiter is "<" and elements are "Four", "Five", "Six",
```

```
"Seven"
  String gfg1 = String.join(" < ", "Four", "Five", "Six", "Seven");
  System.out.println(gfg1);
  }
}
```

Output:

Four < Five < Six < Seven

11.What is polymorphism?

Ans>>Real life example of polymorphism: A person at the same time can have different

characteristic. Like a man at the same time is a father, a husband, an employee. So the same person

posses different behavior in different situations. This is called polymorphism.

Polymorphism is considered one of the important features of Object-Oriented Programming.

Polymorphism allows us to perform a single action in different ways. In other words, polymorphism

allows you to define one interface and have multiple implementations. The word “poly” means many

and “morphs” means forms, So it means many forms.

In Java polymorphism is mainly divided into two types:

• Compile time Polymorphism

• Runtime Polymorphism

1.Compile-time polymorphism: It is also known as static polymorphism. This type of

polymorphism is achieved by function overloading or operator overloading. But Java doesn't

support the Operator Overloading.

1.Method Overloading: When there are multiple functions with same name but different parameters

then these functions are said to be overloaded. Functions can be overloaded by change in number

of arguments or/and change in type of arguments.

2. Runtime polymorphism: It is also known as Dynamic Method Dispatch. It is a process in which a

function call to the overridden method is resolved at Runtime. This type of polymorphism is

achieved by Method Overriding.

Method overriding, on the other hand, occurs when a derived class has a definition for one of the

member functions of the base class. That base function is said to be overridden.

12..How will you fetch 1 lakh employee data from database in sorted order?

The first way is: -

SELECT *

FROM Employee

Where SIZE > 100000

ORDER BY NAME ASC

But it will take more time for loading all 10000 records from the databas

The efficient way is fetching the data while it is continuously loading on our result page

Note- set fetch size as 500;

SELECT *

FROM (SELECT ename, empid,salary,address

FROM Employee

WHERE SIZE > 100000 ORDER BY NAME DESC)

WHERE ROWNUM <= 100

13.Diff bet string buffer n builder?

1) StringBuffer is synchronized i.e. thread safe. It

means two threads can't call the methods of

StringBuffer simultaneously.

StringBuilder is non-synchronized i.e. not thread safe.

It means two threads can call the methods of

StringBuilder simultaneously.

2) StringBuffer is less efficient than StringBuilder StringBuilder is more efficient than StringBuffer

StringBuffer buffer=new StringBuffer("hello"); StringBuilder builder=new StringBuilder(

"hello");

buffer.append("java"); builder.append("java");

14.Differecne between HashMap & HashTable

HashMap
Hashtable

1) HashMap is non synchronized. It is

not-thread safe and can't be shared

between many threads without proper

synchronization code.

Hashtable is synchronized. It is

thread-safe and can be shared with

many threads.

2) HashMap allows one null key and

multiple null values.

Hashtable doesn't allow any null key

or value

3) HashMap is a new class introduced

in JDK 1.2.

Hashtable is a legacy class.

4) HashMap is fast. Hashtable is slow.

5) We can make the HashMap as

synchronized by calling this

code

Map m =

Collections.synchronizedMap(hashMap);

Hashtable is internally synchronized

and can't be unsynchronized.

6) HashMap is traversed by Iterator. Hashtable is traversed by

Enumerator and Iterator.

15.What is string constant pool?

String pool is nothing but a storage area in Java heap where string literals stores. It is also known

as String Intern Pool or String Constant Pool. It is just like object allocation. By default, it is empty

and privately maintained by the Java String class. Whenever we create a string the string object

occupies some space in the heap memory. Creating a number of strings may increase the cost and

memory too which may reduce the performance also.

16.What is immutable?

The term Mutable means "can change" and Immutable means "cannot change". An Immutable Object

means that the state of the Object cannot change after its creation. ... Once string object is created

its data or state can't be changed but a new string object is created.

string is called as immutable that holds same properties.

We can also create a class as immutable.

17.When we use string buffer n builder?

If the Object value can change and will only be accessed from a single thread, use a StringBuilder

because StringBuilder is unsynchronized. In case the Object value can change, and will be modified by

multiple threads, use a StringBuffer because StringBuffer is

synchronized.

18.Diff bet iterator n list iterator?

Iterator ListIterator

Can traverse elements present in Collection

only in the forward direction.

Can traverse elements present in Collection

both in forward and backward directions.

Helps to traverse Map, List and Set. Can only traverse List and not the other two.

Indexes cannot be obtained by using Iterator.

It has methods like nextIndex() and

previousIndex() to obtain indexes of elements

at any time while traversing List.

Cannot modify or replace elements present in

Collection

We can modify or replace elements with the

help of set(E e)

7) Iterator in HashMap is fail-fast. Enumerator in Hashtable is not fail_fast.

8) HashMap

inherits AbstractMap class.

Hashtable inherits Dictionary class.

Iterator ListIterator

Cannot add elements and it throws

ConcurrentModificationException.

Can easily add elements to a collection at any

time.

Certain methods of Iterator are next(),

remove() and hasNext().

Certain methods of ListIterator are next(),

previous(), hasNext(), hasPrevious(), add(E e).

19.What is interface n abstract class?

An abstract class allows you to create functionality that subclasses can implement or override. An

interface only allows you to define functionality, not implement it. And whereas a class can extend

only one abstract class, it can take advantage of multiple interfaces.

20.What is check exception?

1) Checked Exception: are the exceptions that are checked at compile time. If some code within a

method throws a checked exception, then the method must either handle the exception or it must

specify the exception using throws keyword.

For example, consider the following Java program that opens file at location “C:\test\a.txt” and prints

the first three lines of it. The program doesn’t compile, because the function main() uses FileReader()

and FileReader() throws a checked exception FileNotFoundException. It also uses readLine() and

close() methods, and these methods also throw checked exception IOException

```
import java.io.*;


class Main {
  public static void main(String[] args) {
  FileReader file = new FileReader("C:\\test\\a.txt");
  BufferedReader fileInput = new BufferedReader(file);


  // Print first 3 lines of file "C:\test\a.txt"
  for (int counter = 0; counter < 3; counter++)
  System.out.println(fileInput.readLine());
```

```
 fileInput.close();
 }
}
```

Output:

Exception in thread "main" java.lang.RuntimeException: Uncompilable source code -

unreported exception java.io.FileNotFoundException; must be caught or declared to be

thrown

 at Main.main(Main.java:5)

21.How to provide security to Spring boot project?

Ans not found..

22.write sql query to to fetch all data from specific column?

Select coloum_name from table_name;

e.g.:-- SELECT city from employee;

tis query will give all data from specific coloum.

23.If given no is Even divide by 2, If odd multiply by 3 & add 1

and given number is from (10-1000).

package com.creative;

```
import java.util.Scanner;

//If given no is Even divide by 2, If add multiply by 3 & add 1 and given number is from (10-1000).

public class Oddeven {

public void EvenOdFun(int a) {

if (a < 10 || a > 1000) {

System.out.println("please enter valid input");

} else if (a % 2 == 0) {

System.out.println("this is even number");

a = a / 2;

System.out.println("the value after performing given logic>>" + a);

} else {

System.out.println(" this is odd number");

a = a * 3;

a = a + 1;

System.out.println("result after odd logic>>>"+a);

}

}

public static void main(String[] args) {
```

```
Scanner sc = new Scanner(System.in);

System.out.println("please enter the no");

int a = sc.nextInt();

Oddeven ov = new Oddeven();

ov.EvenOdFun(a); }}
```

24) What is spring actuator ?

Spring Actuator is a cool feature of Spring Boot with the help of which you can see

what is happening inside a running application. So, whenever you want to debug your

application, and need to analyze the logs you need to understand what is happening in

the application right? In such a scenario, the Spring Actuator provides easy access to

features such as identifying beans, CPU usage, etc. The Spring Actuator provides a

very easy way to access the production-ready REST points and fetch all kinds of

information from the web. These points are secured using Spring Security’s content

negotiation strategy.

25) What is java ?

Java is a programming language and a platform. Java is a high level, robust,

object-oriented and secure programming language. Java was developed by Sun

Microsystems in the year 1995.

There are many devices where Java is currently used. Some of them are as follows:

1. Desktop Applications such as acrobat reader, media player, antivirus, etc.

2. Web Applications such as irctc.co.in, javatpoint.com, etc.

3. Enterprise Applications such as banking applications.

4. Mobile

5. Embedded System

6. Smart Card

7. Robotics

8. Games, etc.

26)What is Decode and Case in oracle ?

Could not find answer of that question

27)What is connection ?

A Connection is the session between java application and database. The Connection

interface is a factory of Statement, PreparedStatement, and DatabaseMetaData i.e. object

of Connection can be used to get the object of Statement and DatabaseMetaData. The

Connection interface provide many methods for transaction management like commit(),

rollback() etc.

28)what annotations you have used?

@Required

This annotation is applied on bean setter methods. Consider a scenario where you need

to enforce a required property. The @Required annotation indicates that the affected

bean must be populated at configuration time with the required property. Otherwise an

exception of type BeanInitializationException is thrown.

@Autowired

This annotation is applied on fields, setter methods, and constructors. The

@Autowired annotation injects object dependency implicitly.

When you use @Autowired on fields and pass the values for the fields using the

property name, Spring will@Qualifier

This annotation is used along with @Autowired annotation. When you need more

control of the dependency injection process, @Qualifier can be used. @Qualifier can

be specified on individual constructor arguments or method parameters. This annotation

is used to avoid confusion which occurs when you create more than one bean of the

same type and want to wire only one of them with a property. automatically assign the

fields with the passed values.

@Configuration

This annotation is used on classes which define beans. @Configuration is an analog for

XML configuration file – it is configuration using Java class. Java class annotated with

@Configuration is a configuration by itself and will have methods to instantiate and

configure the dependencies.

@Bean

This annotation is used at the method level. @Bean annotation

works with

@Configuration to create Spring beans. As mentioned earlier, @Configuration will

have methods to instantiate and configure dependencies. Such methods will be

annotated with @Bean. The method annotated with this annotation works as bean ID

and it creates and returns the actual bean.

@Controller

The @Controller annotation is used to indicate the class is a Spring controller. This

annotation can be used to identify controllers for Spring MVC or Spring WebFlux.

29) What is driver manager ?

The DriverManager class acts as an interface between the user and drivers. It keeps

track of the drivers that are available and handles establishing a connection between a

database and the appropriate driver. It contains several methods to keep the interaction

between the user and drivers.

In this various method are as follows:

Public static Connection getConnection(String url): is used to establish

the connection with the specified url

userName,String password)

30) What is public static void main ?

main() in Java is the entry point for any Java program. It is always written

as public static void main(String[] args).

public: Public is an access modifier, which is used to specify who can

access this method. Public means that this Method will be accessible by

any Class.

static: It is a keyword in java which identifies it is class-based. main() is

made static in Java so that it can be accessed without creating the instance

of a Class. In case, main is not made static then the compiler

public static Connection getConnection(String

url,String will throw an error as main() is called by the JVM before any objects are made and

only static methods can be directly invoked via the class.

void: It is the return type of the method. Void defines the method which

will not return any value.

main: It is the name of the method which is searched by JVM as a starting

point for an application with a particular signature only. It is the method

where the main execution occurs.

String args[]: It is the parameter passed to the main method.

31) What is application server?

Application server contains Web and EJB containers. It can be used for servlet, jsp,

struts, jsf, ejb etc. It is a component based product that lies in the middle-tier of a server

centric architecture.

It provides the middleware services for state maintenance and security, along with

persistence and data access. It is a type of server designed to install, operate and host

associated services and applications for the IT services, end users and organizations.

The Example of Application Servers are:

1. JBoss: Open-source server from JBoss community.

2. Glassfish: Provided by Sun Microsystem. Now acquired by Oracle.

3. Weblogic: Provided by Oracle. It more secured.

4. Websphere: Provided by IBM.

32) What is diff bet c, c++ and java ?

C:-

It is procedureal language

c++:-It is an object-oriented

programming language.

java:-It is a oriented language pure object_programming

It uses

approach.

the top-down It uses

approach.

the bottom-up It also uses the bottom-up

approach.

It is a static programming

language.

It is also a static

programming language.

It is a dynamic

programming language.

It uses a compiler only to

translate the code into

It also uses a compiler

only to translate the code

java uses both compiler

and interpreter and it is

machine language. into machine language. also known as an

interpreted language

There are 32 keywords in

the C language.

There are 60 keywords in

the C++ language.

There are 52 keywords in

the Java language.

It supports pointer It also supports pointer. Java does not support the

pointer concept because of

security.

It is platform dependent. It is platform dependent. it is platform-independent

because of byte code.

33) What is Schema ?

A Schema in SQL is a collection of database objects associated with a database.

The username of a database is called a Schema owner (owner of logically grouped

structures of data). Schema always belong to a single database whereas a database can have

single or multiple schemas. Also, it is also very similar to separate namespaces or

containers, which stores database objects. It includes various database objects including

your tables, views, procedures, index, etc.

Advantages of Schema

You can apply security permissions for separating and protecting database

objects based on user access rights.

A logical group of database objects can be managed within a database.

Schemas play an important role in allowing the database objects to be

organized into these logical groups.

The schema also helps in situations where the database object name is the

same. But these objects fall under different logical groups.

A single schema can be used in multiple databases.

The schema also helps in adding security.

It helps in manipulating and accessing the objects which otherwise is a

complex method.

You can also transfer the ownership of several schemas.

The objects created in the database can be moved among schemas.

34) How you change your application schemas ?

Related to project

35) Jsp servlet life cycle ?

A Java Server Page life cycle is defined as the process that started with its creation

which later translated to a servlet and afterward servlet lifecycle comes into play. This

is how the process goes on until its destruction.

o Following steps are involved in the JSP life cycle:

Translation of JSP page to Servlet

Compilation of JSP page(Compilation of JSP into test.java)

Classloading (test.java to test.class)

Instantiation(Object of the generated Servlet is created)

Initialization(jspInit() method is invoked by the container)

Request processing(_jspService()is invoked by the container)

JSP Cleanup (jspDestroy() method is invoked by the container)

36)Interface and abstract class diff ?

Abstract class Interface

Abstract class can have abstract and

non-abstract methods.

Interface can have only

abstract methods. Since Java 8, it

can have default and static

methods also.

Abstract class doesn't support multiple

inheritance.

Interface supports multiple

inheritance.

Abstract class can have final, non-final,

static and non-static variables

Interface has only static and final

variables.

37) What is multiple inheritance?

One class has many super classes called as multiple inheritance.

Why multiple inheritance not supported in java in case of classes?

Class base has test () method and class derived has also test () method. Class test

extends Base, Derived, which test method It will called, so it create the ambiguity

so that’s why multiple inheritance does not supports in java.

```
package com.multiple.inheritance;

public class A {

void m1() {

}

}

package com.multiple.inheritance;
```

```
public class B {
void m1() {
}
}
package com.multiple.inheritance;
class C extends A,B {
public static void main(String[] args) {
C c= new C();
c.m1();
}
}
```

Note- it will get the compile time error.

38) Is there any full form of java ?

There no full form of java

39)what is @qualifier, @Bean ?

40)what is singleton answer factory design pattern?

It means define the class which has single instance that provide the global point of

access to it called as singleton design pattern.

When?

If you have business requirement in which only one object is created then you should go

for singleton design pattern.

Factory design pattern

Design the factory method in which multiple objects are stored called as factory design

pattern.

Why?

Sometime our application or frameworks don’t know what kind of object has to create at

run time. It only knows when it has to create.

Another issue is that class will contain object of another classes, this can be easily

achieved by just using the new keyword and the class constructor. The problem with this

approach is that it is very hard coded approach to create the object as this creates

dependency between two classes.

To overcome this above situation, we should go for factory pattern.

Example:-

Suppose we have requirement to book AC ticket for First tier,

second tier and Third tier.

Step 1 create the interface Booking.

Step 2- create the concreate class First tier will implement the same interface

Step 3- create the concreate class Second tier will implement the same interface

Step 4- create the concreate class Third tier will implement the same interface

Step 5- create class BookingFactory to generate the object of concreate class.

Step 6- Create the factory class to get the object of concreate class by passing the data

41) Stored Procedure and function difference

Following are the important differences between SQL Function and SQL Procedure.

Sr. No. Key Function Procedure

1

Definition A function is used to calculate

result using given inputs.

A procedure is used to perform certain

task in order.

2

Call A function can be called by a

procedure.

A procedure cannot be called by a

function.

3

DML DML statements cannot be

executed within a function.

DML statements can be executed

within a procedure.

4

SQL,

Query

A function can be called within

a query.

A procedure cannot be called within a

query.

5

SQL, Call Whenever a function is called,

it is first compiled before being

called.

A procedure is compiled once and can be called multiple times without being compiled.

6

SQL,

Return

A function returns a value and control to calling function or code.

A procedure returns the control but not any value to calling function or code.

7

try-catch A function has no support for try-catch

A procedure has support for try-catch blocks.

8

SELECT A select statement can have a A select statemnt can't

have a

function call. procedure call.

9

Explicit

Transactio

n Handling

A function can not have

explicit transaction handling.

A procedure can use explicit

transaction handling.

42) Why use hibernate?

Open Source and Lightweight

Hibernate framework is open source under the LGPL license and lightweight.

Fast Performance

The performance of hibernate framework is fast because cache is internally used in

hibernate framework. There are two types of cache in hibernate framework first level cache

and second level cache. First level cache is enabled by default.

Database Independent Query

HQL (Hibernate Query Language) is the object-oriented version of SQL. It generates the

database independent queries. So you don't need to write database specific queries. Before

Hibernate, if database is changed for the project, we need to change the SQL query as well that

leads to the maintenance problem.

Automatic Table Creation

Hibernate framework provides the facility to create the tables of the database

automatically. So there is no need to create tables in the database manually.

Simplifies Complex Join

Fetching data from multiple tables is easy in hibernate framework.

Provides Query Statistics and Database Status

Hibernate supports Query cache and provides statistics about query and database status.

43) What is the status code?

Status codes are issued by a server in response to a client's request made to the

server.

44)What is 409 status code?

The HTTP Status Code 409 means that the client's request could not be processed because of

conflict in the current state of the resource.

Examples of conflicts that could result in an HTTP Status Code 409 include an edit conflict on

a given resource as a result of multiple simultaneous updates.

45) What is Predicate?

It is a functional interface which represents a predicate (boolean-valued function) of one

argument. It is defined in the java.util.function package and contains test() a functional

method.

Methods Description

boolean test(T t) It evaluates this predicate on the given argument.

default Predicate<T> and

(Predicate<? super T>

other)

It returns a composed predicate that represents a short-circuiting

logical AND of this predicate and another. When evaluating the

composed predicate, if this predicate is false, then the other predicate is

not evaluated.

default Predicate<T>

negate()

It returns a predicate that represents the logical negation of this

predicate.

default Predicate<T>

or(Predicate<? super T>

other)

It returns a composed predicate that represents a short-circuiting

logical OR of this predicate and another. When evaluating the composed

predicate, if this predicate is true, then the other predicate is not

evaluated.

static <T>

Predicate<T>

It returns a predicate that tests if two arguments are equal according

to Objects.equals(Object, Object).

isEqual(Object targetRef)

46)Difference between Predicate and Function Interface?

Function interface is used to do the transformation.It can accepts one argument and produces a

result. On the other side, Predicate can also accept only one argument but it can only return

boolean value. It is used to test the condition.

Sr. No. Key Function Predicate

1 Basic It can take 2 type parameters First

one represents input type argument

type and second one represents

return type.

It can take one type parameter which

represents input type or argument type.

2 Return Type It can return any type of value. It can only return boolean value

3 Method It has an abstract method apply(). It has an abstract method test().

4. Use Case It can be used to implement

conditional checks

It can be used for the transformation and to

the return values.

47) Filter() vs. Map() (java8)

● The map returns the transformed object value.

For example, transform the given Strings from Lower case to Upper case by using the

map().

```
myList.stream().map(s -> s.toUpperCase()).forEach(System.out::println);
```

● The filter returns the stream of elements that satisfies the predicate.

For example, find the strings which are starting with 'o' by using the filter.

```
myList.stream().filter(s -> s.startsWith("o")).forEach(System.out::println);
```

```
import java.util.ArrayList;

import java.util.List;

public class MapAndFilterExample {

 static List<String> myList = null;

 static {

 myList = new ArrayList<String>();
```

```
 myList.add("okay");
 myList.add("omg");
 myList.add("kk");
 }
 public static void main(String[] args) {
 System.out.println("Converting the given Strings from Lower case to Upper case
by using map");
 myList.stream().map(s -> s.toUpperCase()).forEach(System.out::println);

 System.out.println("filter which is starting with 'o' by using filter");
 myList.stream().filter(s -> s.startsWith("o")).forEach(System.out::println);
 }
}
```

48)Difference between Spring and Spring boot ?

Spring	Spring Boot
Spring Framework is a widely used Java EE framework for building applications.	

Spring Boot Framework is widely used to develop REST APIs.

It aims to simplify Java EE development that makes developers more productive.

It aims to shorten the code length and provide the easiest way to develop Web Applications.

The primary feature of the Spring Framework is dependency injection.

The primary feature of Spring Boot is Autoconfiguration.

It automatically configures the classes based on the requirement.

It helps to make things simpler by allowing us to develop loosely coupled applications.

It helps to create a stand-alone application with less configuration.

The developer writes a lot of code (boilerplate code) to do the minimal task.

It reduces boilerplate code.

To test the Spring project, we need to set up the sever explicitly.

Spring Boot offers embedded server such as Jetty and Tomcat, etc.

It does not provide support for an in-memory database.

It offers several plugins for working with an embedded and in-memory database such as H2.

Developers manually define dependencies for the Spring project in pom.xml.

Spring Boot comes with the concept of starter in pom.xml file that internally takes care of downloading the dependencies JARs based on Spring Boot Requirement.

49) Difference between Join and UNION ?

JOIN UNION

Join combines the data into new Columns Union's combines the data into new Rows.

The Output of JOIN is a new horizontal set of rows having the same number of Rows but can have different numbers of Columns.

The Output of UNION is a new vertical set of rows having the same number of Columns but can have

different numbers of Rows.

The JOIN clause in SQL is applicable only when the two Tables involved have at least one Attribute Common in both Tables.

The UNION in SQL is applicable when the two Tables have the same number of Attributes and the domains of corresponding Attributes are also Same.

Types of JOIN are SELF, INNER, LEFT OUTER JOIN, RIGHT OUTER JOIN, FULL OUTER JOIN

Types of UNION are UNION and UNION ALL

Example of Union

```
SELECT 1 AS table1
UNION
SELECT 2 AS table1;
```

Output:

```
table1
-------
1
2
```

Example of Join

SELECT * FROM

(SELECT 1 AS table1) AS table1

JOIN

(SELECT 2 AS table2) AS table2

ON (1=1);

Output:

table1 table2

---

1 2

50) @springBootApplication annotation

@SpringBootApplication -is the combination of @EnableAutoConfiguration,

@Configuration and @ComponentScan annotations with their default attributes.

● @EnableAutoConfiguration - enables auto-configuration. It means that

Spring Boot looks for auto-configuration beans on its classpath and

automatically applies them

● @ComponentScan - enable @Component scan on the

package where the

application is located

● @Configuration - allow to register extra beans in the context or import

additional configuration classes

51) @Controller and @RestController

● The @Controller is a annotation to mark class as Controller Class in

Spring While @RestController is used in REST Web services and

similar to @Controller and @ResponseBody.

● The @Controller annotation indicates that the class is controller like

web Controller while @RestController annotation indicates that the

class is controller where @RequestMapping Method assume

@ResponseBody by Default(i.e REST APIs).

● The key difference is that you do not need to use @ResponseBody on

each and every handler method once you annotate the class with

@RestController.

● @Controller create a Map of Model Object and find a view while

@RestController simply return object and object data directly written

into http response as JSON orXML.

This can be also done with @Controller annotation and @ResponseBody

annotation but since this is the default behaviour of RESTful Web Services.

Spring introduced @RestController which combines the behaviour of

@Controller and @ResponseBody together.

52) Find occurrence of word in a string

```
// Java Program to find the occurrence

// of words in a String using HashMap.

import java.io.*;

import java.util.HashMap;

import java.util.Map;

class CheckOccurance {

public static void main(String[] args)

{
```

```
// Declaring the String
String str = "Alice is girl and Bob is boy";
// Declaring a HashMap of <String, Integer>
Map<String, Integer> hashMap = new HashMap<>();
// Spliiting the words of string
// and storing them in the array.
String[] words = str.split(" ");
for (String word : words) {
// Asking whether the HashMap contains the
// key or not. Will return null if not.
Integer integer = hashMap.get(word);
if (integer == null)
// Storing the word as key and its
// occrence as value in the HashMap.
hashMap.put(word, 1);
else {
// Incrementing the value if the word
// is already present in the HashMap.
hashMap.put(word, integer + 1);
}
```

```
}
System.out.println(hashMap);
}
}
```

53) Do you know about views in MySQL?

A view is a database object that has no values. Its contents are based on the base

table. It contains rows and columns similar to the real table. In MySQL, the View is

a virtual table created by a query by joining one or more tables. It is operated

similarly to the base table but does not contain any data of its own. The View and

table have one main difference that the views are definitions built on top of other

tables (or views). If any changes occur in the underlying table, the same changes

are reflected in the View also.

Syntax:

```
CREATE [OR REPLACE] VIEW
view_name AS
```

SELECT columns

FROM tables

Example:

CREATE VIEW trainer AS

SELECT course_name, trainer

FROM courses;

54) Stored Procedure and triggers

Stored procedures are pieces of the code written in PL/SQL to do some specific task.

Stored procedures can be invoked explicitly by the user. It's like a java program , it can

take some input as a parameter then can do some processing and can return values.

On the other hand, trigger is a stored procedure that runs automatically when various

events happen (eg update, insert, delete). Triggers are more like an event handler they

run at the specific event. Trigger can not take input and they can’t return values.

Sr. No. Key Triggers Stored procedures

1 Basic trigger is a stored procedure

that runs automatically when
various events happen (eg
update, insert, delete)
Stored procedures are a pieces
of the code in written in
PL/SQL to do some specific
task
2 Running
Methodology
It can execute automatically
based on the events
It can be invoked explicitly by
the user
3 Parameter It can not take input as
parameter
It can take input as a parameter
4 Transaction
statements
we can't use transaction
statements inside a trigger

We can use transaction

statements like begin

transaction, commit transaction,

and rollback inside a stored

procedure

5 Return Triggers can not return

values

Stored procedures can return

values

55) Query to get max salary

SELECT max(Salary) FROM EmpDetails

56) Query to get max salary from each department

SELECT DeptId, max(Salary) FROM EmpDetails GROUP BY DeptID

57) Query to get 2nd highest salary from each department

SELECT max(salary)

FROM employees

WHERE salary < (SELECT Max(salary)

FROM employee);

SELECT salary FROM employees ORDER BY salary desc LIMIT 2 , 1;

58) Query create a table from existing table

By Copying all columns from another table

Syntax:

CREATE TABLE new_table

AS (SELECT * FROM old_table);

Example:

CREATE TABLE suppliers

AS (SELECT *

FROM companies);

Create a SQL table from another table without copying any values from the old table?

Syntax:

CREATE TABLE new_table

AS (SELECT * FROM old_table

WHERE <false condition>);

Example:

CREATE TABLE suppliers

```
AS (SELECT *
FROM companies
WHERE 1 = 2 );
```

59) What is JPA?

The Java Persistence API (JPA) is a specification of Java. It is used to persist data between Java object

and relational database. JPA acts as a bridge between object-oriented domain models and relational

database systems.

As JPA is just a specification, it doesn't perform any operation by itself. It requires an implementation.

So, ORM tools like Hibernate, TopLink and iBatis implements JPA specifications for data persistence.

60)Data Structure where insertion order is preserved and duplication is not

allowed?

linkedHashSet and LinkedHashMap

61)Java 8 Features

Lambda Expression - only use on Single Abstract Method Interface

Streams - Way of processing collection object in functional manner

Functional interface - predicate, function, consumer, supplier

ForEach loop

Default Method and Static methods in interface

62) Constructor Chaining

Constructor chaining is the process of calling one constructor from another constructor with respect to

the current object.

Constructor chaining can be done in two ways:

● Within same class: It can be done using this() keyword for constructors in same class

● From base class: by using super() keyword to call the constructor from the base class.

63) What is Serialization?

Serialization in Java is a mechanism of writing the state of an object into a byte-stream. It is mainly

used in Hibernate, RMI, JPA, EJB and JMS technologies.

The reverse operation of serialization is called deserialization where byte-stream is converted into an

object. The serialization and deserialization process is platform-independent, it means you can serialize

an object on one platform and deserialize it on a different

platform.

64)How to achieve Serialization in java?

To make a Java object serializable we implement the java.io.Serializable interface.

The ObjectOutputStream class contains a writeObject() method for serializing an Object.

Example:

Student.java

```
import java.io.Serializable;

public class Student implements Serializable{

int id;

String name;

public Student(int id, String name) {

  this.id = id;

  this.name = name;

}

}
```

Test.java

```
import java.io.*;
class Test{
public static void main(String args[]){
 try{
 //Creating the object
 Student s1 =new Student(211,"ravi");
 //Creating stream and writing the object
 FileOutputStream fout=new FileOutputStream("f.txt");
 ObjectOutputStream out=new ObjectOutputStream(fout);
 out.writeObject(s1);
 //closing the stream
 out.close();
 System.out.println("success");
 }catch(Exception e){
System.out.println(e);
}
}
}
```

65)What are methods in serialization?

There are no methods in serializable interface

To make a Java object serializable we implement the java.io.Serializable interface.

The ObjectOutputStream class contains a writeObject() method for serializing an Object.

public final void writeObject(Object obj) throws IOException

The ObjectInputStream class contains a readObject() method for deserializing an object.

public final Object readObject() throws IOException, ClassNotFoundException

66) Can we override the static methods?

NO, We cannot override the static methods

But we can give the same method name and method signature.

Then it is known as method hiding.

67) Difference between StringBuffer and StringBuilder?

Java provides three classes to represent a sequence of characters: String, StringBuffer, and

StringBuilder. The String class is an immutable class whereas StringBuffer and StringBuilder classes

are mutable. There are many differences between StringBuffer and StringBuilder. The StringBuilder

class was introduced in JDK 1.5.

A list of differences between StringBuffer and StringBuilder are

given below:

No. StringBuffer StringBuilder

1) StringBuffer is synchronized i.e. thread safe. It means two threads can't call the methods of StringBuffer simultaneously.

StringBuilder is non-synchronized i.e. not thread safe. It means two threads can call the methods of StringBuilder simultaneously.

2) StringBuffer is less efficient than StringBuilder.

StringBuilder is more efficient than StringBuffer.

68) Q- what is the difference between sleep () & wait ()?

Wait() Sleep()

Wait() method belongs to Object class.

Sleep() method belongs to Thread class.

Wait() method releases lock during

Synchronization.

Sleep() method does not release

the lock on object during

69) Q- What is marker interface?

An Interface that does not contain methods, fields, and constants is known as marker

interface.

In other words, an empty interface is known as marker interface or tag interface.

Types of marker interface

o Cloneable Interface

o Serializable Interface

o Random access Interface

70) Q- what is deep & shallow?

Clone () method:

• The process of creating exactly duplicate object is called cloning.

• The main objective of cloning is to maintain backup.

• That is if something goes wrong we can recover the situation by using backup copy.

• We can perform cloning by using clone() method of Object class.

protected native object clone() throws CloneNotSupportedException;

Shallow Cloning

The process of creating just duplicate reference variable but not duplicate object is called

shallow cloning.

Example: Test t1=new Test();

Test t2=t1;

Synchronization.

Wait() should be called only from

Synchronized context.

There is no need to call sleep()

from Synchronized context.

Wait() is not a static method. Sleep() is a static method.

Wait() Has Three Overloaded

Methods:

• wait()

• wait(long timeout)

• wait(long timeout, int nanos)

Sleep() Has Two Overloaded

Methods:

• sleep(long millis)millis:

milliseconds

sleep(long millis,int nanos) nanos:

Nanoseconds

public final void wait(long timeout)

public static void sleep(long

millis) throws

Interrupted_Execption

Diagram: •

t1

t2

Deep Cloning

The process of creating exactly independent duplicate object is called deep cloning.

Example: Test t1=new Test();

Test t2=(Test)t1.clone();

System.out.println(t1==t2);//false

System.out.println(t1.hashCode()==t2.hashCode());//false

Diagram:

- Cloning by default deep cloning.

t1 t2

71) Q- What is reflection?

Java reflection is useful because it supports dynamic retrieval of information about classes and

data structures by name, and allows for their manipulation within an executing Java program.

This feature is extremely powerful and has no equivalent in other conventional languages such

as C, C++, Fortran, or Pascal.

72) Q- is java reference or by value?

Java and C is always call by value.

The term call by reference strictly applies to C++

73) Q-What is collection?

If we want to represent group of individual objects as single entity called as collection.

74) Q- What is the difference between hashset & hashtable?

Hashset Hashtable

It uses add method to insert the new

element

It uses put method to insert the new

element

It can have only single null value It doesn’t allow null for key as well

as for value

Like Hashmap ,it is not thread safe It is thread safe

It is not synchronized It is synchronized

75) WHAT IS PREDICATE

Java Predicate Interface

It is a functional interface which represents a predicate (boolean-valued function) of one argument. It is defined

in the java.util.function package and contains test() a functional method.

Java Predicate Interface Methods

METHODS DESCRIPTION

boolean test(T t) It evaluates this predicate on the given argument.

default Predicate<T>

and(Predicate<? super T> other)

It returns a composed predicate that represents a short-circuiting logical AND

of this predicate and another. When evaluating the composed predicate, if this

predicate is false, then the other predicate is not evaluated.

default Predicate<T> negate() It returns a predicate that represents the logical negation of this predicate.

default Predicate<T>

or(Predicate<? super T> other)

It returns a composed predicate that represents a short-circuiting logical OR of

this predicate and another. When evaluating the composed predicate, if this

predicate is true, then the other predicate is not evaluated.

static <T> Predicate<T>

isEqual(Object targetRef)

It returns a predicate that tests if two arguments are equal according to

Objects.equals(Object, Object).

Example 1

```
import java.util.function.Predicate;
public class PredicateInterfaceExample {
public static void main(String[] args) {
  Predicate<Integer> pr = a -> (a > 18); // Creating predicate
  System.out.println(pr.test(10)); // Calling Predicate method
  }
}
```

Output:

```
false
```

Example 2

```
import java.util.function.Predicate;
public class PredicateInterfaceExample {
  static Boolean checkAge(int age){
  if(age>17)
  return true;
  else return false;
  }
  public static void main(String[] args){
  // Using Predicate interface
```

```
 Predicate<Integer> predicate = PredicateInterfaceExample::checkAge;

 // Calling Predicate method

 boolean result = predicate.test(25);

 System.out.println(result);

 }

 }
```

Output:

true

76) Design Patterns in Java

A design patterns are well-proved solution for solving the specific problem/task..

Problem

Suppose you want to create a class for which only a single instance (or object) should be created and that single

object can be used by all other classes.

Solution:

Singleton design pattern is the best solution of above specific problem. So, every design pattern has some

specification or set of rules for solving the problems. What are those specifications, you will see later in the

types of design patterns.

177.6K

6. MVC Model & PHP Singleton pattern | Build a CMS using OOP PHP tutorial MVC [2020]

But remember one-thing, design patterns are programming language independent strategies for solving the

common object-oriented design problems. That means, a design pattern represents an idea, not a particular

implementation.

By using the design patterns you can make your code more flexible, reusable and maintainable. It is the most

important part because java internally follows design patterns.

Advantage of design pattern:

1. They are reusable in multiple projects.

2. They provide the solutions that help to define the system architecture.

3. They capture the software engineering experiences.

4. They provide transparency to the design of an application.

5. They are well-proved and testified solutions since they have been built upon the knowledge and

experience of expert software developers.

6. Design patterns don?t guarantee an absolute solution to a problem. They provide clarity to the system

architecture and the possibility of building a better system.

When should we use the design patterns?

We must use the design patterns during the analysis and requirement phase of SDLC(Software Development

Life Cycle).

Design patterns ease the analysis and requirement phase of SDLC by providing information based on prior hands_on experiences.

Categorization of design patterns:

Basically, design patterns are categorized into two parts:

1. Core Java (or JSE) Design Patterns.

2. JEE Design Patterns.

Core Java Design Patterns

In core java, there are mainly three types of design patterns, which are further divided into their sub-parts:

1.Creational Design Pattern

1. Factory Pattern

2. Abstract Factory Pattern

3. Singleton Pattern

4. Prototype Pattern

5. Builder Pattern.

2. Structural Design Pattern

1. Adapter Pattern

2. Bridge Pattern

3. Composite Pattern

4. Decorator Pattern

5. Facade Pattern

6. Flyweight Pattern

7. Proxy Pattern

3. Behavioral Design Pattern

1. Chain Of Responsibility Pattern

2. Command Pattern

3. Interpreter Pattern

4. Iterator Pattern

5. Mediator Pattern

6. Memento Pattern

7. Observer Pattern

8. State Pattern

9. Strategy Pattern

10. Template Pattern

11. Visitor Pattern

Singleton design pattern in Java

1.Singleton design pattern in Java

2.Advantage of Singleton Pattern

3.Usage of Singleton Pattern

4.Example of Singleton Pattern

Singleton Pattern says that just"define a class that has only one instance and provides a global point of access

to it".

In other words, a class must ensure that only single instance should be created and single object can be used by

all other classes.

There are two forms of singleton design pattern

o Early Instantiation: creation of instance at load time.

o Lazy Instantiation: creation of instance when required.

Advantage of Singleton design pattern

o Saves memory because object is not created at each request. Only single instance is reused again and

again.

Usage of Singleton design pattern

o Singleton pattern is mostly used in multi-threaded and database applications. It is used in logging,

caching, thread pools, configuration settings etc.

How to create Singleton design pattern?

To create the singleton class, we need to have static member of class, private constructor and static factory

method.

5.3M

112

History of Java

o Static member: It gets memory only once because of static, itcontains the instance of the Singleton class.

o Private constructor: It will prevent to instantiate the Singleton class from outside the class.

o Static factory method: This provides the global point of access to the Singleton object and returns the

instance to the caller.

Understanding early Instantiation of Singleton Pattern

In such case, we create the instance of the class at the time of declaring the static data member, so instance of the

class is created at the time of classloading.

Let's see the example of singleton design pattern using early instantiation.

File: A.java

```
1. class A{
2. private static A obj=new A();//Early, instance will be created at load time
3. private A(){}
4.
5. public static A getA(){
6. return obj;
7. }
8.
9. public void doSomething(){
10. //write your code
11. }
12. }
```

Understanding lazy Instantiation of Singleton Pattern

In such case, we create the instance of the class in synchronized method or synchronized block, so instance of

the class is created when required.

Let's see the simple example of singleton design pattern using lazy instantiation.

File: A.java

```
1. class A{
2. private static A obj;
3. private A(){}
4.
5. public static A getA(){
6. if (obj == null){
7. synchronized(Singleton.class){
8. if (obj == null){
9. obj = new Singleton();//instance will be created at request time
10. }
11. }
12. }
13. return obj;
14. }
15.
```

```
16. public void doSomething(){
17. //write your code
18. }
19. }
```

Significance of Classloader in Singleton Pattern

If singleton class is loaded by two classloaders, two instance of singleton class will be created, one for each

classloader.

Significance of Serialization in Singleton Pattern

If singleton class is Serializable, you can serialize the singleton instance. Once it is serialized, you can deserialize

it but it will not return the singleton object.

To resolve this issue, you need to override the readResolve() method that enforces the singleton. It is called just

after the object is deserialized. It returns the singleton object.

```
1. public class A implements Serializable {
2. //your code of singleton
3. protected Object readResolve() {
4. return getA();
5. }
```

6.

7. }

Example of Builder Design Pattern

To create simple example of builder design pattern, you need to follow 6 following steps.

5.3M

112

History of Java

1. Create Packing interface

2. Create 2 abstract classes CD and Company

3. Create 2 implementation classes of Company: Sony and Samsung

4. Create the CDType class

5. Create the CDBuilder class

6. Create the BuilderDemo class

1) Create Packing interface

File: Packing.java

```
1. public interface Packing {

2. public String pack();

3. public int price();
```

4. }

2) Create 2 abstract classes CD and Company

Create an abstract class CD which will implement Packing interface.

File: CD.java

```
1. public abstract class CD implements Packing{
2. public abstract String pack();
3. }
```

File: Company.java

```
1. public abstract class Company extends CD{
2. public abstract int price();
3. }
```

3) Create 2 implementation classes of Company: Sony and Samsung

File: Sony.java

```
1. public class Sony extends Company{
2. @Override
3. public int price(){
4. return 20;
5. }
```

```
6. @Override
7. public String pack(){
8. return "Sony CD";
9. }
10. }//End of the Sony class.
```

File: Samsung.java

```
1. public class Samsung extends Company {
2. @Override
3. public int price(){
4. return 15;
5. }
6. @Override
7. public String pack(){
8. return "Samsung CD";
9. }
10. }//End of the Samsung class.
```

4) Create the CDType class

File: CDType.java

```
1. import java.util.ArrayList;
2. import java.util.List;
```

```
3. public class CDType {
4. private List<Packing> items=new ArrayList<Packing>();
5. public void addItem(Packing packs) {
6. items.add(packs);
7. }
8. public void getCost(){
9. for (Packing packs : items) {
10. packs.price();
11. }
12. }
13. public void showItems(){
14. for (Packing packing : items){
15. System.out.print("CD name : "+packing.pack());
16. System.out.println(", Price : "+packing.price());
17. }
18. }
19. }//End of the CDType class.
```

5) Create the CDBuilder class

File: CDBuilder.java

```
1. public class CDBuilder {
```

```
2. public CDType buildSonyCD(){
3. CDType cds=new CDType();
4. cds.addItem(new Sony());
5. return cds;
6. }
7. public CDType buildSamsungCD(){
8. CDType cds=new CDType();
9. cds.addItem(new Samsung());
10. return cds;
11. }
12. }// End of the CDBuilder class.
```

6) Create the BuilderDemo class

File: BuilderDemo.java

```
1. public class BuilderDemo{
2. public static void main(String args[]){
3. CDBuilder cdBuilder=new CDBuilder();
4. CDType cdType1=cdBuilder.buildSonyCD();
5. cdType1.showItems();
6.
7. CDType cdType2=cdBuilder.buildSamsungCD();
```

8. cdType2.showItems();

9. }

10. }

Output of the above example

1. CD name : Sony CD, Price : 20

2. CD name : Samsung CD, Price : 15

77) Covariant Return Type

The covariant return type specifies that the return type may vary in the same direction as the subclass.

Before Java5, it was not possible to override any method by changing the return type. But now, since Java5, it is

possible to override method by changing the return type if subclass overrides any method whose return type is

Non-Primitive but it changes its return type to subclass type. Let's take a simple example:

FileName: B1.java

1. class A{

2. A get(){return this;}

3. }

4.

5. class B1 extends A{

```
6. @Override
7. B1 get(){return this;}
8. void message(){System.out.println("welcome to covariant return type");}
9.
10. public static void main(String args[]){
11. new B1().get().message();
12. }
13. }
```

Output:

```
9.8M
234
Features of Java - Javatpoint
welcome to covariant return type
```

As you can see in the above example, the return type of the get() method of A class is A but the return type of

the get() method of B class is B. Both methods have different return type but it is method overriding. This is

known as covariant return type.

Advantages of Covariant Return Type

Following are the advantages of the covariant return type.

1) Covariant return type assists to stay away from the confusing type casts in the class hierarchy and makes the

code more usable, readable, and maintainable.

2) In the method overriding, the covariant return type provides the liberty to have more to the point return types.

3) Covariant return type helps in preventing the run-time ClassCastExceptions on returns.

Let's take an example to understand the advantages of the covariant return type.

78) Q.what are functional interfaces?

Answer:

A functional interface is an interface that contains only one abstract method.

From Java 8 onwards, lambda expressions can be used to represent the instance of a

functional interface.

A functional interface can have any number of default,static methods.

examples : Runnable, ActionListener, Comparable

@FunctionalInterface annotation is used to ensure that the functional interface can’t have more

than one abstract method. In case more than one abstract method is present, the compiler flags

an ‘Unexpected @FunctionalInterface annotation’ message. However, it is not mandatory to

use this annotation.

example:

```
public interface MyFunctionalInterface {
  public void execute();
}
```

another example:

```
public interface MyFunctionalInterface2{
  public void execute();
  public default void print(String text) {
  System.out.println(text);
  }
  public static void print(String text, PrintWriter writer) throws IOException {
  writer.write(text);
  }
}
```

The above interface also a functional interface in because it only contains a single Abstract

method.

79) What is solid principle?

Answer:

SOLID principles are object-oriented design concepts relevant to software development.

SOLID is an acronym for five other class-design principles:

Single Responsibility Principle,

Open-Closed Principle,

Liskov Substitution Principle,

Interface Segregation Principle, and

Dependency Inversion Principle.

Principle Description

Single Responsibility

Principle

Each class should be responsible for a single part

or functionality of the system.

Open-Closed

Principle

Software components should be open for

extension, but not for modification.

Liskov Substitution

Principle

Objects of a superclass should be replaceable

with objects of its subclasses without breaking

the system.

Interface

Segregation

Principle

No client should be forced to depend on methods

that it does not use.

Dependency

Inversion Principle

High-level modules should not depend on low_level modules, both should depend on

Principle Description

abstractions.

80) @Qualifier, @bean, @componentscan, @Restcontroller,

@controller,

@Qualifier Annotation -

To eliminate the issue of which bean needs to be injected.

Ex.

```
public class FooService {


  @Autowired
  @Qualifier("fooFormatter")
  private Formatter formatter;
}
```

By including the @Qualifier annotation, provide the name of the specific implementation we

want to use to avoid ambiguity when Spring finds multiple beans of the same type.

@bean

@Bean Annotation is applied on a method to specify that it returns a bean to be managed by

Spring context. Spring Bean annotation is usually declared in Configuration classes methods.

In this case, bean methods may reference other @Bean methods in the same class by calling

them directly.

EX.

```
public class MyDAOBean {
@Override
public String toString() {
return "MyDAOBean"+this.hashCode();
}
}
```

Here is a Configuration class where we have defined a @Bean method for MyDAOBean class.

```
import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;
@Configuration
public class MyAppConfiguration {
@Bean
public MyDAOBean getMyDAOBean() {
return new MyDAOBean();
}
}
```

@ComponentScan

1. What is component scan?

The process of discovering Spring Components within classpath of the application is called

Component Scanning in Spring. Later spring will use them to add in application context.

The classes annotated

with @Component, @Controller, @Service, @Repository, @Configuration, @RestController et

c will be treated as Spring Components.

@ComponentScan annotation tells Spring that where to look for Spring Components

explicitly. @ComponentScan annotation is used with @Configuration annotation.

Using @ComonentScan without attribute

@ComonentScan without attribute tells that Spring to discover components in current package and

within it’s sub packages

Ex.

```
@ComponentScan
@Configuration
public class ComponentScanNoAttributeConfig {
}
```

@ComonentScan with attribute

We can tell Spring to which packages to scan specifically by using basePackages attribute. Let’s see

few examples.

5.1. Scanning Base Packages using @ComonentScan

Following example demonstrates how to scan components only within reptiles and its sub packages

specifically.

```
@Configuration
@ComponentScan(basePackages = "com.javabydeveloper.spring.bean.animal.reptiles")
public class ReptilesConfig {
}
```

5.2. Scanning Multiple Packages

We can specify multiple packages using basePackages attribute. Let’s see an example.

```
@Configuration
@ComponentScan(basePackages = {"com.javabydeveloper.spring.bean.animal.amphibians",
"com.javabydeveloper.spring.bean.animal.reptiles.crocodles"})
public class ScanMultiplePackageConfig {
```

}

5.3. Using basePackageClasses attribute

basePackageClasses is type-safe alternative to basePackages for specifying the packages to scan for

annotated components. The package of each class specified will be scanned. In following

example BlackMamba belongs to snakes package and Frog belongs to amphibians package.

@Configuration

@ComponentScan(basePackageClasses = {BlackMamba.class, Frog.class})

public class ScanBasePackageClassesConfig {

}

@RestController

annotation in order to simplify the creation of RESTful web services. It's a convenient

annotation that combines @Controller and @ResponseBody, which eliminates the need to

annotate every request handling method of the controller class with

the @ResponseBody annotation.

@Controller

We can annotate classic controllers with the @Controller annotation. This is simply a

specialization of the @Component class, which allows us to auto-detect implementation classes

through the classpath scanning.

We typically use @Controller in combination with a @RequestMapping annotation for request

handling methods.

81) What is the difference between fetch & pull?

Git Fetch Git Pull

Git fetch fetches the required

information only to the local

repository.

Git pull fetches the required information not only to the

local repository but also to the workspace that you are

currently working in.

In Github fetch, the content of the

specified branch is only

downloaded.

In Github pull, the content of the specified branch is

downloaded, and also the changes are committed to the

local repository.

Its main function is to fetch the

content.

Its main function is a combination of fetch and merges

the content.

It has only command-line syntax. It has command-line syntax as well as a pull request to

post the changes.

Command used: git fetch

<remote> <branch>

Command used: git pull <branch>

82) what is the difference between Push & pull?

PUSH

The git push command is used to transfer or push the commit, which is made on a local branch

in your computer to a remote repository like GitHub. The command used for pushing to

GitHub is given below.

git push 'remote_name' 'branch_name'

PULL

If you make a change in a repository, GIT PULL can allow others to view the changes. It is

used to acknowledge the change that you've made to the repository that you're working on. Or

also called a target repository.

The simple command to PULL from a branch is:

git pull 'remote_name' 'branch_name'.

The git pull command is a combination of git fetch which fetches the recent commits in the

local repository and git merge, which will merge the branch from a remote to a local branch

also 'remote_name' is the repository name and 'branch_name' is the name of the specific

branch.

83) What is the save and persist method?

Sr.

No.

Key save() persist()

1 Basic It stores object in database It also stores object in database

2 Return Type It return generated id and return

type is serializable

It does not return anything. Its

void return type.

3 Transaction

Boundaries

It can save object within

boundaries and outside

boundaries

It can only save object within

the transaction boundaries

4. Detached Object It will create a new row in the

table for detached object

It will throw persistence

exception for detached object

5. Supported by It is only supported by Hibernate It is also supported by JPA

84) what is the difference between get & post method?

GET REQUEST POST REQUEST

GET retrieves a representation of the

specified resource.

POST is for writing data, to be processed to

the identified resource.

It typically has relevant information in the

URL of the request.

It typically has relevant information in the

body of the request.

It is limited by the maximum length of the

URL supported by the browser and web

server. It does not have such limits.

It is the default HTTP method.

In this we need to specify the method as

POST to send a request with the POST

method.

You can bookmark GET request. You cannot bookmark POST request.

It is less secure because data sent is part of It is a little safer because the parameters are

the URL not stored in browser history or in web

server logs.

It is cacheable. It is not cacheable.

Ex. GET the page showing a particular

question.

Ex. Send a POST request by clicking the

“Add to cart” button.

85) Q.Access modifiers in java

which are used for setting the access level to classes, variables, methods, and constructors.

Simply put, there are four access modifiers: public, private, protected and default (no

keyword).

Before we begin let's note that a top-level class can

use public or default access modifiers only. At the member level, we can use all four.

Default -all members are visible within the same package

Public - all other classes in all packages will be able to use it

Private

-is accessible from the same class only

Protected

- same package and in addition from all subclasses of its class

Modifier Class Package Subclass World

public Y Y Y Y

protected Y Y Y N

default Y Y N N

private Y N N N

86) When to use arraylist and linkedlist

1. Underlying Data Structure

The first difference between ArrayList and LinkedList comes with the fact that ArrayList is

backed by Array while LinkedList is backed by LinkedList.

2. LinkedList implements Deque

Another difference between ArrayList and LinkedList is that apart from

the List interface, LinkedList also implements the Deque interface, which provides first in first

out operations.

Also, LinkedList is implemented as a doubly-linked list and for index-based operation,

navigation can happen from either end

3. Adding elements in ArrayList

Adding an element in ArrayList is O(1) operation if it doesn't

trigger re-size of Array, in which

case it becomes O(log(n)), On the other hand, appending an element in LinkedList is O(1)

operation

4. Removing an element from a position

In order to remove an element from a particular index e.g. by calling remove(index), ArrayList

performs a copy operation which makes it close to O(n) while LinkedList needs to traverse to

that point which also makes it O(n/2), as it can traverse from either direction .

5. Retrieving element from a position

The get(index) operation is O(1) in ArrayList while its O(n/2) in LinkedList, as it needs to

traverse till that entry. Though, in Big O notation O(n/2) is just O(n) because we ignore

constants there.

87) Spring Scopes

There are five types of spring bean scopes:

1. singleton – only one instance of the spring bean will be created for the spring container. This is the default

spring bean scope. While using this scope, make sure bean

doesn’t have shared instance variables

otherwise it might lead to data inconsistency issues.

2. prototype – A new instance will be created every time the bean is requested from the spring container.

3. request – This is same as prototype scope, however it’s meant to be used for web applications. A new

instance of the bean will be created for each HTTP request.

4. session – A new bean will be created for each HTTP session by the container.

5. global-session – This is used to create global session beans for Portlet applications.

88) Servletcontext and ServletConfig

89) Best practice used for Collection

Ans: Here’s the list:

1. Choosing the right collections

2. Always using interface type when declaring a collection

3. Use generic type and diamond operator

4. Specify initial capacity of a collection if possible

5. Prefer isEmpty() over size()

6. Do not return null in a method that returns a collection

7. Do not use the classic for loop

8. Favor using forEach() with Lambda expressions

9. Overriding equals() and hashCode() properly

10. Implementing the Comparable interface properly

11. Using Arrays and Collections utility classes

12. Using the Stream API on collections

13. Prefer concurrent collections over synchronized wrappers

14. Using third-party collections libraries

15. Eliminate unchecked warnings

16. Favor generic types

17. Favor generic methods

18. Using bounded wildcards to increase API flexibility

90) .How to change embedded server in spring boot ?

Ans : You will need to update pom. xml add the dependency for spring-boot-starter-jetty . Also, you will

need to exclude default added spring-boot-starter-tomcat dependency.

91) .Hibernate annotations

Ans :

Hibernate JPA Annotations - Contents:

Annotation Package Detail/Import statement

@Entity import javax.persistence.Entity;

@Table import javax.persistence.Table;

@Column import javax.persistence.Column;

@Id import javax.persistence.Id;

@GeneratedValue import javax.persistence.GeneratedValue;

@Version import javax.persistence.Version;

@OrderBy import javax.persistence.OrderBy;

@Transient import javax.persistence.Transient;

@Lob import javax.persistence.Lob;

Hibernate Association Mapping Annotations

@OneToOne import javax.persistence.OneToOne;

@ManyToOne import javax.persistence.ManyToOne;

@OneToMany import javax.persistence.OneToMany;

@ManyToMany import javax.persistence.ManyToMany;

@PrimaryKeyJoinColumn import javax.persistence.PrimaryKeyJoinColumn;

@JoinColumn import javax.persistence.JoinColumn;

@JoinTable import javax.persistence.JoinTable;

@MapsId import javax.persistence.MapsId;

Hibernate Inheritance Mapping Annotations

@Inheritance import javax.persistence.Inheritance;

@DiscriminatorColumn import javax.persistence.DiscriminatorColumn;

@DiscriminatorValue import javax.persistence.DiscriminatorValue;

92) . Java version u have used ?

Ans : I am using java version "1.8.0_241"

93) .Difference between method and constructor

Ans :

94) . Normalization

Ans : Normalization is the process of organizing the data in the database.

Normalization is used to minimize the redundancy from a relation or set of relations. It is also used to eliminate

the undesirable characteristics like Insertion, Update and Deletion Anomalies.

A normalization defines rules for the relational table as to whether it satisfies the normal form. A normal

form is a process that evaluates each relation against defined criteria and removes the multivalued, joins,

functional and trivial dependency from a relation. If any data is

updated, deleted or inserted, it does not cause

any problem for database tables and help to improve the relational table' integrity and efficiency.

95) .why string is immutable ?

Ans : The String is immutable in Java because of the security, synchronization and concurrency, caching,

and class loading. The reason of making string final is to destroy the immutability and to not allow others to

extend it. The String objects are cached in the String pool, and it makes the String immutable.

96) .features of REST full web services ?

Ans These are the features of REST services:

• Client-Server. REST services must be based on a Client-Server architecture. ...

• No condition. ...

• Cache-enabled information. ...

• Consistent interface. ...

• Resource access by name. ...

• Related resources. ...

• Answer in a known format.

97) .Dependency injection methods

Ans : A class is no longer responsible for creating the objects it requires, and it does not have to delegate

instantiation to a factory object as in the Abstract Factory design pattern. There are three types of dependency

injection —

constructor injection,

method injection and

property injection

98) .Spring hibernate integration

Ans : We can simply integrate hibernate application with spring application.

In hibernate framework, we provide all the database information hibernate.cfg.xml file.

But if we are going to integrate the hibernate application with spring, we don't need to create the

hibernate.cfg.xml file. We can provide all the information in the applicationContext.xml file.

Advantages :

The Spring framework provides HibernateTemplate class, so you don't need to follow so many steps like create

Configuration, BuildSessionFactory, Session, beginning and committing transaction etc.

99) Roles and responsibilities

Ans : The roles and responsibilities of a Java developer/engineer will vary greatly depending on the

company and specific position. Here are some typical responsibilities:

• Designing, implementing, and maintaining Java applications that are often high-volume and

low-latency, required for mission-critical systems

• Delivering high availability and performance

• Contributing in all phases of the development lifecycle

• Writing well-designed, efficient, and testable code

• Conducting software analysis, programming, testing, and debugging

• Managing Java and Java EE application development

• Ensuring designs comply with specifications

• Preparing and producing releases of software components

• Transforming requirements into stipulations

• Support continuous improvement

• Investigating alternatives and technologies

• Presenting for architectural review

100) .load and get difference

Ans :

101) .Eager and lazy difference

102) .java 8 features

Ans : ava 8 provides following features for Java Programming:

o Lambda expressions,

o Method references,

o Functional interfaces,

o Stream API,

o Default methods,

o Base64 Encode Decode,

o Static methods in interface,

o Optional class,

o Collectors class,

o ForEach() method,

o Parallel array sorting,

o Nashorn JavaScript Engine,

o Parallel Array Sorting,

o Type and Repating Annotations,

o IO Enhancements,

o Concurrency Enhancements,

o JDBC Enhancements etc.

103) .modules of spring framework

Ans : The Spring framework comprises of many modules such as core, beans, context, expression language, AOP,

Aspects, Instrumentation, JDBC, ORM, OXM, JMS, Transaction, Web, Servlet, Struts etc. These modules are grouped

into Test, Core Container, AOP, Aspects, Instrumentation, Data Access / Integration, Web (MVC / Remoting) as

displayed in the following diagram.

104) .scopes of spring beans

Ans : The Spring Framework supports the following five scopes, three of which are available only if you use a web_aware ApplicationContext.

Sr.No. Scope & Description

1

singleton

This scopes the bean definition to a single instance per Spring IoC container (default).

2

prototype

This scopes a single bean definition to have any number of object instances.

3

request

This scopes a bean definition to an HTTP request. Only valid in the context of a web-aware

Spring ApplicationContext.

4

session

This scopes a bean definition to an HTTP session. Only valid in the context of a web-aware

Spring ApplicationContext.

5

global-session

This scopes a bean definition to a global HTTP session. Only valid in the context of a web-aware

Spring ApplicationContext.

105) .how to implements joins in hibernate

Ans : Following is a step by step guide to show hibernate join

statement.

1. 4.1 Create a Maven project. Create a new maven project in eclipse. ...

2. 4.2 Add Hibernate Dependencies. ...

3. 4.3 Create Hibernate Configuration File. ...

4. 4.4 Create entities. ...

5. 4.5 Map Java objects to database. ...–

6. 4.6 Hibernate Test Program.

106) .collection type in hibernate

Ans : The persistent collections injected by Hibernate behave like HashMap , HashSet , TreeMap , TreeSet or

ArrayList , depending on the interface type. Collections instances have the usual behavior of value types.

16.to design rest full web services what points should consider

Ans : 10 things you should do to write effective RESTful Web services

• 1: Don't look for an official "REST standard" ...

• 2: Adhere to standards anyway. ...

• 3: Make sure your documentation is flawless. ...

• 4: Provide JSON output. ...

• 5: Don't forget XML. ...

• 6: Understand the verbs. ...

• 7: Understand the importance of URI routing.

8: Do not make changes without versioning the service

9: Stay in contact with your users

10: Provide sample code

107) how to select unique record from table-which keyword is use

Ans : The SQL DISTINCT keyword is used in conjunction with the SELECT statement to eliminate all the

duplicate records and fetching only unique records.

108) how u handle exception in spring boot

Ans : Exception Handler

The @ExceptionHandler is an annotation used to handle the specific exceptions and sending the custom

responses to the client. Define a class that extends the RuntimeException class. You can define the

@ExceptionHandler method to handle the exceptions as shown.

109) what is functional interface

Ans : A functional interface is an interface that contains only one abstract method. They can have only one

functionality to exhibit. ... A functional interface can have any

number of default methods. Runnable, ActionListener,

Comparable are some of the examples of functional interfaces.

110) why lambda function come into picture

Ans :

lambda expressions are added in Java 8 and provide below functionalities. Enable to treat functionality as a method

argument, or code as data. A function that can be created without belonging to any class. A lambda expression can be

passed around as if it was an object and executed on demand.

111) reverse array without using other array program.

-> package com.devglan.set2;

import java.util.Arrays;

public class ArrayReverse {

public int[] reverse(int [] array){

if(array == null || array.length <= 1){

System.out.println("Invalid array.");

}

for (int i = 0; i < array.length / 2; i++) {

int temp = array[i];

array[i] = array[array.length - 1 - i];

```
array[array.length - 1 - i] = temp;
}
return array;
}
public static void main(String[] args){
ArrayReverse arrayReverse = new ArrayReverse();
int[] input = {1, 2, 3, 4, 5, 6, 7, 8};
System.out.println("Original array" + Arrays.toString(input));
System.out.println("Reversed array" + Arrays.toString(arrayReverse.reverse(input)));
}
}
```

112) find out duplicate from string in java

-> Define a string.

Two loops will be used to find the duplicate characters. Outer loop will be used to select a

character and initialize variable count by 1.

Inner loop will compare the selected character with rest of the characters present in the string.

If a match found, it increases the count by 1 and set the duplicates of selected character by '0' to

mark them as visited.

After inner loop, if count of character is greater than 1, then it has duplicates in the string.

Solution

```
public class DuplicateCharacters {

public static void main(String[] args) {

String string1 = "Great responsibility";

int count;

//Converts given string into character array

char string[] = string1.toCharArray();

System.out.println("Duplicate characters in a given string: ");

//Counts each character present in the string

for(int i = 0; i <string.length; i++) {

count = 1;

for(int j = i+1; j <string.length; j++) {

if(string[i] == string[j] && string[i] != ' ') {

count++;

//Set string[j] to 0 to avoid printing visited character

string[j] = '0';

}
```

```
}
//A character is considered as duplicate if count is greater than 1
if(count > 1 && string[i] != '0')
System.out.println(string[i]);
}
}
}
```

Output:

```
Duplicate characters in a given string:
r
e
t
s
i
```

113) what is immutable in java.

-> Immutable class in java means that once an object is created, we cannot change its content.

In Java, all the wrapper classes (like Integer, Boolean, Byte, Short)

and String class is immutable. ... Data members in the class must

be declared as final so that we

can't change the value of it after object creation.

114> Exception hierarchy.

-> An exception is an unwanted or unexpected event, which occurs during the execution of a

program i.e at run time, that disrupts the normal flow of the program’s

instructions.

All exception and errors types are sub classes of class Throwable, which is base class of

hierarchy.One branch is headed by Exception. This class is used for

exceptional conditions that user programs should catch. NullPointerException is an example of

such an exception.Another branch,Error are used by the Java run-time

system(JVM) to indicate errors having to do with the run-time environment itself(JRE).

StackOverflowError is an example of such an error.

115> What is spring and spring boot.

Spring is an open-source lightweight framework widely used to develop enterprise

applications. Spring Boot is built on top of the conventional spring framework, widely used to

develop REST APIs. ... Spring Boot provides embedded servers such as Tomcat and Jetty etc

116> what is @restcontroller and @responsebody

@RestController annotation in order to simplify the creation of RESTful web services. It's a

convenient annotation that combines @Controller and @ResponseBody, which eliminates the

need to annotate every request handling method of the controller class with the

@ResponseBody annotation.

117> Collection hierarchy.

The Collection in Java is a framework that provides an architecture to store and manipulate

the group of objects.

Java Collections can achieve all the operations that you perform on a data such as searching,

sorting, insertion, manipulation, and deletion.

Java Collection means a single unit of objects. Java Collection framework provides many

interfaces (Set, List, Queue, Deque) and classes (ArrayList,

Vector, LinkedList, PriorityQueue,

HashSet, LinkedHashSet, TreeSet).

118) What is Collection in Java

A Collection represents a single unit of objects, i.e., a group.

119) Hierarchy of Collection Framework

Let us see the hierarchy of Collection framework. The java.util package contains all

the classes and interfaces for the Collection framework.

120) . Internal working of HashMap?

Answer – Hashing -It is the process of converting an object into an integer value. The integer value helps in

indexing and faster searches.

If you want to represent group of objects as key-value pair then you should go for map.

Example_package com.velocity;

import java.util.HashMap;

public class HashMapDemo {

public static void main(String[] args) {

HashMap hm = new HashMap();

hm.put("Jeevan", 10);

```
hm.put("Kulkarni", 20);

hm.put("Pune", 30);

hm.put("Jeevan", 50);

System.out.println(hm);

}

}
```

Output-

{Pune=30, Kulkarni=20, Jeevan=10}

How hashCode() and equals() methods works into HashMap?

hashCode() method

hashCode method is used to get the hashcode of every objects.

equals() method

equals method is used to check that 2 objects are equal or not. This method is provided by Object class. HashMap

uses equals() to compare the key whether the are equal or not. If equals() method return true, they are equal

otherwise not equal.

How to calculate index internally?

Put(K k, V v) //Here put is the method having key and value pair

hash(k) -> hash(jeevan) ->23560520

index= hash & (n-1) here index=2

so jeevan will be stored at 2nd position.

Next time again I get the 2nd index or position then what will happen?

It will store it at 2nd and uses the linked list as shown in fig.

After than I get the 6th index so kulkarni will be stored at 6th position then next time get the index 10th then

pune will be placed at 10th positon.

How get method works here?

Now let's try some get method to get a value. get(K key) method is used to get a value by its key. If you don't

know the key then it is not possible to fetch a value.

121) .Contract between HashCode & Equal method?

Answer - General Contract of equals() method

There are some general principles defined by Java SE that must be followed while implementing the equals()

method in Java. The equals() method must-Stay

o reflexive: An object x must be equal to itself, which means, for object x, equals(x) should return true.

o symmetric: for two given objects x and y, x.equals(y) must

return true if and only if equals(x) returns

true.

o transitive: for any objects x, y, and z, if x.equals(y) returns true and y.equals(z) returns true, then

x.equals(z) should return true.

o consistent: for any objects x and y, the value of x.equals(y) should change, only if the property in equals()

changes.

o For any object x, the equals(null) must return false.

Java hashcode()

o A hashcode is an integer value associated with every object in Java, facilitating the hashing in hash

tables.

o To get this hashcode value for an object, we can use the hashcode() method in Java. It is the

means hashcode() method that returns the integer hashcode value of the given object.

o Since this method is defined in the Object class, hence it is inherited by user-defined classes also.

o The hashcode() method returns the same hash value when called on two objects, which are equal

according to the equals() method. And if the objects are unequal,

it usually returns different hash values.

Syntax:

1. public int hashCode()

Returns:

It returns the hash code value for the given objects.

Contract for hashcode() method in Java

o If two objects are the same as per the equals(Object) method, then if we call the hashCode() method on

each of the two objects, it must provide the same integer result.

Example:

```
1. class Test_hash_equal{
2. public static void main(String[] args){
3. String a = "Andrew";
4. String b = "Andrew";
5.
6. if(a.equals(b)){ //checking the equality of objects using equals() methods
7. System.out.println("a & b are equal variables, and their respective hashvalues are:" + " "+ a.hash
Code() + " & " + b.hashCode());
```

```
8.

9. }

10.

11. String c = "Maria";

12. String d= "Julie";

13.

14. if(!c.equals(d)){ //checking the equality of objects using equals() method

15. System.out.println("\nc & d are Un_equal variables, and their respective hashvalues are:" + " "+ c.hashCode() + " & " + d.hashCode());

16.

17. }

18. }

19. }
```

Output:

a & b are equal variables, and their respective hash values are: 1965574029 & 1965574029

c & d are Un-equal variables, and their respective hash values are: 74113750 & 71933245

In the above example, we have taken two 4 variables, out of

which two are equal, and two are unequal. First, we

have compared the objects whether they are equal or unequal, and based on that, printed their hash values.

122). What is need of service in spring boot?

Answer -Service Components are the class file which contains @Service annotation. These class files are used

to write business logic in a different layer, separated from @RestController class file. The logic for creating a

service component class file is shown here −

```
public interface ProductService {

}
```

The class that implements the Interface with @Service annotation is as shown −

```
@Service

public class ProductServiceImpl implements ProductService {

}
```

we are using Product Service API(s) to store, retrieve, update and delete the products. We wrote the business

logic in @RestController class file itself.

123). Concurrent HashMap vs HashMap vs Hashtable

Answer –

Parameter HashMap HashTable All operations are synchronized.

Locking Level Object Level Object Level Segment Level

Synchronized operations All operations are synchronized.

All operations are synchronized.

Only update operations are synchronized.

How many threads can enter into a map at a time?

Only one thread Only one thread By default, 16 threads can perform update operations and any number of threads

can perform read
operations at a
time.
Null Keys And
Null Values
Allows one null
key and any
number of null
values.
Doesn’t allow null
keys and null
values.
Doesn’t allow null
keys and null
values.
Nature Of Iterators Fail-Fast Fail-Safe Fail-Safe
Introduced In? JDK 1.2 JDK 1.1 JDK 1.5
When To Use? Use only when
high level of data
consistency is

required in multi

threaded

environment.

Don’t Use. Not

recommended as it

is a legacy class.

Use in all multi

threaded

environment

except where high

level of data

consistency is

required.

124) Q) How to send mail in spring boot

Ans: we need to add the Spring Boot Starter Mail dependency in your build configuration

file.

Maven users can add the following dependency into the pom.xml file.

125) Q) what is microservices and it’s Advantage

It is a kind of architectural style which structures an application as a collection of Services

Advantage :

• Improved Scalability

• Better Fault Isolation for More Resilient Applications.

• Programming Language and Technology Agnostic.

• Better Data Security and Compliance.

• Faster Time to Market and “Future-Proofing”.

• Greater Business Agility and Support for DevOps. ...

126)Q) how services communicate with each other in microservices

A microservices-based application is a distributed system running on multiple processes or

services, usually even across multiple servers or hosts. Each service instance is typically a

process. Therefore, services must interact using an inter-process communication protocol such

as HTTP, AMQP, or a binary protocol like TCP, depending on the nature of each service.

127)Q) Difference between @Controller and @RestController

1. The @Controller is a common annotation which is used to mark a class as Spring MVC

Controller while the @RestController is a special controller used in RESTFul web

services and the equivalent of @Controller + @ResponseBody

2. The @RestController is relatively new, added only on Spring 4.0 but @Controller is an

old annotation, exists since Spring started supporting annotation, and officially it was

added on Spring 2.5 version.

3. The @Controller annotation indicates that the class is a "Controller" e.g. a web controller

while the @RestController annotation indicates that the class is a controller

where @RequestMapping methods assume @ResponseBody semantics by default i.e.

servicing REST API.

4. The @Controller is a specialization of @Component annotation while @RestController is

a specialization of @Controller annotation. It is actually a convenience controller

annotated with @Controller and @ResponseBody

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-mail</artifactId>

</dependency>

128) How HashSet internally Work

Each and every element in set is unique. So that there is no duplicate element in set.

Now what happen internally when you pass duplicate element in set then add () method of set

object, it will return false and do not add to hashset as element is already present.

But main problem is arising that how it return false, here is the answer. When you open hashset

implementation of add method () in Java API's you will find the following code_Public class HashSet <E> extends AbstractSet<E> implements Set<E>, clonable

java.o.serializable

{

Private transient Hashmap<E, Object> Map;

/* dummy value associate with object in map */

Private static final object Present= new object();

Public HashSet(){

Map= new Hashmap<>();

//some code, other method in hashset

}

Public Boolean add (E e) {

return map. Put(e, PRESENT)==null;

}

We are achieving uniqueness in set, internally java through hashmap. Whenever you createthe

object of hashset it will create the object of hashmap as see in above.

As we know, in hashmap each key is unique. We do in set is that we pass argument in

add(Element E) that is E as key in hashmap, now we need to associate some value to key, sowhat

java developer did to pass dummy value that is(new Object()); which is referred by object

reference PRESENT.

So actually when you are adding line in hashset like hashset.add(3) what java internally is that it

will put that element as E here as 3 key in hashmap and some dummy value that objectis passed

as value to key.

If you see code of hashmap put(K k, value v) method, you will

find something like this,

Public v put (K Key, V value){

//some code

}

The main point is that .put(key,value) will return

1. Null, if key is unique and added to map.

2. Old value of key, if key is duplicate.

So in Hashset add() method, we check return value of map.put(key,value) method will null

value i.e.

Public Boolean add(E e){

// code here

}

So If Map.put(key,value) return null, then map.put(e,PRESENT)==null, then

map.put(e,PRESENT)==null will return true & element added to hashset.

So If Map.put(key,value) return old value of key, then map.put(e,PRESENT)==null, then

map.put(e,PRESENT)==null will return false & element is not added to hashset.

129)Difference betn Final

Finally Finalize

Final -

1) final is the keyword and access modifier which is used to apply restrictions on a

class, method or variable.

2) Final keyword is used with the classes, methods and variables.

3) Once declared, final variable becomes constant and cannot be modified.

final method cannot be overridden by sub class.

final class cannot be inherited

4) Final method is executed only when we call it.

Finally

1) finally is the block in Java Exception Handling to execute the important code

whether the exception occurs or not.

2)Finally block is always related to the try and catch block in exception handling.

3) finally block runs the important code even if exception occurs or not.

finally block cleans up all the resources used in try block

4) Finally block is executed as soon as the try-catch block is executed. It's execution

is not dependant on the exception.

Finalize

1) finalize is the method in Java which is used to perform clean up processing just

before object is garbage collected.

2) finalize() method is used with the objects.

3) finalize method performs the cleaning activities with respect to the object before

its destruction.

4) finalize method is executed just before the object is destroyed.

130)Q) Try without catch is it possible?

Yes, It is possible to have a try block without a catch block by using a final block. As we

know, a final block will always execute even there is an exception occurred in a try block,

except System.exit();

131)Q) If try/catch blocks have a return statement, even then the finally

block executes?

Flow control first jumps to the finally block and then goes back to the return statement.

132)Q) Write Join Query in MySQL ??

133)Q) Define primary key and foreign key

Primary Key - Primary key is a value, or a combination of few values from the table, uniquely

defining each record in this table. If we know this value/combination, we can easilyfind the

related record and access all remaining values from that record.

Foreign Key -A Foreign Key is a database key that is used to link two tables together. The

FOREIGN KEY constraint identifies the relationships between the database tables by

referencing a column, or set of columns, in the Child table that contains the foreign key, tothe

PRIMARY KEY column or set of columns, in the Parent table.

134)Q) How to handle exception in your project

--- Need to discuss after Project Done

135)Dependency Injection? and How it Works?

Dependency Injection (DI) is a design pattern used to implement IoC. It allows the creation of

dependent objects outside of a class and provides those objects

to a class through differentways.

Using DI, we move the creation and binding of the dependent objects outside of the class that

depends on them.

Constructor Based –

136) Constructor-based DI is when the container invokes a constructor with a

number ofarguments, each of which represents a dependency or other class.

137) Calling a static factory method with particular arguments to construct the

bean is approximately equivalent, treating arguments to a constructor and to a

static factorymethod.

Setter Based –

138) Setter-based DI is the when the container calls setter methods on your

beans after ithas invoked a no-argument constructor or no-argument static

factory method to instantiate that bean.

136) Q) @springBootApplication Annotation

Ans - @ SpringBootApplication=

@Configuration+@ComponentScan+@EnableAutoConfiguration

The @SpringBootApplication annotation is a combination of following three Spring

annotations and provides the functionality of all three with just one line of code.

@Configuration

This annotation marks a class as a Configuration class for Java-based configuration. This is

particularly important if you favor Java-based configuration over XML configuration.

@ComponentScan

This annotation enables component-scanning so that the web controller classes and other

components you create will be automatically discovered and registered as beans in Spring's

Application Context. All the@Controller classes you write are discovered by this annotation.

@EnableAutoConfiguration

This annotation enables the magical auto-configuration feature of Spring Boot, which can

automatically configure a lot of stuff for you.

For example, if you are writing a Spring MVC application and you have Thymeleaf JAR fileson the

application classpath, then Spring Boot auto-configuration can automatically configure the

Thymeleaf template resolver, view resolver, and other settings automatically.

137) Q) serialization and how to prevent it?

serialization is the conversion of a Java object into a static stream (sequence) of bytes whichcan

then be saved to a database or transferred over a network

For Prevention we can use transient keyword

138) Q) Basic Question in Multithreading (Jeevan sir notes-more than

enough)

139) Q) Spring and Spring Boot difference

Spring - 1) Spring Framework is a widely used Java EE framework for building applications.

2) It aims to simplify Java EE development that makes developers more productive

3) The primary feature of the Spring Framework is dependency injection

4) It helps to make things simpler by allowing us to develop

loosely coupled applications.

5) To test the Spring project, we need to set up the sever explicitly.

SpringBoot - 1) Spring Boot Framework is widely used to develop REST APIs.

2) It aims to shorten the code length and provide the easiest way to develop Web

Applications.

3) The primary feature of Spring Boot is Autoconfiguration. It automatically configures the

classes based on the requirement.

4) It helps to create a stand-alone application with less configuration.

5) Spring Boot offers embedded server such as Jetty and Tomcat, etc.

140) Step for design Rest API in Spring Boot

1) Create the Spring Boot Project.

2) Define Database configurations.

3) Create an Entity Class.

4) Create JPA Data Repository layer.

5) Create Rest Controllers and map API requests.

6) Create Unit Testing for API requests and run the unit testing.

7) Build and run the Project.

141) Q) What is immutable class

Immutable class in java means that once an object is created, we cannot change its content. In

Java, all the wrapper classes (like Integer, Boolean, Byte, Short) and String class is immutable

142) Q) How to create Immutable class in Java?

• The class must be declared as final so that child classes can't be created.

• Data members in the class must be declared private so that direct access is not allowed.

• Data members in the class must be declared as final so that we can't change the value of

it after object creation.

• A parameterized constructor should initialize all the fields performing a deep copy so

that data members can't be modified with an object reference.

143) Q) What is an index in a database?

A database index is a data structure that improves the speed of data retrieval operations on a

database table at the cost of additional writes and storage space

to maintain the index data

structure. ..... An index is a copy of selected columns of data, from a table, that is designed to

enable very efficient search.

144) Q) What is NoSQL database example?

MongoDB, CouchDB, CouchBase, Cassandra, HBase, Redis, Riak, Neo4J are the popular

NoSQL databases examples.

145) Q) What is Bean and Scope of Bean?

A bean is an object that is instantiated, assembled, and otherwise managed by a Spring IoC

container. These beans are created with the configuration metadata that you supply to the

container.

Scopes

1) SingleTone - Scopes a single bean definition to a single object instance per Spring IoC

container.

2) Prototype - a single bean definition to any number of object instances.

3) Request - a single bean definition to the lifecycle of a single HTTP request; that is each

and every HTTP request will have its own instance of a bean created off the back of a

single bean definition. Only valid in the context of a web-aware

Spring ApplicationContext.

4) Session - Scopes a single bean definition to the lifecycle of a HTTP Session. Only valid

in the context of a web-aware Spring ApplicationContext.

5) Global Session - single bean definition to the lifecycle of a global HTTP Session.

Typically only valid when used in a portlet context. Only valid in the context of a web_aware Spring ApplicationContext.

146) What is final

Class?

Answer –

A class that declares with final keyword is known as final class. A final class cannot be inherited

by any Sub-class. We can make class as final only when the class is complete in nature i.e. it

should not be an abstract class. All the wrapper classes present in java are finalclasses like String,

Integer etc.

147) Difference between String and

String Buffer?

Answer –

No. String StringBuffer

1> String class is immutable. StringBuffer is mutable.

2> String is slow and consumes more

memory when we concat too many

strings because every time it creates

new instance.

StringBuffer is fast and consumes less

memory when you concat strings.

3> String class overrides equals() methodof

Object class. So we can compare

the contents of two strings by equals()

method.

StringBuffer class doesn't override the

equals() method of Object class.

148) Can we catch error in try and

catch block?

Answer –

Errors cannot be catch in try and catch block because errors

occurred due to lack of

resources or system issues. In try and catch block we can handle different types of

exceptions only.

149) HashSet internal

working?

Answer –

Each and every element in set is unique. Set doesn’t allow duplicate element. Below is the

example of that how to add element in set.

```
import java.util.HashSet;

import java.util.Set;

public class HashSetDemo {

public static void main(String[] args) {Set hashSet =

new HashSet();

hashSet.add(5);

hashSet.add("Pune");

hashSet.add("India");

hashSet.add(5);

System.out.println(hashSet);
```

}

}

Output - [5, Pune, India]

When we pass the duplicate element in Set then add method of set will return false and doesn't

allow HashSet to add as it is already present. Internally add () method of HashSetimplements

the below code –

Public class HashSet <E> extends AbstractSet<E> implements Set<E>, Clonable, Serializable

{

Private transient Hashmap<E, Object> Map;

/* dummy value associate with object in map */

Private static final object Present= new

object ();Public HashSet () {

Map= new Hashmap<> ();

//some code, other method in hashset

}

Public Boolean add (E e) {

return map. Put (e, PRESENT) ==null;

}

We are achieving uniqueness in set, internally java through HashMap. Whenever you createthe

object of HashSet it will create the object of HashMap.

In HashMap each key is unique. In set we pass argument in add (Element E) that is E as key in

HashMap, also we need to pass some value to key, so internally it pass dummy value thatis(new

Object()); which is referred by object reference PRESENT.

When we adding values in HashSet like hashset.add(5) internally it will put that element as Ehere

as 5 key in HashMap and dummy value so that object is passed as value to key.

Internally HashMap have put (K k, value v) method.

Public v put (K Key, V value) {

//some code

}

Internally .put(Key, Value) will return

1. Null, if key is unique and added to map.

2. Old value of key, if key is duplicate.

So in HashSet add () method, we check return value of

map.put(Key, Value) method will

return null value i.e.

Public Boolean add (E e) {

// code here

}

If map.put(Key, Value) return null then map.put(e,PRESENT)==null will return

true &element added to HashSet.

If map.put(Key, Value) return old value of key, then map.put(e,PRESENT)==null will

returnfalse & element is not added to HashSet.

150) Difference between ArrayList

and LinkedList?Answer –

No.1 ArrayList LinkedList

1> ArrayList internally uses Dynamic

Array structure.

LinkedList internally uses Doubly Linked

list structure.

2> ArrayList is best suitable for store and

retrieval of data.

LinkedList is best suitable for

manipulation of data.

3> ArrayList provides random access. LinkedList doesn't provide random access.

4> ArrayList takes less memory as it

stores only objects.

LinkedList takes more memory as it stores

object as well as address of that object.

151) Advantages of

Multithreading?Answer –

Following are the advantages of Multithreading –

1. It doesn't block the user as threads are independent and can perform multiple

operation at same time.

2. As multiple operation can be performed at same time which results in it saves time.

3. If exception occurred in one thread it doesn't affect the others as it is independent in

nature.

4. A thread is lightweight.

5. Threads share same address space.

6. Cost of communication between thread is very low.

152) What is

ConcurrentModificationException?

Answer –

When one thread iterating the collection and if other thread tried modify the collectionobject

(Adding or Removing Object) then in such cases immediately iterator throws a exception

called as ConcurrentModificationException.

And the iterator which throws this type of exception as soon as they encounter such

situation is called fail-fast iterator.

153) What is @Repository annotation in

spring boot?Answer –

This annotation is used on classes which are working directly with DB (Data Base) layer. This

annotation shows that the given class is repository. The main use of using this annotation isto

catch the platform specific Exception and re-throw as one of the Spring's undefined unchecked

exceptions.

154) What are the advantages of Spring

framework?Answer –

1. Predefined template_It provides templates for hibernate, JPA, JDBC, etc. there is no need to write too

much code.

Example- in JDBC template, we don’t need to write code for exception handling, creating

connection, creating statement, closing connection. Only we need to write the codefor executing

the query.

2. Loose coupling_Spring applications are loosely coupled because of dependency injection.

3. Easy to test_Spring does not require server to run the program. It only needs JDK and Jar file.

4. Light weight_Spring is light weight component due to its POJO implementation. It does not forceany

programmer to inherit the class or implement any interface.

5. Development is very fast.

155) How did you handle the exception in

controller of Rest API?Answer –

This topic will be covered in final project.

156) What is SQL

injection?

Answer –

SQL injection is a code of injection technique that might destroy your database. It is one ofthe

most common web hacking techniques. It is the placement of malicious code in SQL statements,

via web page input. It is the most common type of injection attack.

157) What is request and

response in Join?

Answer –

This topic will be covered in final project.

158) Difference between query and path

parameters?Answer –

No. Query Parameter Path Parameter

1> It is not part of URL and passing key

value format, those parameter must be

define by API Developer.

Path parameter are variable parts of URI

path.

2> It is most common parameter they appear at the end of request URL after a ? with different value pairs separated by & operator.

They are typically used to point to a specific resource within collection suchas user identified ID.

3> Query parameter required and optional.

URL can have several path parameters each denoted with {}.

4> If there is a scenario where you need to get the details of all employees but only 10 at a time, you may use query param

GET /employee?start=1&size=10

If there is a scenario to retrieve a record based on id, for example you need to get the details of the

employee whose id is 15, then you can

have resource with @PathParam.GET

/employee/{id}

5> Use @PathParam for retrieval based on

id.

Use @QueryParam for filter

159) What is 500, 401 HTTP status

error code?

Answer –

500 – Internal Server Error

The server has encountered a situation that it doesn't know how to handle it.

401 – Unauthorized

The Client must be authenticated itself to get the requested response.

160) Difference between DDL

and DML?

Answer –

No. DDL DML

1> It stands for Data Definition Language. It stands for Data

Manipulation

Language.

2> It is used for create database schema

and also used to define some

constraints as well.

It is used to retrieve, add or update the

data.

3> It basically defines the column

(Attributes) of the table.

It adds or update the row of the table.

This rows are called as tuple.

4> It doesn’t have any further

classification.

It is further classified into Procedural

and Non-Procedural DML.

5> Basic commands present in DDL are

CREATE, RENAME, DROP, ALTER etc

Basic commands present in DML are

UPDATE, MERGE, INSERT etc

6> DDL does not uses where clause in its

statement.

DML uses where clause in its statement.

161) What is

GIT?

Answer –

Git is a DevOps tool used for source code management. It is a free and open-source version

control system used to handle small to very large projects efficiently. Git is used to tracking

changes in the source code, enabling multiple developers to work together on non-linear

development.

162) Difference between @SpringBootApplication and

@EnableAutoConfiguration?

Answer –

No. SpringBootApplication EnableAutoConfiguration

1> It is used in main class or bootstrap

class.

It is used to enable auto-configuration

and component scanning in your

project.

2> It is a combination of @Configuration,

@ComponentScan and

@EnableAutoConfiguration

annotations.

It is a combination of @ComponentScan

and @Configuration annotations.

3> It is not mandatory to used this

annotation.

It is mandatory to used this annotation.

When to use

@EnableAutoConfiguration?

Answer –

Whenever there is requirement of selectively exclude certain classes from auto- configuration

then we go for this annotation. For that we have to use exclude attribute withabove annotation and

specify the fully qualified class name.

163) Write a SQL query for two tables Employee and Department for below

scenario –

Find the name of Employees working in Finance Department and lives in Mumbai City.

Answer –

If the city is in Department table, then below query will work –

select emp. emapname from employee emp where emp.dept_id IN (select

dep.dept_idfrom department dept where dept.city = "Mumbai");

If the city is in Employee table, then below query will work –

select emp. emapname from employee emp where emp.dept_id IN (select

dep.dept_idfrom department dept where deptname ="Finance") and emp.city

="Mumbai";

164) What are the advantages of Spring Boot over

Spring MVC framework?

Answer –

Following are the advantages of Spring Boot over Spring MVC framework –

1. It is mainly used to develop REST API.

2. It required less coding and provides easiest way for

developing Web Application.

3. There is no need to build configuration manually.

4. There is no requirement of deployment descriptor.

5. It reduces development time and increases the productivity.

165) What are the annotations used in Spring

Boot framework?

@EnableAutoConfiguration –

It auto-configure the bean that is present in class path and configure it to run method.

@SpringBootApplication –

It is the configuration of 3 annotations i.e. @EnableAutoConfiguration, @ComponentScanand

@Configuration. It is not mandatory to used.

167) What is starter in Spring Boot

framework?

Spring Boot provides a number of starters that allow us to add jars in the classpath. SpringBoot

built-in starters make development easier and rapid. Spring Boot Starters are the dependency

descriptors.

168) What is @RestController and

@RequestMapping?

@RestController –

It is the special annotation used in RESTful web services. It is a combination of 2 annotations

i.e. @Controller and @ResponseBody. @RestController annotation is itself annotated withthe

@ResponseBody annotation. It eliminates the need for annotating each method with

@ResponseBody.

@RequestMapping –

It is used to map the web request. It can be used with class as well as method. It has many

optional elements like consumes, header, method, name, params, path, produces, and value.

169) How to create simple project in

Spring Boot?

Following are the steps needs to follow to create Simple project in spring boot –

1. Click on New Spring Starter Project

2. Enter Artifact and Group Name

3. Select the dependencies otherwise click on finish button.

170) What are the properties used in Spring Boot and where

it to be mentioned?

The following tables provide a list of common Spring Boot properties -

Property Default Value Description

Debug FALSE It enables debug logs.

spring.application.name It is used to set the

application name.

spring.application.admin.enabled FALSE It is used to enable admin

features of the

application.

spring.config.name application It is used to set config

file name.

spring.config.location It is used to config thefile

name.

server.port 8080 Configures the HTTP

server port

server.servlet.context-path It configures the context

path of theapplication.

logging.file.path It configures the

location of the log file.

spring.banner.charset UTF-8 Banner file encoding.

spring.banner.location classpath:banner.txt It is used to set bannerfile

location.

logging.file It is used to set log file

name. For example,

data.log.

spring.application.index It is used to set

application index.

spring.application.name It is used to set the

application name.

spring.application.admin.enabled FALSE It is used to enable admin

features for the

application.

spring.config.location It is used to config the

file locations.

spring.config.name application It is used to set config

the file name.

spring.mail.default-encoding UTF-8 It is used to set default MimeMessage encoding.

spring.mail.host It is used to set SMTP server host. Forexample, smtp.example.com.

spring.mail.password It is used to set login password of the SMTP server.

spring.mail.port It is used to set SMTP server port.

spring.mail.test-connection FALSE It is used to test that the mail server is available on startup.

spring.mail.username It is used to set login user of the SMTPserver.

spring.main.sources It is used to set sources for the application.

server.address It is used to setnetwork address to which the

server

should bind to.

server.connection-timeout It is used to set time in

milliseconds that

connectors will wait for

another HTTP request

before closing the

connection.

server.context-path It is used to set context

path of the application.

server.port 8080 It is used to set HTTP

port.

server.server-header It is used for the Server

response header (no

header is sent if empty)

Spring Boot provides various properties that can be configured in the application.properties

file.

Question 26 –Which design pattern used in project and which are the dependency

injection used?Answer –

This topic will be covered in final project.

171)What is spring boot actuator?

Spring Boot Actuator is a sub-project of the Spring Boot Framework. It includes a

number of additional features that help us to monitor and manage the Spring Boot

application. It contains the actuator endpoints (the place where the resources live).

We can use HTTP and JMX endpoints to manage and monitor the Spring Boot

application. If we want to get production-ready features in an application, we should

use the Spring Boot actuator.

There are three main features of Spring Boot Actuator:

o Endpoints

o Metrics

o Audit

Endpoint: The actuator endpoints allow us to monitor and interact with the application.

Spring Boot provides a number of built-in endpoints. We can also create our own

endpoint. We can enable and disable each endpoint individually. Most of theapplication

choose HTTP, where the Id of the endpoint, along with the prefixof /actuator,

is mapped to a URL.

For example, the /health endpoint provides the basic health information of an

application. The actuator, by default, mapped it to /actuator/health.

Metrics: Spring Boot Actuator provides dimensional metrics by integrating with the

micrometre. The micrometre is integrated into Spring Boot. It is the instrumentation

library powering the delivery of application metrics from Spring. It provides vendor_neutral interfaces for timers, gauges, counters, distribution summaries, and long

task timers with a dimensional data model.

Audit: Spring Boot provides a flexible audit framework that publishes events to an

AuditEventRepository. It automatically publishes the authentication events if spring_security is in execution.

172)What is difference between JDBC and hibernate

Sr.

No.

Key JDBC Hibernate

1 Basic It is database connectivity

technology

It is a framework,

2 Lazy

Loading

It does not support lazy loading Hibernate support lazy

loading

3 Transaction

management

We need to maintain explicitly database

connection andtransaction.

Hibernate itself manage all

transaction

4. Caching We need to write code for Hibernates provides two

implementing caching types of caching :

First level Cache

Second level cache

No Extra code is required to

use first level cache.

5. Performance Low performance High Performance

173) How you use database connectivity using hibernate

use Hibernate-provided JDBC connections, the configuration file requires the

following five properties:

o connection. driver_class -The JDBC connection class for the specific database

o connection.url -The full JDBC URL to the database

o connection. Username -The username used to connect to the database

o connection. Password -The password used to authenticate the username

o dialect -The name of the SQL dialect for the database

174) What is Inheritance association

Inheritance: One class can use features from another class to extend its functionality.

Inheritance based on IS-A Relationship. Inheritance is uni-directional. Inheritance is

indicated by a solid line with a arrowhead pointing at the super class.Example: 1. House is a Building.

But Building is not a House. 2. A Car is a Automobile. 3. A Cat

isa Animal. Here Animal class is

the super class / Base class for the Cat & Dog Classes, which arederived classes.

Association: Association represents a relationship between two or more objects where all objects

have their own life cycle and there is no owner. Association is basedon HAS-A

Relationship. This is represented by a solid line. We take an example of relationship between

Teacher and Student. Many students can have one teacher and one student can havemany teachers.

But there is no ownership between the objects and both have their own lifecycle. Both can be created

and deleted independently.

175) Difference between 1st n 2nd catche in hibernate

Sr.

No.

Key First level cache Second level cache

1 Basic First level cache is a session level

cache and it is always associated

with session level object

Second level cache is session factorylevel

cache and it is available across all sessions

2 Enabled It is enabled by default. It is not enabled by default.

3

Availability

It is available for a session It is available across all session.

4 Configuration No Extra configuration

required

We have to decide which concurrency

strategy to use and also need to configure

cache expiration and physical cache

attributes.

176) How many DB available in dialects?

Ans- List of SQL Dialects

There are many Dialects classes defined for RDBMS in

the org.hibernate.dialect package. They are as follows:

RDBMS Dialect

Oracle (any version) org.hibernate.dialect.OracleDialect

Oracle9i org.hibernate.dialect.Oracle9iDialect

Oracle10g org.hibernate.dialect.Oracle10gDialect

MySQL org.hibernate.dialect.MySQLDialect

MySQL with InnoDB org.hibernate.dialect.MySQLInnoDBDialect

MySQL with MyISAM org.hibernate.dialect.MySQLMyISAMDialect

DB2 org.hibernate.dialect.DB2Dialect

DB2 AS/400 org.hibernate.dialect.DB2400Dialect

DB2 OS390 org.hibernate.dialect.DB2390Dialect

Microsoft SQL Server org.hibernate.dialect.SQLServerDialect

Sybase org.hibernate.dialect.SybaseDialect

Sybase Anywhere org.hibernate.dialect.SybaseAnywhereDialect

PostgreSQL org.hibernate.dialect.PostgreSQLDialect

SAP DB org.hibernate.dialect.SAPDBDialect

Informix org.hibernate.dialect.InformixDialect

HypersonicSQL org.hibernate.dialect.HSQLDialect

Ingres org.hibernate.dialect.IngresDialect

Progress org.hibernate.dialect.ProgressDialect

Mckoi SQL org.hibernate.dialect.MckoiDialect

Interbase org.hibernate.dialect.InterbaseDialect

Pointbase org.hibernate.dialect.PointbaseDialect

FrontBase org.hibernate.dialect.FrontbaseDialect

Firebird org.hibernate.dialect.FirebirdDialect

177) Difference between save and persist, get and load, save and saveOrUpdate?

Sr. No.	Key	save()	persist()
1	Basic	It stores object in database	It also stores object in database
2	Return Type	It return generated id and return type is serializable	It does not return anything. Its void return type.
3	Transaction Boundaries	It can save object within boundaries and outside boundaries	It can only save object within

the transaction boundaries

4. Detached

Object

It will create a new row in the

table for detached object

It will throw persistence

exception for detached object

5. Supported

by

It is only supported by Hibernate It is also supported by JPA

Sr.

No.

Key Get() Load()

1 Basic It is used to fetch data from the

database for the given identifier

It is also used to fetch data

from the database for the

given identifier

2 Null Object It object not found for the given

identifier then it will return null object

It will throw object not

found exception

Sr.

No.

Key Get() Load()

3

Lazy or

Eager

loading

It returns fully initialized object so this

method eager load the object

It always returns proxyobject so

this method is lazy load the

object

4 Performance It is slower than load() because itreturn

fully initialized object which impact the

performance of the application

It is slightly faster.

5. Use Case If you are not sure that object exist

then use get() method

If you are sure that objectexist

then use load() method

178) What is session factory and session

SessionFactory: The SessionFactory is a factory of session and client of

ConnectionProvider. It holds second level cache (optional) of data. The

org.hibernate.SessionFactory interface provides factory method to get the object of

Session.

Session :The session object provides an interface between the application and data

stored inthe database. It is a short-lived object and wraps the JDBC connection. It is

factory of Transaction, Query and Criteria. It holds a first-level cache (mandatory) of

data. The org.hibernate.Session interface provides methods to insert, update and delete

the object. It also provides factory methods for Transaction, Query and Criteria.

179) What is dirty checking in hibernate

Dirty checking is an essential concept of Hibernate. The Dirty

checking concept is

used to keep track of the objects. It automatically detects whether an object is

modified (or not) orwants to be updated.

It also allows a developer to avoid time-consuming database write actions. It

modifies onlythose fields which require modifications, and the remaining fields are

kept unchanged.

Example of Dirty Checking

In this example, we are taking an entity class Student. The Student class contains

student id(id), name (Sname), course (Scourse), and rollno (Srno) of the student. It

also provides default and a parameterized constructor.

To access dirty checking in the application, we are

using theannotation @DynamicUpdate to the

entity class Student.

@DynamicUpdate- It is used for updating the objects. This annotation makes the

necessarymodifications and changes to the required fields.

180) write custom exception

We can create our own Exception that is known as custom exception or user_definedexception. By the help of custom exception, you can have your own

exception and message.

Example-1- Scenario

Sometimes it is required to develop meaningful exceptions based on application

requirements. For example suppose you have one savings account in SBI Bank and

you have50000 in your account. Suppose you attempted to withdraw 60000 from

your account. In java you can handle. You need to display some error message

related to insufficient fund.

Steps to create the user defined exception

1. Create the new class.

2. The user defined exception class must extend

from java.lang.Exception or java.lang.RunTimeException class.

3. While creating custom exception, prefer to create an unchecked,

Runtime exceptionthan a checked exception.

4. Every user defined exception class in which parametrized

Constructor must calledparametrized Constructor of

either java.lang.Exception or java.lang.RunTimeException class by

using super(stringparameter always).

181) write code for method overloading

If a class has multiple methods having same name but different in parameters, it

isknown as Method Overloading.

1. public

class Adder{

static int

add(int a,int

b){return

a+b;

}

}

static int add(int a,int b,int c){

return a+b+c;

}

2. public class

TestOverloading1{ public

static void main(String[]

args){

System.out.println(Adder.add(

11,11));

System.out.println(Adder.add(

11,11,11));

}

}

182) String str= java is Object oriented programming language

Yes, In Java, string is basically an object that represents sequence of char values. An

array ofcharacters works same as Java string.

183) Write code to remove extra space

public class RemoveAllSpace {

public static void main(String[]

args) { String str = "India

Is My Country";

//1st way

```
String noSpaceStr = str.replaceAll("\\s", ""); // using built in
methodSystem.out.println(noSpaceStr);
//2nd way
char[] strArray = str.toCharArray();
StringBuffer stringBuffer = new
StringBuffer();for (int i = 0; i <
strArray.length; i++) {
if ((strArray[i] != ' ') &&
(strArray[i] != '\t')) {
stringBuffer.append(strArray[i
]);
}
}
String noSpaceStr2 =
stringBuffer.toString();
System.out.println(noSpaceStr2);
}
}
```

Output

IndiaIsM

yCountr

y

IndiaIsM

yCountr

y

184)What is immutable in java?

Immutable objects are instances whose state doesn't change after it has been

initialized. Forexample, String is an immutable class and once instantiated its value

never changes.

185)How we can create immutable classes?

To create an immutable class in Java, you have to do the following steps.

186) Declare the class as final so it can’t be extended.

187) Make all fields private so that direct access is not allowed.

188) Don’t provide setter methods for variables.

189) Make all mutable fields final so that its value can be assigned only once.

190) Initialize all the fields via a constructor performing deep copy.

191) Perform cloning of objects in the getter methods to return a copy

rather thanreturning the actual object reference.

186)Oops concepts with an example.

There are 4 oops pillars

1. Abstraction : It is the process of hiding the certain details and

showing the importantinformation to the end user called as “Abstraction”.

Example- Real life scenario is car.

2. encapsulation : Binding (or wrapping) code and data together into a single

unit are knownas encapsulation. For example, a capsule, it is wrapped with

different medicines. 2.Class is the entity which contains variables and methods.

3. Inheritance: The process of creating the new class by using the existing

class functionalitycalled as Inheritance.

Inheritance means simply

reusability.It is called as -

(IS Relationship)

4. Polymorphism : One entity that behaves differently in different cases called

aspolymorphism. Example- Light button, we are using that button to on or off

the lights.

187)What are types of Exception handling?

Java defines several types of exceptions that relate to its various class libraries.

Java alsoallows users to define their own exceptions.

188) ArithmeticException

It is thrown when an exceptional condition has occurred in an

arithmeticoperation.

189) ArrayIndexOutOfBoundsException

It is thrown to indicate that an array has been accessed with an

illegal index. Theindex is either negative or greater than or equal to

the size of the array.

190) ClassNotFoundException

This Exception is raised when we try to access a class whose

definition is notfound

191) FileNotFoundException

This Exception is raised when a file is not accessible or does not open.

192) IOException

It is thrown when an input-output operation failed or interrupted

193) InterruptedException

It is thrown when a thread is waiting, sleeping, or doing some

processing, and itis interrupted.

194) NoSuchFieldException

It is thrown when a class does not contain the field (or variable) specified

195) NoSuchMethodException

It is thrown when accessing a method which is not found.

196) NullPointerException

This exception is raised when referring to the members of a null

object. Nullrepresents nothing

197) NumberFormatException

This exception is raised when a method could not convert a string

into a numericformat.

198) RuntimeException

This represents any exception which occurs during runtime.

199) StringIndexOutOfBoundsException

It is thrown by String class methods to indicate that an index is

either negativeor greater than the size of the string

188)What are serialization and deserialization?

Serialization is a mechanism of converting the state of an object into a byte stream.

Deserialization is the reverse process where the byte stream is used to recreate the

actualJava object in memory. This mechanism is used to persist the object.

The byte stream created is platform independent. So, the object serialized on

oneplatform can be deserialized on a different platform.

To make a Java object serializable we implement the java.io.Serializable interface.

The ObjectOutputStream class contains writeObject() method for serializing an

Object.Ex. public final void writeObject(Object obj)

throws IOException

The ObjectInputStream class contains readObject() method for deserializing an

object.Ex. public final Object readObject()

throws IOException,

ClassNotFoundExcepti

on

189)How to make a copy of objects?

The class whose object's copy is to be made must have a public clone method in it

or in oneof its parent class.

• Every class that implements clone() should call super.clone() to obtain

the clonedobject reference.

• The class must also implement java.lang.Cloneable interface whose

object clone we want to create otherwise it will throw

CloneNotSupportedException when clone method is called on that

class's object.

Syntax: protected Object clone() throws CloneNotSupportedException

190)What's are JPA and Hibernate? Tell me the difference.

JPA : A JPA (Java Persistence API) is a specification of Java

which is used to

access, manage, and persist data between Java object and relational database. It is

considered as a standardapproach for Object Relational Mapping. JPA can be seen

as a bridge between object- oriented domain models and relational database

systems. Being a specification, JPA doesn'tperform any operation by itself. Thus, it

requires implementation. So, ORM tools like Hibernate, TopLink, and iBatis

implements JPA specifications for data persistence.

JPA Hibernate

Java Persistence API (JPA) defines themanagement

of relational data in the Java applications.

Hibernate is an Object-Relational Mapping

(ORM) tool which is used to savethe state of

Java object into the database.

It is just a specification. Various ORM tools

implement it for data persistence.

It is one of the most frequently used JPA

implementation.

It is defined in javax.persistence package. It is defined in org.hibernate package.

The EntityManagerFactory interface is used to

interact with the entity manager factory for the

persistence unit. Thus, it provides an entitymanager.

It uses SessionFactory interface to create

Session instances.

It uses EntityManager interface to create, read, and

delete operations for instances of mapped entity

classes. This interface interacts with the persistence

context.

It uses Session interface to create, read, and

delete operations for instances of mapped

entity classes. It behaves as aruntime interface

between a Java application and Hibernate.

It uses Java Persistence QueryLanguage

(JPQL) as an object-oriented query language to

perform database operations.

It uses Hibernate Query

Language (HQL) as an object-oriented query

language to perform database operations.

Hibernate :A Hibernate is a Java framework which is used to store the Java objects

in the relational database system. It is an open-source, lightweight, ORM (Object

Relational Mapping) tool. Hibernate is an implementation of JPA. So, it follows the

common standardsprovided by the JPA.

191)What is Singleton class how can we create a singleton class?

In object-oriented programming, a singleton class is a class that can have only one

object(an instance of the class) at a time.

After first time, if we try to instantiate the Singleton class, the new variable also

points tothe first instance created.

Remember the key points while defining class as singleton class that is while

designing asingleton class:

192) Make constructor as private.

193) Write a static method that has return type object of this singleton

class. Here, the concept of Lazy initialization is used to write this

static method.

Let us brief how singleton class varies from normal class in java. Here the difference

is in terms of instantiation as for normal class we use constructor, whereas for

singleton class we use getInstance() method

192)Find the Second highest number from the array.{100,45,52,67,122,125}

```
public class SecondLargestInArrayExample{

public static int getSecondLargest(int[] a,

int total){int temp;

for (int i = 0; i < total; i++)

{

for (int j = i + 1; j < total; j++)

{

if (a[i] > a[j])

{

temp= a[i];

a[i]=a[j];
```

```
a[j]=temp;
}
}
}
return a[total-2];
}
public static void
main(String args[]){int
a[]={100,45,52,67,122,12
5};
System.out.println("Second Largest:"+getSecondLargest(a,6));
}}
```

193)Find the second-highest number when all are negatives

```
public class SecondLargestInArrayExample{
public static int getSecondLargest(int[] a, int total){ int temp;
for (int i = 0; i < total; i++)
{
for (int j = i + 1; j < total; j++)
{
if (a[i] > a[j])
```

```
{
temp = a[i];
a[i] = a[j]; a[j] = temp;
}
}
}
return a[total-2];
}
public static void main(String args[]){ int a[]={-1,-2,-5,-6,-3,-2};
System.out.println("Second Largest:"+getSecondLargest(a,6));
```

194)Hibernate annotations used?

Ans: Hibernate annotations are the newest way to define mappings without the use of XML file.

You can use annotations in addition to or as a replacement of XML mapping metadata. Hibernate

annotations is the powerful way to provide the metadata for the object and relational table

mapping.

194)Hibernate Session and SessionFactory ?

Ans: Session:-

a. It is one instance per client/one transaction.

b. It is not thread safe.

c. It is light weight.

d. Session will be opened using sessionfactory.openSession() and some

database operations will be done finally session will be closed using seesion.close().

SessionFactory:-

a .It is one interface per database.

b. it is thread safe.

c. It is heavy weight component.

d. It will create and manage the sessions.

e. It is an immutable object and it will be created as singleton while the server

initializes itself.

3. How can you use second level cache?

Ans: It uses a common cache for all the session factory. It is useful if you have

multiple session objects from a session factory.

There are four ways to use second level cache:

a. Read-only

b. Nonstrict-read-write

c. Read-write

d. Transactional

e.

195)Can a constructor be private ?

Ans: Yes. Class can have private constructor. Even abstract class can have private

constructor. By making constructor private,we present class from being instantiated

as well as subclassing of that class.

196)What is Singleton how we create singleton classes ?

Ans: It means defines the class which has single instance that provide the global point of

access to it called as singleton pattern.

Steps to create singleton classes:-

a. Create class singleton class and static member of class.

b. Make constructor as private.

c. Create the method for checking the references and use synchronized block instead

of method.

197)What are the ways to break it? And how we can stop it?

Ans: There are two ways to break it:

a. By using serialization and deserialization

b. By using Clone() method.

198)Why throws declared with the method signature ?

Ans: Checked exceptions are always declared as thrown in the method signature. The

Signature lets the method's caller know that an exception may occur as a

consequence of the call. If the exception does get thrown, the caller method be

prepared to do something about it.

199)What is method overloading and various scenarios of it ?

Ans: It is the same method name with different parameters called as method

overloading. It is also called as early binding compile time polymorphism or static

binding.

Rules:- a. method name must be same.

b. parameters must be different.

c. return type is anything.

d. access specifier is anything.

e. exception thrown is anything.

Scenarios:

```
Public class Test{

Void add(int a, int b){

Sysout(a+b);}

Void add(double a, double b){

Sysout(a+b);}

Void add(float a){

Sysout(a);}

}
```

200)What is @Qualifier ?

Ans: It is used to resolve the autowiring conflict, when there are multiple beans of same

type. It can be used on any class annotated with @Component or on methods

annotated with @Bean. This annotation can also be applied on constructor

arguments or method parameters.

201)One question on related to the interface in hibernate ?

Ans: Interfaces in hibernate:

a. Session interface

b. SessionFactory interface

c. Configuration interface

d. Transaction interface

e. Query and criteria interface

202)Various scopes of beans ?

Ans: a. singleton

b. prototype

c. request

d. session

e. global-session

203)Comparable and comparator difference ?

Ans:

Comparable Comparator

Comparable provides compareTo()

method to sort elements in Java. Comparator provides compare() method to sort elements in Java.

Comparable interface is present in

java.lang package. Comparator interface is present in java.util package.

The logic of sorting must be in the same

class whose object you are going to sort.

The logic of sorting should be in separate class to write different sorting

based on different attributes of objects.

The class whose objects you want to sort

must implement comparable interface.

Class, whose objects you want to sort, do not need to implement a

comparator interface.

It provides single sorting sequences. It provides multiple sorting sequences.

This method can sort the data according

to the natural sorting order. This method sorts the data according to the customized sorting order.

It affects the original class. i.e., actual

class is altered. It doesn't affect the original class, i.e., actual class is not altered.

Implemented frequently in the API by:

Calendar, Wrapper classes, Date, and

String.

It is implemented to sort instances of third-party classes.

All wrapper classes and String class

implement comparable interface.

The only implemented classes of Comparator are Collator and

RuleBasedColator.

204)What is Has-A relationship ?

Ans: In Java, a Has-A relationship is also known as composition. It is also used for code

reusability in Java. In Java, a Has-A relationship simply means that an instance of

one class has a reference to an instance of another class or an other instance of the

same class. For example, a car has an engine, a dog has a tail and so on.

205)What is ClassNotFound and NoClassDefFound ?

Ans:

ClassNotFoundException is an exception that occurs when you try to load a class at

run time using Class.forName() or loadClass() methods and mentioned classes are

not found in the classpath.

NoClassDefFoundError is an error that occurs when a particular class is present at

compile time, but was missing at run time.

206)Why String used in Hashmap ?

Ans: String is as a key of the HashMap When you create a HashMap object and try to

store a key-value pair in it, while storing, a hash code of the given key is calculated

and its value is placed at the position represented by the resultant hash code of the

key.

207)HashMap inner implementation ?

Ans: It internally uses equals and hashcode method. When we override equals method

then its compulsory to implement or override hashcode method also. If equals

method returns true for two objects then hashcode method should return same

hashcode for that two objects. It uses bucket for storing the hashmap. Defines index

by using formula.

208)What is hibernate.cfg file contains ?

Ans: One of the most required configuration file in Hibernate is hibernate.cfg.xml file.

By default, it is placed under src/main/resource folder. hibernate.cfg.xml file

contains database related configurations and session related configurations.

209)What is association ?

Ans: Association refers to the relationship between multiple objects. It refers to how objects

are related to each other and how they are using each other's functionality. Composition and

aggregation are two types of association.

210).Difference between abstract class and interface?

211)

212)

Abstract class Interface

1) Abstract class can have abstract and

non-abstract methods.

Interface can have only abstract methods.

Since Java 8, it can have default and static

methods also.

2) Abstract class doesn't support

multiple inheritance.

Interface supports multiple inheritance.

3) Abstract class can have final, non_final, static and non-static variables.

Interface has only static and final variables.

4) Abstract class can provide the

implementation of interface.

Interface can't provide the implementation

of abstract class.

5) The abstract keyword is used to

declare abstract class.

The interface keyword is used to declare

interface.

6) An abstract class can extend another

Java class and implement multiple Java

interfaces.

An interface can extend another Java

interface only.

7) An abstract class can be extended

using keyword "extends".

An interface can be implemented using keyword "implements".

8) A Java abstract class can have class members like private, protected, etc.

Members of a Java interface are public by default.

9)Example:

```
public abstract class Shape{
public abstract void draw();
}
```

Example:

```
public interface Drawable{
void draw();
}
```

213)

214)

215)

216)

217)

211)Collection and collections

212).What is hibernate

Ans- Hibernate is a Java framework that simplifies the development of Java application to interact

with the database. It is an open source, lightweight, ORM (Object Relational Mapping) tool.

Hibernate implements the specifications of JPA (Java Persistence API) for data persistence.

ORM Tool

An ORM tool simplifies the data creation, data manipulation and data access. It is a programming

technique that maps the object to the data stored in the database.

213)How does Hibernate work?

Ans- Hibernate is an open source Object-Relational Persistence and Query service for any Java

Application. Hibernate maps Java classes to database tables and from Java data types to SQL data

types and relieves the developer from most common data persistence related programming tasks.

Hibernate sits between traditional Java objects and database server to handle all the works in

persisting those objects based on the appropriate O/R

mechanisms and patterns.

214)Why use Hibernate?

Hibernate reduces lines of code by maintaining object-table mapping itself and returns result to

application in form of Java objects. It relieves programmer from manual handling of persistent data,

hence reducing the development time and maintenance cost.

215) . what are idempotent methods of rest Api ?

Ans- REST APIs use HTTP methods such as POST, PUT, and GET to interact with

resources such as an image, customer name, or document. When using an idempotent

method, the method can be called multiple times without changing the result.

HTTP methods include:

• POST – Creates a new resource. POST is not idempotent and it is not safe.

• GET – Retrieves a resource. GET is idempotent and it is safe.

• HEAD – Retrieves a resource (without response body). HEAD is idempotent and it is safe

• PUT – Updates/replaces a resource. PUT is idempotent but it is not safe

• PATCH – Partially updates a resource. PATCH is not idempotent and it is not safe.

• DELETE – Deletes a resource. DELETE is idempotent but it is not safe.

• TRACE – Performs a loop-back test. TRACE is idempotent but it is not safe.

216) .what is application. properties file and application.yml file?

Ans- 1.) .properties file : It store data in sequential format. .yml file : It store data in

hierarchical format.

2.) .properties file : It supports only key-value pair basically string values. .yml file : It supports

key-value pair as well as map, list & scalar type values.

3.) .properties file : This file specifically used for JAVA. .yml file : This file type are used by

many of the languages like JAVA, Python, ROR, etc.

4.) If you want to handle multiple profiles, .properties file : In this case you need to manage

individual file for each profile. .yml file : In this file type you just need to manage single file

and place configuration data of specific profile inside it.

5.) For Spring project, .properties file : @PropertySource annotation support this file type. .yml file

: @PropertySource annotation can't support this file type.

217) .What is Dependancy injection and inversion of control in

spring?

• Ans_Dependency Injection(DI):

Dependency injection generally means passing a dependent object as a parameter to a

method, rather than having the method create the dependent object.

What it means in practice is that the method does not have a direct dependency on a

particular implementation; any implementation that meets the requirements can be passed as

a parameter.

With this implementation of objects defines their dependencies. And spring makes it

available.

This leads to loosely coupled application development.

Inversion of Control(IoC) Container:

This is common characteristic of frameworks, IoC manages java objects

- from instantiation to destruction through its BeanFactory.

- Java components that are instantiated by the IoC container are called beans, and the IoC

container manages a bean's scope, lifecycle events, and any AOP features for which it has

been configured and coded.

218) .What is Runtime polymorphism? Live example

Ans- Runtime polymorphism in java is also known as Dynamic Binding or Dynamic Method

Dispatch. In this process, the call to an overridden method is resolved dynamically at runtime

rather than at compile-time. Runtime polymorphism is achieved through Method Overriding.

• Method Overriding is done when a child or a subclass has a method with the same name,

parameters and return type as the parent or the superclass, then that function overrides

the function in the superclass. In simpler terms, if the subclass provides its definition to

a method already present in the superclass, then that function in the base class is said to

be overridden.

Real-Life Examples of Java Polymorphism

A security guard outside an organization behaves differently with different people entering the

organization. He acts in a different way when the Boss comes and, in another way when the

employees come.

When the customers enter, the guard will respond differently. So here, the behavior of the guard is

in various forms, which depends on the member who is coming.

219) .Diff bet hashSet and hashMap?

Basis HashMap HashSet

Definition Java HashMap is a

hash table based

implementation of

Map interface.

HashSet is a Set. It creates a

collection that uses a hash table for

storage.

Implementation HashMap HashSet implements Set,

implements Map,

Cloneable, and

Serializable interface

es.

Cloneable, Serializable,

Iterable and Collection interfaces.

Stores In HashMap we store

a key-value pair. It

maintains the

mapping of key and

value.

In HashSet, we store objects.

Duplicate

values

It does not

allow duplicate

keys, but duplicate

values are allowed.

It does not allow duplicate

values.

Null values It can contain

a single null

key and multiple

null values.

It can contain a single null value.

Method of

insertion

HashMap uses

the put() method to

add the elements in

the HashMap.

HashSet uses the add() method to

add elements in the HashSet.

Performance HashMap

is faster/ than

HashSet because

values are

associated with a

unique key.

HashSet is slower than HashMap

because the member object is used

for calculating hashcode value,
which can be same for two
objects.
The Number of
objects
Only one object is
created during the
add operation.
There are two objects created
during put operation, one
for key and one for value.
Storing
Mechanism
HashMap internally
uses hashing to store
objects.
HashSet internally uses
a HashMap object to store
objects.
Uses Always prefer when

we do not maintain

the uniqueness.

It is used when we need to

maintain the uniqueness of data.

220) .In which scenario you ll go for list and set?

Ans- According to our requirement we have to choose the best one.

List:- List is one interface it has some implementation like, ArrayList, LinkedList,Vector,Stack

List can stores the elements (Objects) in insertion order, and duplicate elements also allowed, So

whenever requirement is there , where duplicates are allowed anmd insertion order required , then we

should go for List.

Set:- Similarlty Set is also one interface, it has implementations like, HashSet, LinkedHashSet,

SortedSet, TreeSet

Set allows only unique elements, and insertion order is not preserved, So when ever this types of

requirement is there , go for Set.

Map:- Map is also one interface , it has also some implementation classes, Map Stores the object as key

and value pair,

Eg, Your emp id and name,

221) .can you explain lambda expression in java 8?

Ans- Lambda expression is a new and important feature of Java which was included in Java SE 8. It

provides a clear and concise way to represent one method interface using an expression. It is very useful in

collection library. It helps to iterate, filter and extract data from collection.

Lambda expression provides implementation of functional interface. An interface which has only one

abstract method is called functional interface.

Why use Lambda Expression

1. To provide the implementation of Functional interface.

2. Less coding.

Java Lambda Expression Syntax

1. (argument-list) -> {body}

222) ..what is stream in java 8 what is use of this?

Ans- Java Stream doesn’t store data, it operates on the source data structure (collection and array) and produce

pipelined data that we can use and perform specific operations.

Such as we can create a stream from the list and

filter it based on a condition.

Java Stream operations use functional interfaces, that makes it a very good fit for functional programming using

lambda expression. As you can see in the above example that using lambda expressions make our code readable

and short.

Java 8 Stream internal iteration principle helps in achieving lazy-seeking in some of the stream operations. For

example filtering, mapping, or duplicate removal can be implemented lazily, allowing higher performance and scope

for optimization.

1. map: The map method is used to returns a stream consisting of the results of applying the given function

to the elements of this stream.

```
List number = Arrays.asList(2,3,4,5);

List square = number.stream().map(x->x*x).collect(Collectors.toList());
```

2. filter: The filter method is used to select elements as per the Predicate passed as argument.

```
List names = Arrays.asList("Reflection","Collection","Stream");

List result =
```

names.stream().filter(s->s.startsWith("S")).collect(Collectors.toList());

3. sorted: The sorted method is used to sort the stream.

List names = Arrays.asList("Reflection","Collection","Stream");

List result = names.stream().sorted().collect(Collectors.toList());

4. collect: The collect method is used to return the result of the intermediate operations performed on the

stream.

List number = Arrays.asList(2,3,4,5,3);

Set square = number.stream().map(x->x*x).collect(Collectors.toSet());

5. forEach: The forEach method is used to iterate through every element of the stream.

List number = Arrays.asList(2,3,4,5);

number.stream().map(x->x*x).forEach(y->System.out.println(y));

223) .have you seen concurrent modification exception? why it

occur?

Ans- Concurrent Modification Exception occurs when a thread in a program is trying to modify an object, which

does not have permissions to be edited while in the current process. So simply, when we attempt to edit an object

which is being currently used by another process, the ConcurrentModificationException will appear.

224) ..Which dummy variable is used in internal working of hashSet

as value for every key

// Dummy value to associate with an Object in the backing Map

private static final Object PRESENT = new Object();

And that's how add method is implemented in HashSet class -

public boolean add(E e) {

return map.put(e, PRESENT)==null;

For example a statement for adding an element to HashSet- set.add("Mumbai"); internally translates

into map.put("Mumbai", PRESENT); and then added to the backing HashMap instance.

225) .can you used JSP directly in spring boot like spring mvc?

Ans- No

tomcat-embed-jasper

we need to include the tomcat-embed-jasper dependency to allow our application to compile and render JSP

pages:

<dependency>

```
 <groupId>org.apache.tomcat.embed</groupId>
 <artifactId>tomcat-embed-jasper</artifactId>
 <version>9.0.44</version>
</dependency>
```

Scenario Based questions on Exception hadling----------

226) . What will be the output of the below program?

```
public class JavaHungry {
 public static void main(String args[])
 {
 try
 {
 System.out.print("A");
 int num = 99/0;
 System.out.print("B");
 }
 catch(ArithmeticException ex)
 {
 System.out.print("C");
 }
 catch(Exception ex)
```

```
 {
 System.out.print("D");
 }
 System.out.print("E");
 }
}
```

04

Output :

ACE

227) . What will be the output of the below program?

```
public class JavaHungry {
 public static void main(String args[])
 {
 try
 {
 System.out.print("A");
 int num = 99/0;
 System.out.print("B");
 }
```

```
 System.out.print("C");


 catch(ArithmeticException ex)
 {
 System.out.print("D");
 }
 }
}
```

Out Output :

Compilation Error

/JavaHungry.java:4: error: 'try' without 'catch', 'finally' or resource declarations

228) . What will be the output of the below program?

```
class SubException extends Exception { }
class SubSubException extends SubException { }
public class JH
{
 public void doStuff() throws SubException {}
}
class JH2 extends JH
```

```
{
 public void doStuff() throws SubSubException {}
}
class JH3 extends JH
{
 public void doStuff() throws Exception {}
}
class JH4 extends JH
{
 public void doStuff(int x) throws Exception {}
}
class JH5 extends JH
{
 public void doStuff() {}
}
```

Output :

Compilation fails due to line public void doStuff() throws Exception {}

229) . What will be the output of the below program?

```
public class JavaHungry {
```

```
 public static void main(String args[])
 {
 try
 {
 System.out.print("A");
 throw 99;
 }
 catch (int ex)
 {
 System.out.print("B");
 }
 }
}
```

Output :

Compilation Errors

/JavaHungry.java:7: error: incompatible types: int cannot be converted to Throwable

230) What will be the output of the below program?

```
public class JavaHungry {
 public static void main(String args[])
```

```
 {
 try
 {
 int arr[]= {1, 2, 3, 4, 5};
 for (int i = 0; i <= 5; i++)
 {
 System.out.print ("Array elements are : " + arr[i] + "\n");
 }
 }
 catch (Exception e)
 {
 System.out.println ("Exception : " + e);
 }
 catch (ArrayIndexOutOfBoundsException ex)
 {
 System.out.println ("ArrayIndexOutOfBoundsException : "+
ex);
 }
 }
}
```

Output :

Compilation Error

231).Write the program for check String is Palindrome or not…

//Palindrome means from forward & from reverse the character sequence should be same.

//(“nitin” is palindrome String……as reverse of “nitin” is “nitin”.)

```
package com.groupd.practice;

import java.util.Scanner;

public class PalendromeDemo {

static String reverse = "";

public String getReverseString(String str) {

for (int i = (str.length() - 1); i >= 0; i--) {

reverse = reverse + (str.charAt(i));

}

return reverse;

}

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.println("Enter the String");
```

```
String str1 = scanner.next();
PalendromeDemo palendromeDemo = new PalendromeDemo();
String input=palendromeDemo.getReverseString(str1);
System.out.println("Reverse of given String is ==" + reverse);
System.out.println("Input we stored >>" + str1);
System.out.println("reverse >>" + input);
if (str1.equals(input)) {
System.out.println("Given String is palendrome");
} else {
System.out.println("Given String is not palendrome");
}
}
}
```

Output :

```
Enter the String
nitin
Reverse of given String is ==nitin
Input we stored >>nitin
reverse >>nitin
Given String is palendrome
```

232). Explain stereotype annotations in project.

Ans - There are four types of stereotype annotations as follows.

@Component, @Repository, @Service and @Controller annotations

Spring will automatically import the beans into the container and inject to dependencies. These annotations are

called Stereotype annotations as well.

1.1 @Component

It is a class-level annotation. It is used to mark a Java class as a bean. A Java class annotated

with @Component is found during the class-path. The Spring Framework pick it up and configure it in the

application context as a Spring Bean.

```
@Component
public class Student {
  .....
  }
```

1.2 @Repository

It is a class-level annotation. The repository is a DAOs (Data Access Object) that access the database directly. The

repository does all the operations related to the database.

```
package com.java;
@Repository
public class TestRepository {
public void delete() {
// code
}
}
```

1.3 @Service:

It is also used at class level. It tells the Spring that class contains the business logic.

Example

```
package com.service;
@Service
public class Service
{
public void service1()
{
//business code }
}
```

1.4 @Controller:

The @Controller is a class-level annotation. It is a specialization of @Component. It marks a class as a web

request handler. It is often used to serve web pages. By default, it returns a string that indicates which route to

redirect. It is mostly used with @RequestMapping annotation.

```
@Controller
@RequestMapping("books")
public class BooksController
{
@RequestMapping(value = "/{name}", method = RequestMethod.GET)
public Employee getBooksByName()
{
return booksTemplate;
}
}
```

---

233). Explain @SpringBootApplication.

Ans- @SpringBootApplication: It is a combination of three

annotations @EnableAutoConfiguration,@ComponentScan, and

@Configuration.

2.1 @EnableAutoConfiguration:

It auto-configures the bean that is present in the classpath and configures it to run the methods. The use of this

annotation is reduced in Spring Boot because developers provided an alternative of the annotation,

i.e. @SpringBootApplication.

2.2 @ComponentScan:

It is used when we want to scan a package for beans. It is used with the annotation @Configuration. We can also

specify the base packages to scan for Spring Components.

Example

```
@ComponentScan(basePackages = "com.test")
@Configuration
public class ScanComponent
{
// ...
}
```

2.3 @Configuration:

It is a class-level annotation. The class annotated with @Configuration used by Spring Containers as a source of

bean definitions.

Example

```
@Configuration
public class Demo
{
@Bean Demo m1()
{
return new Demo();
}
}
```

---

234) . What is IOC and DI ?

Ans- Spring IOC container is responsible to instantiate, configure and assemble the objects. The IoC container gets

informations from the XML file and works accordingly. The main tasks performed by IoC container are:

1. Read the XML file.

2. Create the intantiation of xml bean(java classes).

3. It will manage the life cycle of your bean classes.

4. Passing the dynamic parameter to bean (java classes).

There are two types of IOC container—

1. BeanFactory--

2. ApplicationContext--

Dependency Injection-

The process of passing the required input from xml file to POJO class called as “Dependency injection.”

There are two types of dependency injection such as

1. Setter base injection

2. Constructor base injection

---

235). What is Spring Boot Starter ?

Ans- Spring Boot provides a number of starters that allow us to add jars in the classpath. Spring Boot built_in starters make development easier and rapid. Spring Boot Starters are the dependency descriptors.

In the Spring Boot Framework, all the starters follow a similar naming pattern: spring-boot-starter-*,

where * denotes a particular type of application. For example, if we want to use Spring and JPA for database access,

we need to include the spring-boot-starter-data-jpa dependency

in our pom.xml file of the project.

236). How many ways we can break singleton pattern ?

Ans- There are 3 ways to break singleton pattern..

1. Break by Cloning. If a Singleton class implements java.lang.Cloneable interface then invoking clone() method

on its single instance creates a duplicate object. ...

* To overcome this issue, override clone() method and throw an exception from clone method that is

CloneNotSupportedException. Now whenever user will try to create clone of singleton object, it will throw

exception and hence our class remains singleton.

2. Serialization and Deserialization also breaks Singleton.

* To overcome this issue we have to implement readResolve().

3. Reflection can instantiate a Singleton multiple times.

---

237). What is role of the @RequestBody in rest controller ?

Ans- @RequestBody:

It is used to bind HTTP request with an object in a method parameter. Internally it uses HTTP

MessageConverters to convert the body of the request. When we

annotate a method parameter

with @RequestBody, the Spring framework binds the incoming HTTP request body to that parameter.

---------- ----------

---------- ----------

---------- -------

238) .

Explain

status

code.

Ans- The Server issues

an HTTP Status Code in

response to a request of the

client made to the server.

Status code is a 3-digit

integer. The first digit of

status code is used to

specify one of five standard

classes of responses.

The last two digits of status

code do not have any

categorization role.

The status codes are divided into 5 parts, as follows:

S.N. Code and Description

1 1xx---Informational-Response

It is used to show that the request was received, and the process is

continuing.

2 2xx---Successful

It is used to show that the request was successfully received,

understood, and accepted.

3 3xx---Redirection

It is used to show that further action needs to be taken to complete the

request.

4 4xx---Client-Error

It is used to show that the request contains bad syntax or cannot be

fulfilled.

5 5xx---Server-Error

It is used to show that the server is failed to fulfill an apparently valid

request.

239).What is Sprint Duration?

Ans- First introducing concept of Sprint..

A sprint is a short, time-boxed period when a scrum team works to complete a set amount of work.

Sprint duration we simply say, the time span in which we have to complete defined task.

A “sprint” is like a “mini project” inside your project. And in Scrum we divide our full project up into these

equally long “mini projects” called sprints. Each sprint has its own planning. Every sprint has the same length and

is never “extended” (think of a sprint like the 24 hours in a day—you wouldn’t add another hour simply because

you didn’t get your work done).

How to declare sprint duration?

• If the goal is risk reduction, then I choose a shorter sprint length. 1 week sprints

• If your goal is to develop a new product for which you already reduced basic risks choose a medium

sprint length 2 week sprints

• If your goal is to develop or improve a product that is already profitable go for the longer sprint length.

The longest sensible sprint length is 1 month.

➔ 4 week sprints

240). What is difference between Spring & Spring Boot?

Ans- Spring vs. Spring Boot

Spring: Spring Framework is the most popular application development framework of Java. The main feature of

the Spring Framework is dependency Injection or Inversion of Control (IoC). With the help of Spring Framework,

we can develop a loosely coupled application. It is better to use if application type or characteristics are purely

defined.

Spring Boot: Spring Boot is a module of Spring Framework. It allows us to build a stand-alone application with

minimal or zero configurations. It is better to use if we want to develop a simple Spring-based application or

RESTful services.

The primary comparison between Spring and Spring Boot are discussed below:

Spring Spring Boot

Spring Framework is a

widely used Java EE

(Enterprise Edition)

framework for building

applications.

Spring Boot Framework is widely used to

develop

REST APIs.

It aims to simplify Java EE

development that makes

developers more productive.

It aims to shorten the code length and provide

the easiest way to develop Web Applications.

The primary feature of the The primary feature of Spring Boot is

241 .Tell Java 8 Features

Ans-Oracle released a new version of Java as Java 8 in March 18, 2014. It was a revolutionary release of the Java

for software development platform. It includes various upgrades to the Java programming, JVM, Tools and

libraries.

Java 8 Programming Language Enhancements

Java 8 provides following features for Java Programming:

o Lambda expressions,

o Method references,

o Functional interfaces,

Spring Framework

is dependency injection.

Autoconfiguration. It automatically configures

the classes based on the requirement.

It helps to make things

simpler by allowing us to

develop loosely

coupled applications.

It helps to create a stand-alone application (that

runs

locally on the device & doesn’t require

anything else

to be function) with less configuration.

The developer writes a lot of

code (boilerplate code) to do

the minimal task.

It reduces boilerplate code. (Boilerplate code means
sections of codes that repeated multiple places with
small variation or no variation)
To test the Spring project,
we need to set up the sever
explicitly.
Spring Boot offers embedded server such as
Jetty and Tomcat, etc. (Just make changes in
application. Properties file)
Developers manually define
dependencies for the Spring
project in pom.xml.
Spring Boot comes with the concept
of starter in pom.xml
file that internally takes care of downloading the
dependencies JARs based on Spring Boot
Requirement.

o Stream API,

o Stream Filter

o Default methods,

o Static methods in interface

o forEach() method,

o Date/Time API

Lambda Expressions

Lambda expression helps us to write our code in functional style. It provides a clear and concise way to

implement SAM interface(Single Abstract Method) by using an expression. It is very useful in collection library

in which it helps to iterate, filter and extract data.

Method References

Java 8 Method reference is used to refer method of functional interface . It is compact and easy form of lambda

expression. Each time when you are using lambda expression to just referring a method, you can replace your

lambda expression with method reference.

Default Methods

Java provides a facility to create default methods inside the interface. Methods which are defined inside the

interface and tagged with default keyword are known as default methods. These methods are non-abstract

methods and can have method body.

forEach Java provides a new method

forEach() to iterate the elements. It is defined in Iterable and Stream interfaces.It is a default method defined in

the Iterable interface. Collection classes which extends Iterable interface can use forEach() method to iterate

elements.

Date/Time API Java has introduced a new

Date and Time API since Java 8. The java.time package contains Java 8 Date and Time class.

Functional Interface An Interface that contains

only one abstract method is known as functional interface. It can have any number of default and static methods.

It can also declare methods of object class.Functional interfaces are also known as Single Abstract Method

Interfaces (SAM Interfaces)

Stream API

Java 8 java.util.stream package consists of classes, interfaces and an enum to allow functional-style operations on

the elements. It performs lazy computation. So, it executes only

when it requires.

Stream Filter

Java stream provides a method filter() to filter stream elements on the basis of given predicate. Suppose, you want

to get only even elements of your list, you can do this easily with the help of filter() method

242 .Java throws keyword?

Ans- The Java throws keyword is used to declare an exception. It gives an information to the programmer that

there may occur an exception. So, it is better for the programmer to provide the exception handling code so that

the normal flow of the program can be maintained.

Exception Handling is mainly used to handle the checked exceptions. If there occurs any unchecked exception

such as NullPointerException, it is programmers' fault that he is not checking the code before it being used.

Syntax of Java throw

1. return_type method_name() throws exception_class_name{

2. //method code

3. }

243) .Can we declare multiple exception in single catch block?

Ans- Yes. we can declare it from java 7.

In java 7, we can catch multiple exceptions in a single catch block as:

```
catch(IOException | SQLException ex){
  logger.error(ex);
  throw new MyException(ex.getMessage());
}
```

If a catch block handles multiple exceptions, you can separate them using a pipe (|) and in this case, exception

parameter (ex) is final, so you can't change it. The byte code generated by this feature is smaller and reduce code

redundancy.

Flowchart of Multi-catch Block

Example 1

Let's see a simple example of java multi-catch block.

MultipleCatchBlock1.java

```
1. public class MultipleCatchBlock1 {
2.
3. public static void main(String[] args) {
4.
```

```
5. try{
6. int a[]=new int[5];
7. a[5]=30/0;
8. }
9. catch(ArithmeticException e)
10. {
11. System.out.println("Arithmetic Exception occurs");
12. }
13. catch(ArrayIndexOutOfBoundsException e)
14. {
15. System.out.println("ArrayIndexOutOfBounds Exception occurs");
16. }
17. catch(Exception e)
18. {
19. System.out.println("Parent Exception occurs");
20. }
21. System.out.println("rest of the code");
22. }
23. }
```

Test it Now

Output:

8.4M

172

HTML Tutorial

Arithmetic Exception occurs

rest of the code

244) .Custom exception should be checked exception or modified exception?

Ans- There is not a specific rule for this, just keep this in mind: If a client can reasonably be expected to recover

from an exception, make it a checked exception. If a client cannot do anything to recover from the exception,

make it an unchecked exception

245) .What is application context?

Ans -The Application Context is Spring's advanced container. Similar to BeanFactory, it can load bean

definitions, wire beans together, and dispense beans upon request. This container is defined

by org.springframework.context.ApplicationContext interface .

The ApplicationContext includes all functionality of the

BeanFactory, It is generally recommended over

BeanFactory. BeanFactory can still be used for lightweight applications like mobile devices or applet-based

applications.

The ApplicationContext includes all functionality of the BeanFactory, I The most commonly used

ApplicationContext implementations are −

• FileSystemXmlApplicationContext − This container loads the definitions of the beans from an XML file.

Here you need to provide the full path of the XML bean configuration file to the constructor.

• ClassPathXmlApplicationContext − This container loads the definitions of the beans from an XML file.

Here you do not need to provide the full path of the XML file but you need to set CLASSPATH properly

because this container will look like bean configuration XML file in CLASSPATH.

• WebXmlApplicationContext − This container loads the XML file with definitions of all beans from within

a web application.is generally recommended over beanFactory.

246) .What is @Qualifier annotation?

Ans-There may be a situation when you create more than one

bean of the same type and want to wire only one of

them with a property. In such cases, you can use the @Qualifier annotation along with @Autowired to remove the

confusion by specifying which exact bean will be wired.

247) .Types of Autowiring & when to use it?

Ans- Autowiring feature of spring framework enables you to inject the object dependency implicitly. It internally

uses setter or constructor injection. In simple sentence we can say, Autowiring enables automatic dependency

injection.

Autowiring can't be used to inject primitive and string values. It works with reference only.

Autowiring Modes

There are many autowiring modes:

No. Mode Description

1) no It is the default autowiring mode. It means no autowiring by default.

2) byName The byName mode injects the object dependency according to name of the

bean. In such case, property name and bean name must be same.

It internally calls setter method.

3) byType The byType mode injects the object dependency according to type.

So property name and bean name can be different. It internally calls setter

method.

4) constructor The constructor mode injects the dependency by calling the constructor

of the class. It calls the constructor having large number of parameters.

5) autodetect It is deprecated since Spring 3

248) .What is Circular dependency ?

Ans- It happens when a bean A depends on another bean B, and the bean B depends on the bean A as well:

Bean A → Bean B → Bean A

Of course, we could have more beans implied:

Bean A → Bean B → Bean C → Bean D → Bean E → Bean A 2. What Happens in

Spring When Spring context is loading all the beans, it tries to

create beans in the order needed for them to work completely. For instance, if we didn't have a circular

dependency, like the following case:

Bean A → Bean B → Bean C

Spring will create bean C, then create bean B (and inject bean C into it), then create bean A (and inject bean B

into it).

But, when having a circular dependency, Spring cannot decide which of the beans should be created first, since

they depend on one another. In these cases, Spring will raise a BeanCurrentlyInCreationException while loading

context.

It can happen in Spring when using constructor injection; if you use other types of injections you should not find

this problem since the dependencies will be injected when they are needed and not on the context loading.

249) . If my requirement is -- I want to store policy Details in Policy, Health,

Insurance table so policy number as primary key in the form of

PLC_LI_001

PLC_LI_002

PLC_LI_003

not 1 2 3

how u will do or which concept u will use for this?

Ans- Hibernate supports many built in generator classes like assigned, sequence, increment, identity, native etc.

But some requirements these generator classes we can't use. There is no built in generator classes support this type

of primary key generated value. So we need to go for Custom generator classes.

We need a Hibernate identifier generator that can take any value that we manually assign, as a

PLC_LI_001

PLC_LI_002

PLC_LI_003

In order to create our own generator class, we need to implement with

the org.hibernate.id.IdentifierGenerator interface. This interface is having one method. So this method we need

override.

```
package com.varasofttech.generator;

import org.hibernate.id.IdentifierGenerator;

public class MyGenerator implements IdentifierGenerator

{

 @Override

 public Serializable generate(SessionImplementor session, Object object)
```

{

// your logic comes here.

}

}

250) .what is threshold is decided in java 8 for internal working of hashmap for

internal structure of linked list??

HashMap implementation in Java provides constant-time performance O(1) for get()and put() methods in

the ideal case when the Hash function distributes the objects evenly among the buckets. In Java 8, you still

have an array, but it now stores Nodes that contain the exact same information as Entries and, therefore, are

also linked lists.

Below is the Node implementation in Java 8:

1

static class Node implements Map.Entry {

2

final int hash;

3

final K key;

4

V value;

5

Node next;

6

}

Well, Nodes can be extended to TreeNodes. A TreeNode is a balanced tree structure that

maintains O(long(n)) complexity for add, delete, or get. TreeNode also ensures that their length is always log(n)

despite new adds or removes of nodes.

Thus, the performance of HashMap degrades gracefully if hashCode() method is not used properly, where it

returns values that are poorly distributed or those in which many keys share a hashCode.

To address this issue in Java 8 Map transforms it into bins of TreeNode, each structured similarly to those

in java.util.TreeMap once the threshold(TREEIFY_THRESHOLD) is reached. This means that HashMap starts with

storing Entry objects in bins of the linked list but after the number of items in a Map becomes larger than a

certain threshold, it is transformed from bins of a linked list to TreeNode, this improves the worst-case

performance from O(n) to O(log n). And when they become too small (due to removal or resizing), they are

converted back to plain bins.

251) .which internal structure came in picture after threshold crossed for

internally hashmap?

252)explain all joins in sql

It is used to retrieve data from multiple tables. It is performed whenever you need to fetch records from two

or more tables.

By using one select statement, we can retrieve the the data from multiple table.

types of SQL joins:

• (INNER) JOIN: Returns records that have matching values in both tables

• LEFT (OUTER) JOIN: Returns all records from the left table, and the matched records from the right

table

• RIGHT (OUTER) JOIN: Returns all records from the right table, and the matched records from the

left table

• FULL (OUTER) JOIN: Returns all records when there is a match in either left or right table

1)Inner Join_It gives you exactly matching rows called inner join.

Syntax_SELECT columns FROM table1 INNER JOIN table2 ON table1.column = table2.column;

Example_Table 1-

create table customers(

customerid int(10)primary key auto_increment not null, customername varchar(32),

emai lvarchar(32), phone int(255));

create table accounts(customerid int,

accountsid int primary key auto_increment not null,

accountstypevarchar(10), balance int(50), foreign key(customerid) references customers(customerid));

2. Left outer join-The LEFT OUTER JOIN returns all rows from the left hand table (Table 1) specified in the ON

condition and only those rows from the other table where the join condition is fulfilled.

Syntax-SELECT columns FROM table1 LEFT [OUTER] JOIN

table2 ON

table1.column = table2.column;

Example_selectcustomername, email, accountsid, balance from customers left join accounts

oncustomers.customerid = accounts.customerid;

3. Right outer join-The MySQL Right Outer Join returns all rows from the RIGHT-hand table (Table 2)specified

in the ON condition and only those rows from the other table where he join condition is fulfilled.

Syntax-SELECT columns FROM table1 RIGHT [OUTER] JOIN table2

ON table1.column = table2.column;

Example_selectcustomername, email, accountsid, balance from customers right join accounts

oncustomers.customerid = accounts.customerid;

4. Full outer Join_In MySQL it is the combination of left join union right join.

select * from customers left join accounts

oncustomers.customerid = accounts.customerid union

select * from customers right join accounts

oncustomers.customerid = accounts.customerid;

253)What is abstraction??How to achieve 100% abstraction?

Abstraction- It is the process of hiding the certain details and showing the important information to the end user

called as “Abstraction”.

Example- By using ATM GUI screen bank people are highlighting the set of services what they are offering

without highlighting internal implementation.

Advantages of abstraction_1) We can achieve security as we are not highlighting our internal implementation.

2) Enhancement will become very easy because without effecting end user we can able to perform any type

of changes in our internal system.

3) It provides more flexibility to the end user to use system very easily.

4) It improves maintainability of the application.

How to achieve the Abstraction in java?

There are two ways to achieve the abstraction in java.

1. Abstract class

2. Interface

Using interface, we can achieve 100% abstraction- The user who want to use methods of the interface, he only

knows the classes that implement this interface and their methods, information about the implementation is

completely hidden from the user, thus achieving 100% abstraction.

254)what is multithreading??

It is the process of executing multiple threads simultaneously.

Multitasking is a process of executing multiple tasks simultaneously. It is achieved by using two ways.

Example for Multitasking_In online session, what are the different activities done by students as?

- Listen the class

- Taking running notes

- Checking mobile

Process based_1. Executing several tasks simultaneously where each task is separate independent process such as

multitasking is called as process based.

2. Example 1- Typing java program into eclipse, also listening the audio songs, download a file from

internet.

3. In this every activity is independent process here.

4. Example-2 Task manager, see the multiple process list.

5. Process is heavy weight components.

6. Each process has address into memory.

Thread based_1. Executing several tasks simultaneously where each task is separate part of same program called as thread

based.

2. Example- suppose I have 1000 lines of code into java program and it will takes 8 hours to execute it where

first 500 line is executed after that remaining 500 lines is executed but there is no any dependency between

them so I can run that tasks simultaneously to minimize the execution time.

3. Thread is light weight components.

4. Thread shares the same address space.

Java Multithreading is mostly used in games, animation, etc.

Advantages of Java Multithreading_1) It doesn't block the user because threads are independent and you can perform multiple operations at the same

time.

2) You can perform many operations together, so it saves time.

3) Threads are independent, so it doesn't affect other threads if an exception occurs in a single thread.

255) Synchronized thread vs volatile keyword

5) why we use volatile keyword??

Synchronized_1) Synchronized is the modifier applicable for methods and blocks but not for variables and classes.

2) If a method or block declared with synchronized keyword then at a time only one thread is allow to execute

that method or block on the given object.

3) The main advantage of synchronized keyword is we can resolve data inconsistency problems, but the main

disadvantage is it increases waiting time of the threads and effects performance of the system. Hence if there is

no specific requirement never recommended to use synchronized keyword.

Volatile -

1) Volatile is the modifier applicable only for variables but not for classes and methods.

2) If the value of variable keeps on changing such type of variables we have to declare with volatile modifier.

3) If a variable declared as volatile then for every thread a separate local copy will be

created by the jvm, all intermediate modifications performed by the thread will takes place in the local copy

instead of master copy.

4) Once the value got finalized before terminating the thread that final value will be

updated in master copy.

5) The main advantage of volatile modifier is we can resolve data inconsistency problems,but creating and

maintaining a separate copy for every thread increases complexity of the programming and effects performance

of the system. Hence if there is no specific requirement never recommended to use volatile modifier and it's

almost outdated.

6) Volatile means the value keep on changing where as final means the value never

changes hence final volatile combination is illegal for variables.

256) Spring Boot Annotations

Spring Boot Annotations is a form of metadata that provides data about a program. In other words, annotations are

used to provide supplemental information about a program. It is not a part of the application that we develop. It

does not have a direct effect on the operation of the code they annotate. It does not change the action of the

compiled program.

Spring Boot Annotations

o @EnableAutoConfiguration: It auto-configures the bean that is present in the classpath and

configures it to run the methods. The use of this annotation is reduced in Spring Boot 1.2.0 release because

developers provided an alternative of the annotation, i.e. @SpringBootApplication.

o @SpringBootApplication: It is a combination of three annotations @EnableAutoConfiguration,

@ComponentScan, and @Configuration.

Core Spring Framework Annotations

1)@Required: It applies to the bean setter method. It indicates that the annotated bean must be populated at

configuration time with the required property, else it throws an exception BeanInitilizationException.

Example

```
public class Machine

{

private Integer cost;

@Required

public void setCost(Integer cost)

{
```

```
this.cost = cost;
}
public Integer getCost()
{
return cost;
}
}
```

2)@Autowired: Spring provides annotation-based auto-wiring by providing @Autowired annotation. It is

used to autowire spring bean on setter methods, instance variable, and constructor. When we use @Autowired

annotation, the spring container auto-wires the bean by matching data-type.

Example

```
@Component
public class Customer
{
private Person person;
@Autowired
public Customer(Person person)
```

{

this.person=person;

}

}

3) @Configuration: It is a class-level annotation. The class annotated with @Configuration used by Spring

Containers as a source of bean definitions.

Example

@Configuration

public class Vehicle

{

@BeanVehicle engine()

{

return new Vehicle();

}

}

4) @ComponentScan: It is used when we want to scan a package for beans. It is used with the annotation

@Configuration. We can also specify the base packages to scan for Spring Components.

Example

```
@ComponentScan(basePackages = "com.javatpoint")
@Configuration
public class ScanComponent
{
// ...
}
```

5) @Bean: It is a method-level annotation. It is an alternative of XML <bean> tag. It tells the method to

produce a bean to be managed by Spring Container.

Example

```
@Bean
public BeanExample beanExample()
{
return new BeanExample ();
}
```

Spring Framework Stereotype Annotations

1) @Component: It is a class-level annotation. It is used to mark a Java class as a bean. A Java class annotated

with @Component is found during the classpath. The Spring

Framework pick it up and configure it in the

application context as a Spring Bean.

Example

```
@Component

public class Student

{

.....

}
```

2) @Controller: The @Controller is a class-level annotation. It is a specialization of @Component. It marks

a class as a web request handler. It is often used to serve web pages. By default, it returns a string that indicates

which route to redirect. It is mostly used with @RequestMapping annotation.

Example

```
@Controller

@RequestMapping("books")

public class BooksController

{

@RequestMapping(value = "/{name}", method = RequestMethod.GET)
```

```
public Employee getBooksByName()
{
return booksTemplate;
}
}
```

• @Service: It is also used at class level. It tells the Spring that class contains the business logic.

Example

```
package com.javatpoint;
@Service
public class TestService
{
public void service1()
{
//business code
}
}
```

5) @Repository: It is a class-level annotation. The repository is a DAOs (Data Access Object) that access the

database directly. The repository does all the operations related

to the database.

```
package com.javatpoint;

@Repository

public class TestRepository

{

public void delete()

{

//persistence code

}

}
```

Spring MVC and REST Annotations

o @RequestMapping: It is used to map the web requests. It has many optional elements like consumes,

header, method, name, params, path, produces, and value. We use it with the class as well as the method.

Example

```
@Controller

public class BooksController

{

@RequestMapping("/computer-science/books")
```

```
public String getAllBooks(Model model)
{
//application code
return "bookList";
}
```

257) Types of beans

1) singleton

This scopes the bean definition to a single instance per Spring IoC container (default).

2) prototype

This scopes a single bean definition to have any number of object instances.

3) request

This scopes a bean definition to an HTTP request. Only valid in the context of a web-aware Spring

ApplicationContext.

4)session

This scopes a bean definition to an HTTP session. Only valid in the context of a web-aware Spring

ApplicationContext.

5)global-session

This scopes a bean definition to a global HTTP session. Only valid in the context of a web-aware Spring

ApplicationContext.

258) @Controller vs @RestController

1) The @Controller is a annotation to mark class as Controller Class in Spring While @RestController is used

in REST Web services and similar to @Controller and @ResponseBody.

2) The @Controller annotation indicates that the class is controller like web Controller

while @RestController annotation indicates that the class is controller where @RequestMapping Method

assume @ResponseBody by Default(i.e REST APIs).

3) The key difference is that you do not need to use @ResponseBody on each and every handler method once

you annotate the class with @RestController.

4) @Controller create a Map of Model Object and find a view while @RestController simply return object

and object data directly written into http response as JSON orXML.

This can be also done with @Controller annotation and @ResponseBody annotation but since this is the default

behaviour of RESTful Web Services. Spring introduced @RestController which is combined behaviour

of @Controller and @ResponseBody together.

259) Methods in Rest API

What is REST?

The term REST stands for REpresentational State Transfer. It is an architectural style that defines a set of

rules in order to create Web Services.

In a client-server communication, REST suggests to create an object of the data requested by the client and

send the values of the object in response to the user.

There are four types of method as

➢ Get-It is used to read resource

➢ Post-It is used to create new resource.

➢ Put-It is generally used to update resource

➢ Delete-it is used to delete source

260) what is use of Patch in Rest API

A PATCH request is used to make changes to part of the resource at a location. That is, it PATCHES

the resource — changing its properties. It is used to make minor updates to resources and it's not required to

be idempotent

261) SQL Constraints?

SQL constraints are used to specify rules for the data in a table.

Constraints are used to limit the type of data that can go into a table. This ensures the accuracy and reliability

of the data in the table. If there is any violation between the constraint and the data action, the action is

aborted.

Constraints can be column level or table level. Column level constraints apply to a column, and table level

constraints apply to the whole table.

The following constraints are commonly used in SQL:

• NOT NULL - Ensures that a column cannot have a NULL value

• UNIQUE - Ensures that all values in a column are different

• PRIMARY KEY - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table

• FOREIGN KEY - Prevents actions that would destroy links between tables

• CHECK - Ensures that the values in a column satisfies a specific condition

• DEFAULT - Sets a default value for a column if no value is

specified

• CREATE INDEX - Used to create and retrieve data from the database very quickly

262) What is stream API? How it is different than collection?

The Stream API is used to process collections of objects.

A Stream is a fixed data structure, in which the elements are computed on demand. The Stream API is used

to process collections of objects. A stream is a sequence of objects that supports various methods that can

be pipelined to produce the desired result.

The features of Java stream are:

• It takes input from the Collections, Arrays or I/O channels and is not a data structure.

• Streams only provide the result as per the pipelined methods and don’t change the original data structure.

Collections and Streams, both are conceptually two different things which are used for two different purposes.

If the collections are used to store the data then the streams are used to perform operations on that data.

Collections And Streams In Java :

1)Conceptual Difference

Collections are used to store and group the data in a particular

data structure like List, Set or Map. But, streams

are used to perform complex data processing operations like filtering, matching, mapping etc on stored data

such as arrays, collections or I/O resources. That means, collections are mainly about data and streams are

mainly about operations on data.

//Usage of collections

//Collections are mainly used to store the data

//Here, names are stored as List

List<String> names = new ArrayList<>();

names.add("Charlie");

names.add("Douglas");

names.add("Sundaraman");

names.add("Charlie");

names.add("Yuki");

//Usage of streams

//Streams are mainly used to perform operations on data

//like selecting only unique names

names.stream().distinct().forEach(System.out::println);

//Output :

//Charlie

//Douglas

//Sundaraman

//Yuki

2) Data Modification

You can add to or remove elements from collections. But, you can’t add to or remove elements from streams.

Stream consumes a source, performs operations on it and returns a result. They don’t

modify even the source also.

List<String> names = Arrays.asList("Charlie", "Douglas", "Jacob");

//Adding elements to names

names.add("Sundaraman");

3) External Iteration Vs Internal Iteration

The main specialty of Java 8 Streams is that you need not to worry about iteration while using streams. Streams

perform iteration internally behind the scene for you. You just

have to mention the operations to be performed

on a source.

On the other hand, you have to do the iteration externally over collections using loops.

```
List<String> names = new ArrayList<>();


names.add("Charlie");


names.add("Douglas");


names.add("Sundaraman");


names.add("Charlie");


names.add("Yuki");


//External iteration of collections


for (String name : names)
{
```

```
  System.out.println(name);
}

//Output :

//Charlie
//Douglas
//Sundaraman
//Charlie
//Yuki

//Internal iteration of streams. No for loops
names.stream().map(String::toUpperCase).forEach(System.out::
println);

names.add("Yuki");

//Removing elements from names

names.remove(2);
```

```
//getting stream of unique names

Stream<String> uniqueNames = names.stream().distinct();

//You can't add or remove elements from stream

//There are no such methods in Stream
//Output :

//CHARLIE
//DOUGLAS
//SUNDARAMAN
//CHARLIE
//YUKI
```

Collections Streams

Collections are mainly used to store and group the data.

Streams are mainly used to perform operations on

data.

You can add or remove elements from collections. You can't add or remove elements from streams.

Collections have to be iterated externally. Streams are internally iterated.

Collections can be traversed multiple times. Streams are traversable only once.

Collections are eagerly constructed. Streams are lazily constructed.

Ex : List, Set, Map… Ex : filtering, mapping, matching…

263) When you create the object?

An object is created based on its class. You can consider a class as a blueprint, template, or a description how to

create an object. When an object is created, memory is allocated to hold the object properties. An object reference

pointing to that memory location is also created.

264) What is the Hashtable?

• The Underlying Data Structure for Hashtable is Hashtable Only.

• Duplicate Keys are Not Allowed. But Values can be Duplicated.

• Insertion Order is Not Preserved and it is Based on Hashcode

of the Keys.

• Heterogeneous Objects are Allowed for Both Keys and Values.

• null Insertion is Not Possible for Both Key and Values. Otherwise we will get Runtime

• Exception Saying NullPointerException.

• Every Method Present in Hashtable is Synchronized and Hence Hashtable Object is Thread Safe.

Constructors:

1) Hashtable h=new Hashtable();

• Creates an empty Hashtable object with default initialcapacity 11 and default fill ratio 0.75.

2) Hashtable h=new Hashtable(int initialcapacity);

3) Hashtable h=new Hashtable(int initialcapacity,float fillratio);

4) Hashtable h=new Hashtable (Map m);

265) What is the difference between Hashmap and hashtable? which is

better?

HashMap Hashtable

No Method Present in HashMap

is Synchronized

Every Method Present in Hashtable

is Synchronized.

At a Time Multiple Threads are allowed

to Operate on HashMap Object

simultaneously and Hence it is Not

Thread Safe.

At a Time Only One Thread is allowed

to Operate on the Hashtable Object

and Hence it is Thread Safe.

Relatively Performance is High. Relatively Performance is Low.

null is allowed for Both Keys and Values null is Not allowed for Both Keys and

Values. Otherwise we will get NPE.

Introduced in 1.2 Version and it is Non –

Legacy.

Introduced in 1.0 Version and it is Legacy.

HashMap better for non-threaded applications, as unsynchronized Objects typically perform better than

synchronized ones. Hashtable does not allow null keys or values.

266) What is client-server architecture?

This model is designed for the end-users called clients to access

the resources from a central computer known as a

server using network services.

Here, the clients make requests through a graphical user interface (GUI), and the server will give the desired

output as soon as the instructions are matched.

267) What is autoconfiguration in spring ?

Spring Boot auto-configuration automatically configures the Spring application based on the jar dependencies that

we have added.

For example, if the H2 database Jar is present in the classpath and we have not configured any beans related to the

database manually, the Spring Boot's auto-configuration feature automatically configures it in the project.

We can enable the auto-configuration feature by using the annotation @SpringBootApplication.

268) Explain Spring bean life cycle?

Internal working of Spring_1.1 BeanFactory object is created.

1.2 Spring Configuration file is injected into bean factory object.

1.3 Spring bean (POJO) object created and stored into Spring/IOC container.

2.1 getBean () method is invoked.

2.2 get the spring bean object (Student class object)

2.3 Bean object provided to user program.

269) What are the different scopes of spring bean?

Sr.No. Scope & Description

1

singleton

This scopes the bean definition to a single instance per Spring IoC container (default).

2

prototype

This scopes a single bean definition to have any number of object instances.

3

request

This scopes a bean definition to an HTTP request. Only valid in the context of a web-aware

Spring ApplicationContext.

4

session

This scopes a bean definition to an HTTP session. Only valid in the context of a web-aware

Spring ApplicationContext.

5

global-session

This scopes a bean definition to a global HTTP session. Only valid in the context of a web_aware Spring ApplicationContext.

270) What is spring boot starter?

Spring Boot Starters are the dependency descriptors.

Spring Boot provides a number of starters that allow us to add jars in the classpath. Spring Boot built_in starters make development easier and rapid.

271) How do you connect your spring boot application to database?

1. Step 1 - Add a Dependency for Your Database Connector to pom. xml. ...

2. Step 2 - Remove H2 Dependency From pom.xml. Or at least make its scope as test. ...

3. Step 3 - Setup Your MySQL Database. ...

4. Step 4 - Configure Your Connection to Your Database. ...

5. Step 5 - Restart

272) What is YML file? Difference between YML and properties file?

YAML (.yml) File: YAML is a configuration language.

Languages like Python, Ruby, Java heavily use it for

configuring the various properties while developing the applications.

Elastic Search instance and MongoDB database, both of these applications use YAML(.yml) as their default

configuration format.

.properties File: This file extension is used for the configuration application. These are used as the Property

Resource Bundles files in technologies like Java, etc.

YAML(.yml) .properties

Spec can be found here It doesn’t really actually have a spec. The closest

thing it has to a spec is actually the javadoc.

Human Readable (both do quite well in human

readability)

Human Readable

Supports key/val, basically map, List and scalar types

(int, string etc.)

Supports key/val, but doesn’t support values

beyond the string

Its usage is quite prevalent in many languages like

Python, Ruby, and Java

It is primarily used in java

Hierarchical Structure Non-Hierarchical Structure

Spring Framework doesn't support @PropertySources

with .yml files

supports @PropertySources with .properties file

If you are using spring profiles, you can have multiple

profiles in one single .yml file

Each profile need one separate .properties file

While retrieving the values from .yml file we get the

value as whatever the respective type (int, string etc.) is

in the configuration

While in case of the .properties files we get strings

regardless of what the actual value type is in the

configuration

273) What is dialect? How it works?

The dialect specifies the type of database used in hibernate so that hibernate generate appropriate type of SQL

statements. For connecting any hibernate application with the database, it is required to provide the configuration

of SQL dialect.

Syntax of SQL Dialect

<property name="dialect"> org.hibernate.dialect.MySQLDialect</property>

274) What is foreign key? Difference between primary key and foreign key.

Foreign Key_The foreign key is used to link one or more than one table together. It is also known as

the referencing key.

A foreign key matches the primary key field of another table. It means a foreign key field in one table

refers to the primary key field of the other table.

Comparison

Basis

Primary Key Foreign Key

Basic It is used to identify each record into the database

table uniquely.

It is used to links two tables together. It

means the foreign key in one table refers

to the primary key of another table.

NULL The primary key column value can never be NULL. The

foreign key column can accept a

NULL value.

Count A table can have only one primary key. A table can have more than one foreign

key.

Duplication The primary key is a unique attribute; therefore, it

cannot stores duplicate values in relation.

We can store duplicate values in the

foreign key column.

Indexing The primary key is a clustered index by default,

which means it is indexed automatically.

A foreign key is not a clustered index by

default. We can make clustered indexes

manually.

Deletion The primary key value can't be removed from the

table. If you want to delete it, then make sure the

referencing foreign key does not contain its value.

The foreign key value can be removed

from the table without bothering that it

refers to the primary key of another table.

Insertion We can insert the values into the primary key column without any limitation, either it present in a foreign key or not.

The value that is not present in the column of a primary key cannot be inserted into the referencing foreign key.

Temporary table

The primary key constraint can be defined on the temporary tables.

A foreign key constraint cannot be defined on the temporary tables.

Relationship It cannot create a parent-child relationship in a table.

It can make a parent-child relationship in a table.

275) What is unique key?

A unique key in MySQL is a single field or combination of fields that ensure all values going to store into the column will be unique. It means a column cannot stores

duplicate values. For example, the email addresses and

roll numbers of students in the "student_info" table or contact number of employees in the "Employee" table should

be unique.

MySQL allows us to use more than one column with UNIQUE constraint in a table. It can accept a null value, but

MySQL allowed only one null value per column. It ensures the integrity of the column or group of columns to store

different values into a table.

Needs of Unique Key

o It is useful in preventing the two records from storing identical values into the column.

o It stores only distinct values that maintain the integrity and reliability of the database for accessing the

information in an organized way.

o It also works with a foreign key in preserving the uniqueness of a table.

o It can contain null value into the table.

Comparison

Basis

Primary Key Unique Key

Basic The primary key is used as a unique identifier for each record in the table.

The unique key is also a unique identifier for records when the primary key is not present in the table.

NULL We cannot store NULL values in the primary key column.

We can store NULL value in the unique key column, but only one NULL is allowed.

Purpose It enforces entity integrity. It enforces unique data.

Index The primary key, by default, creates clustered index.

The unique key, by default, creates a non-clustered index.

Number of Key Each table supports only one primary key.

A table can have more than one unique key.

Value

Modification

We cannot change or delete the primary

key values.

We can modify the unique key column values.

Uses It is used to identify each record in the table.

It prevents storing duplicate entries in a column except for a NULL value.

Syntax We can create a primary key column in the table using the below syntax:

```
CREATE TABLE Employee
(
Id INT PRIMARY KEY,
name VARCHAR(150),
address VARCHAR(250)
)
```

We can create a unique key column in the table using the below syntax:

```
CREATE TABLE Person
(
Id INT UNIQUE,
name VARCHAR(150),
```

address VARCHAR(250)

)

276) what is index?

An index is a data structure that allows us to add indexes in the existing table. It enables you to improve the faster

retrieval of records on a database table. It creates an entry for each value of the indexed columns. We use it to

quickly find the record without searching each row in a database table whenever the table is accessed. We can create

an index by using one or more columns of the table for efficient access to the records.

When a table is created with a primary key or unique key, it automatically creates a special index

named PRIMARY. We called this index as a clustered index. All indexes other than PRIMARY indexes are known

as a non-clustered index or secondary index

277) What are the JSTL tags you have used?

The JSP Standard Tag Library (JSTL) represents a set of tags to simplify the JSP development.

Advantage of JSTL

1. Fast Development JSTL provides many tags that simplify the JSP.

2. Code Reusability We can use the JSTL tags on various pages.

3. No need to use scriptlet tag It avoids the use of scriptlet tag.

JSTL Tags

There JSTL mainly provides five types of tags:

Tag Name Description

Core tags The JSTL core tag provide variable support, URL management, flow control, etc. The URL for the

core tag is http://java.sun.com/jsp/jstl/core. The prefix of core tag is c.

Function

tags

The functions tags provide support for string manipulation and string length. The URL for the

functions tags is http://java.sun.com/jsp/jstl/functions and prefix is fn.

Formatting

tags

The Formatting tags provide support for message formatting, number and date formatting, etc. The

URL for the Formatting tags is http://java.sun.com/jsp/jstl/fmt and prefix is fmt.

XML tags The XML tags provide flow control, transformation, etc. The URL for the XML tags

is http://java.sun.com/jsp/jstl/xml and prefix is x.

SQL tags The JSTL SQL tags provide SQL support. The URL for the SQL tags

is http://java.sun.com/jsp/jstl/sql and prefix is sql.

278) What is error page in JSP?

In JSP, there are two ways to perform exception handling:

1. By errorPage and isErrorPage attributes of page directive

2. By <error-page> element in web.xml fil

This approach is better because you don't need to specify the errorPage attribute in each jsp page. Specifying the

single entry in the web.xml file will handle the exception. In this case, either specify exception-type or error-code

with the location element. If you want to handle all the exception, you will have to specify the java.lang.Exception

in the exception-type element.

279) What is interface? Difference between class and interface?

Interface_1. It contain public abstract methods and public static final variables by default.

2. We must follow I to C design principle in java. It means every class must be implemented by some

interfaces.

3. In company, Team Lead or Manager level people can design the interface then give it to developer for

implementing it.

5. Before 1.7, interface does not have any method body.

6. 1.8 Declare the default & static method with body in interface.

7. 1.9 we can define the private methods in interface also.

8. We cannot create the object of interface.

9. In interface, we can just define the method only but implemented that methods into implemented class.

10. Java supports multiple inheritance in the terms of interfaces but not classes.

11. Interface does not have constructor.

Class Interface

The keyword used to create a class is “class” The keyword used to create an interface is “interface”

A class can be instantiated i.e, objects of a class

can be created.

An Interface cannot be instantiated i.e, objects cannot

be created.

Classes does not support multiple inheritance. Interface supports multiple inheritance.

It can be inherit another class. It cannot inherit a class.

It can be inherited by another class using the

keyword ‘extends’.

It can be inherited by a class by using the keyword

‘implements’ and it can be inherited by an interface

using the keyword ‘extends’.

It can contain constructors. It cannot contain constructors.

It cannot contain abstract methods. It contains abstract methods only.

Variables and methods in a class can be declared

using any access specifier(public, private, default,

protected)

All variables and methods in a interface are declared as

public.

Variables in a class can be static, final or neither. All variables are static and final.

280) How we can achieve multiple inheritance using interface?

an interface can extends any no. Of interfaces at a time hence java provides support for multiple inheritance

through interfaces.

Example:

```
Interface A {}
Interface B {}
Interface C {} extends A,B
```

281) What is diamond problem? How can we resolve?

```
class A {
public void display()
{ System.out.println("class A display() method called");
}
class B extends A {
@Override
public void display() {
System.out.println("class B display() method called");
}
}
 class C extends A {
@Override
public void display() {
System.out.println("class C display() method called");
```

```
}
}
//not supported in Java
public class D extends B,C {
public static void main(String args[])
{
D d = new D();
//creates ambiguity which display() method to call
d.display();
}
}
```

In Java multiple inheritance does not allow one class can inherit properties from more than one class. It is known

as the diamond problem. In the above figure, we find that class D is trying to inherit form class B and class C, that

is not allowed in Java.

It is an ambiguity that can rise as a consequence of allowing multiple inheritance. It is a serious problem for other

OPPs languages. It is sometimes referred to as the deadly diamond of death.

The solution to the diamond problem is default methods and

interfaces. We can achieve multiple inheritance by

using these two things.

282) What is profile in Spring Boot? How to select profile?

A profile is a set of configuration settings. Spring Boot allows to define profile specific property files in the form

of application-{profile}.properties. It automatically loads the properties in an application.properties file for all

profiles, and the ones in profile-specific property files only for the specified profile. The keys in the profile_specific property override the ones in the master property file.

283) What is Actuator in spring boot?

Spring Boot Actuator is a sub-project of the Spring Boot Framework. It includes a number of additional features

that help us to monitor and manage the Spring Boot application. It contains the actuator endpoints (the place where

the resources live). We can use HTTP and JMX endpoints to manage and monitor the Spring Boot application. If

we want to get production-ready features in an application, we should use the Spring Boot actuator.

Spring Boot Actuator Features

There are three main features of Spring Boot

Actuator:

o Endpoints

o Metrics

o Audit

We can enable actuator by injecting the dependency spring-boot-starter-actuator in the pom.xml file

what is repository layer? which methods are present in repository layer?

What is IOC, DI?

Inversion of Control(IoC) is also known as Dependency injection (DI).

284) What are the different types of IOC container? difference between

them?

There are two types of IOC container as

BeanFactory_It is called as core container.

By using this, we can develop the standalone application.

XMLBeanFactory is the implementation class for BeanFactory(I).

To use BeanFactory, we need to create the instance of XmlBeanFactory class.

Resource resource= new classPathResource(“applicationContext.xml”);

BeanFactory factory= new XmlBeanFactory(resource);

The constructor of XmlBeanFactory class receives resource object so we need to pass resource object to create the

object of BeanFactory.

ApplicationContext_It is called as J2EE container.

ClassPathXmlApplicationContext is implementation class for ApplicationContext(I).

To use applicationcontext, we need to create the instance of ClassPathXmlApplicationContext as given below_ApplicationContext context= new ClassPathXmlApplicationContext("applicationcontext.xml");

The constructor of ClassPathXmlApplicationContext class receives string object so we can pass name of xml file

to create the object of ApplicationContext.

difference between applicationcontext and beanfactory in spring

ApplicationContext Container is advanced than Beanfactory Container...

1) BeanFactory Container is basic container, it can only create objects and inject Dependencies.But we can not

attach other services like security, transaction ,messaging etc. To provied all the services we have to use

ApplicationContext Container.

2) BeanFactory Container doesn't support the feature of AutoScanning , but ApplicationContext Container

supports.

3) Beanfactory Container will not create a bean object upto the request time.It means Beanfactory Container loads

beans laziely. While ApplicationContext Container creates objects of Singleton bean at the time of loading only.It

means there is early loading.

4) Beanfactory Container support only two scopes (singleton & prototype) of the beans. But ApplicationContext

Container supports all the beans scope.

285) Explain Spring MVC flow?

Spring MVC_In MVC, the whole functionality is divided into three parts as-model, view

and controller

Model- It can be an object or collection of objects which basically contains the data of the application which

consist of POJO.

View- It is used for displaying the information to the user.

Controller- provides information between model and view. It contains the logical part of the

application. @Controller annotation is used to mark that class as

controller.

Fig- Spring MVC Flow

Description_Step 1:

When browser sent the request will be received by DispatcherServlet.

Step 2:

DispatcherServlet will take the help of HandlerMapping and get to know the Controller class name associated

with the given request.

Step 3:

So request transfer to the Controller, and then controller will process the request by executing appropriate

methods and returns ModeAndView object (contains Model data and View name) back to the DispatcherServlet.

Step 4:

Now DispatcherServlet send the model object to the ViewResolver to get the actual view page.

Step 5:

Finally DispatcherServlet will pass the Model object to the View page to display the result.

286) What is view Resolver? (need to check ans)

The InternalResourceViewResolver is a class which is used to resolve internal view in Spring MVC. Here, you

can define the properties like prefix and suffix where prefix contains the location of view page and suffix contains

the extension of view page. For example:-

1. <bean id="viewResolver" class="org.springframework.web.servlet.view.InternalResourceViewResolver">

2. <property name="prefix" value="/WEB-INF/jsp/"></property>

3. <property name="suffix" value=".jsp"></property>

4. </bean>

287) What is Dispatcher servlet? ? (need to check ans)

In Spring MVC all incoming requests go through a single servlet is called Dispatcher Servlet (front controller).

The front controller is a design pattern in web application development. A single servlet receives all the request

and transfers them to all other components of the application.

288) Difference between spring MVC & Spring boot?

Spring Spring Boot

Spring Framework is a widely used Java

EE framework for building applications.

Spring Boot Framework is widely used to develop REST APIs.

It aims to simplify Java EE development

that makes developers more productive.

It aims to shorten the code length and provide the easiest way to

develop Web Applications.

The primary feature of the Spring

Framework is dependency injection.

The primary feature of Spring Boot is Autoconfiguration. It

automatically configures the classes based on the requirement.

It helps to make things simpler by

allowing us to develop loosely

coupled applications.

It helps to create a stand-alone application with less configuration.

The developer writes a lot of code

(boilerplate code) to do the minimal task.

It reduces boilerplate code.

To test the Spring project, we need to set

up the sever explicitly.

Spring Boot offers embedded server such as Jetty and Tomcat,

etc.

It does not provide support for an in_memory database.

It offers several plugins for working with an embedded and in_memory database such as H2.

Developers manually define dependencies

for the Spring project in pom.xml.

Spring Boot comes with the concept of starter in pom.xml file that

internally takes care of downloading the dependencies JARs based

on Spring Boot Requirement.

289) How we can do one to many mapping in program?

1. 1) Create the Persistent class. This persistent class defines properties of the class including List. ...

2. 2) Add project information and configuration in pom. xml file. ...

3. 3) Create the configuration file. ...

4. 4) Create the class to store the data.

290) What is cfg file? what are you writing in that?

A file with the CFG extension is a configuration file used by several programs to store specific

configurations of their functions and/or activities. Some configuration files are plain text files, but

others can be stored in a specific program format like JSON or XML, or even in binary form.

291) What is bean? What are the tags? ? (need to check ans)

A bean is an object that is instantiated, assembled, and otherwise managed by a Spring IoC container.

These beans are created with the configuration metadata that you supply to the container.

Tags::

Name/id

Class

Scope

constructor-arg

properties

autowiring mode

lazy-init (lazy-initialization mode)

init-method (initialization method)

destroy-method (destruction method)

292) What is date and time Api and explain? ? (need to check ans)

Java has introduced a new Date and Time API since Java 8. The java.time package contains Java 8 Date and Time

classes.

Java.time.LocalDate.class

Java.time.LocalTime.class

Java.time.LocalDateTime.class

Java.time.MonthDay.class …. etc…..

We can format date and time in java by the use of following classes:

Java.time.DateFormat.class

Java.time.simpleDateFormat.class

293) @SpringBootApplication: It is a combination of three

annotations @EnableAutoConfiguration, @ComponentScan, and @Configuration.

@Qualifier annotation

There may be a situation when you create more than one bean of the same type and want to wire only one of them

with a property. In such cases, you can use the @Qualifier annotation along with @Autowired to remove the

confusion by specifying which exact bean will be wired.

o @ResponseBody: It binds the method return value to the

response body. It tells the Spring Boot Framework

to serialize a return an object into JSON and XML format.

o @PathVariable: It is used to extract the values from the URI. It is most suitable for the RESTful web

service, where the URL contains a path variable. We can define multiple @PathVariable in a method.

@Controller: The @Controller is a class-level annotation. It is a specialization of @Component. It marks a class

as a web request handler. It is often used to serve web pages. By default, it returns a string that indicates which

route to redirect. It is mostly used with @RequestMapping annotation.

o @RestController: It can be considered as a combination

of @Controller and @ResponseBody annotations. The @RestController annotation is itself annotated

with the @ResponseBody annotation. It eliminates the need for annotating each method with

@ResponseBody.

294) What is function?

how do we ensure that it will return only one object?

How to map class with table id in the database?

what is repository layer? which methods are present in

repository layer?

Qus no 22,23,27 ans need to be check ?

Q- 295) @ControllerAdvice use?

Ans -> Since spring 3.2 , @ControllerAdvice is a specialization of the @Component

annotation which allows to handle exceptions across the whole application in one global

handling component. It can be viewed as an interceptor of exceptions thrown by methods

annotated with @RequestMapping and similar. Classes annotated with @ControllerAdvice can

be declared explicitly as Spring beans or auto-detected via classpath scanning.

Q- 296) @Required annotation

Ans -> It applies to the bean setter method. It indicates that the annotated bean must be

populated at configuration time with the required property; else it throws an exception

BeanInitilizationException.

Q- 297) How to change port number from tomcat

Ans -> In order to change the default port in Apache Tomcat, you need to:

1. Stop Apache Tomcat service

2. Go to your Apache Tomcat folder (for example C:\Program Files\Apache Software

Foundation\Tomcat 7.0) and find file server.xml under \conf\ folder.

3. Modify the Connector port value from 8080" to the one you want to assign to your

web server.

Example:

From: <connector port="8080" protocol="HTTP/1.1" ……

To: <connector port="8085" protocol="HTTP/1.1"

4. Save the file

5. Restart the Apache Tomcat service

Q- 298) How to do configuration

in spring boot

6. Ans ->

1. We can perform XML based configuration. We can have spring boot starter

configured as follows ->

• spring-boot-starter-parent : Parent POM for dependency management.

• spring-boot-starter-web: Starter for building web, REST applications. It uses tomcat

server as default embedded server.

• spring-boot-devtools : It provides developer tools. These tools are helpful in application

development mode. One of the features of developer tool is automatic restart of the server

for any change in code.

• spring-boot-maven-plugin : It is used to create executable JAR of the application.

2. We can perform Annotation based configuration : -

@SpringBootApplication :- We use this annotation to mark the main class

of a Spring Boot application:

We can place the annotations on @Configuration classes or @Bean methods.

Further conditional annotations such as @ConditionalOnClass ,

@ConditionalOnMissingClass , @ConditionalOnProperty ,

@ConditionalOnResource and so on.

Q- 299) Difference between static and final

Ans ->

BASIS FOR COMPARISON	STATIC	FINAL
Applicable	Static keyword is applicable to nested static class, variables, methods and block.	Final keyword is applicable to class, methods and variables.
Initialization	It is not compulsory to initialize the static variable at the time of its declaration.	It is compulsory to initialize the final variable at the time of its declaration.
Modification	The static variable can be reinitialized.	The final variable cannot be reinitialized.
Methods	Static methods can only access the static members of the class, and can	

only be called by other static methods.

Final methods cannot be

inherited.

Class Static class's object cannot be created,

and it only contains static members

only.

A final class cannot be

inherited by any class.

Block Static block is used to initialize the

static variables.

Final keyword supports no

such block.

Q- 300) Can we overload static method

Ans -> Yes, you can overload a static method in Java

Q- 301) What is string constant pool

Ans -> String pool is nothing but a storage area in Java heap where string literals stores.

It is also known as String Intern Pool or String Constant Pool. It is just like object allocation.

By default, it is empty and privately maintained by the Java

String class.

Q- 301) Can we use static method in interface

Ans -> Yes. It can be used. It is one of the features of Java 8 to have static & default methods

defined in an interface.

Q- 302) Parent class for hashmap

Ans -> It is AbstractMap class.

Q- 303) Difference between throws and throw

Ans ->

throw throws

throw keyword is used to throw an

exception explicitly.

throws keyword is used to declare one

or more exceptions, separated by

commas.

Only single exception is thrown by using

throw.

Multiple exceptions can be thrown by

using throws.

throw keyword is used within the method. throws keyword is

used with the

method signature.

Syntax wise throw keyword is followed by

the instance variable.

Syntax wise throws keyword is

followed by exception class names.

Checked exception cannot be propagated

using throw only.Unchecked exception can

be propagated using throw.

For the propagation checked exception

must use throws keyword followed by

specific exception class name.

Q- 304) Difference between wait and sleep method

Ans -> Sleep(): This Method is used to pause the execution of current thread for a specified

time in Milliseconds. Here, Thread does not lose its ownership of the monitor and resume's

it's execution

Wait(): This method is defined in object class. It tells the calling thread (a.k.a Current

Thread) to wait until another thread invoke's the notify() or notifyAll() method for this

object, The thread waits until it reobtains the ownership of the monitor and Resume's

Execution.

Wait() Sleep()

Wait() method belongs to Object

class. Sleep() method belongs to Thread class.

Wait() method releases lock during

Synchronization.

Sleep() method does not release the lock on

object during Synchronization.

Wait() should be called only from

Synchronized context.

There is no need to call sleep() from

Synchronized context.

Wait() is not a static method. Sleep() is a static method.

Wait() Has Three Overloaded

Methods:

• wait()

• wait(long timeout)

• wait(long timeout, int nanos)

Sleep() Has Two Overloaded Methods:

• sleep(long millis)millis: milliseconds

• sleep(long millis,int nanos) nanos:

Nanoseconds

public final void wait(long timeout)

public static void sleep(long millis) throws

Interrupted_Execption

Q- 305) What is JDBC steps to create connection

Ans ->

1. Import JDBC packages.

2. Load and register the JDBC driver.

3. Open a connection to the database.

4. Create a statement object to perform a query.

5. Execute the statement object and return a query resultset.

6. Process the resultset.

7. Close the resultset and statement objects.

8. Close the connection.

Q- 306) Difference between statement and prepared statement in

java

Ans ->

Statement PreparedStatement

It is used when SQL query is to be

executed only once.

It is used when SQL query is to be executed

multiple times.

You cannot pass parameters at runtime. You can pass parameters at runtime.

Used for CREATE, ALTER, DROP

statements.

Used for the queries which are to be executed

multiple times.

Performance is very low. Performance is better than Statement.

It is base interface. It extends statement interface.

Used to execute normal SQL queries. Used to execute dynamic SQL queries.

We cannot use statement for reading

binary data.

We can use Preparedstatement for reading

binary data.

It is used for DDL statements. It is used for any SQL Query.

We cannot use statement for writing

binary data.

We can use Preparedstatement for writing

binary data.

No binary protocol is used for

communication. Binary protocol is used for communication.

Q- 307) Do you know about callable statements?

Ans -> It is CallableStatement Interface in Java. CallableStatement interface is used to call

the stored procedures and functions.

We can have business logic on the database by the use of stored procedures and functions that

will make the performance better because these are precompiled.

Q- 308) Difference between web server and application server

Ans ->

S.NO Web Server Application Server

1. Web server encompasses web

container only.

While application server encompasses
Web container as well as EJB container.

2. Web server is useful or fitted for
static content.

Whereas application server is fitted for
dynamic content.

3. Web server consumes or utilizes
less resources.

While application server utilize more
resources.

4. Web servers arrange the run
environment for web applications.

While application servers arrange the run
environment for enterprises applications.

5. In web servers, multithreading is
not supported.

While in application server,
multithreading is supported.

6. Web server's capacity is lower
than application server.

While application server's capacity is

higher than web server.

7. In web server, HTML and HTTP

protocols are used.

While in this, GUI as well as HTTP and

RPC/RMI protocols are used.

Q- 309) Get and post method difference

Ans ->

GET POST

BACK

button/Reload Harmless

Data will be re-submitted (the browser should

alert the user that the data are about to be re_submitted)

Bookmarked Can be bookmarked Cannot be bookmarked

Cached Can be cached Not cached

Encoding type application/x-www-form-urlencoded application/x-www-form-urlencoded or

multipart/form-data. Use multipart encoding

for binary data

History Parameters remain in browser history Parameters are not

saved in browser history

Restrictions on

data length

Yes, when sending data, the GET

method adds the data to the URL; and

the length of a URL is limited

(maximum URL length is 2048

characters)

No restrictions

Restrictions on

data type Only ASCII characters allowed No restrictions. Binary data is also allowed

Security

GET is less secure compared to POST

because data sent is part of the URL

Never use GET when sending

passwords or other sensitive

information!

POST is a little safer than GET because the

parameters are not stored in browser history or

in web server logs

Visibility Data is visible to everyone in the URL Data is not displayed in the URL

Q- 310) Servlet life cycle

Ans -> The web container maintains the life cycle of a servlet instance.

1. Servlet class is loaded.

2. Servlet instance is created.

3. init method is invoked.

4. service method is invoked.

5. destroy method is invoked.

Q- 311) How to create singleton class

Ans -> To create a singleton class, we must follow the steps, given below:

1. Ensure that only one instance of the class exists.

2. Provide global access to that instance by:

i. Declaring all constructors of the class to be private.

ii. Providing a static method that returns a reference to the instance. The lazy

initialization concept is used to write the static methods.

iii. The instance is stored as a private static variable.

Q- 312) Spring mvc flow

✓ As displayed in the figure, all the incoming request is intercepted by the

DispatcherServlet that works as the front controller.

✓ The DispatcherServlet gets an entry of handler mapping from the XML file and

forwards the request to the controller.

✓ The controller returns an object of ModelAndView.

✓ The DispatcherServlet checks the entry of view resolver in the XML file and invokes

the specified view component.

Q- 313) Types of view resolver

Ans -> There are THREE types viz.-

1. InternalResourceViewResolver - is used to resolve the provided URI to actual

URI. The InternalResourceViewResolver allows mapping webpages with

requests.

2. XmlViewResolver - is used to resolve the view names using view beans defined

in xml file.

3. ResourceBundleViewResolver - is used to resolve the view names using view

beans defined in the properties file.

Q- 314) Scope of beans

Ans ->

Sr.

No.

Scope & Description

1

singleton

This scopes the bean definition to a single instance per Spring IoC container (default).

2

prototype

This scopes a single bean definition to have any number of object instances.

3

request

This scopes a bean definition to an HTTP request. Only valid in the context of a web-aware

Spring ApplicationContext.

4

session

This scopes a bean definition to an HTTP session. Only valid in the context of a web-aware

Spring ApplicationContext.

5

global-session

This scopes a bean definition to a global HTTP session. Only valid in the context of a web_aware Spring ApplicationContext.

Q- 315) How to change scope in spring and spring boot

Ans -> In Spring,

1. Scope can be defined using spring bean @Scope annotation.

e.g. @Component

@Scope("prototype") public class

BeanClass {

}

2. Scope can also be defined using XML configuration.

e. g. <bean id="beanId" class="com.springjava.BeanClass" scope="prototype" />

Q316) 23 Solid principle

Ans -> In Java, SOLID principles are an object-oriented approach that are applied to software

structure design.

The word SOLID acronym for:

o Single Responsibility Principle (SRP)

o Open-Closed Principle (OCP)

o Liskov Substitution Principle (LSP)

o Interface Segregation Principle (ISP)

o Dependency Inversion Principle (DIP)

Q- 317) Union Operator in database

Ans -> The SQL UNION operator is used to combine the result sets of 2 or more SELECT

statements. It removes duplicate rows between the various SELECT statements.

Each SELECT statement within the UNION must have the same number of fields in the

result sets with similar data types.

• UNION removes duplicate rows.

• UNION ALL does not remove duplicate rows.

Q- 318) Test unit development

Ans -> UNIT TESTING is a type of software testing where

individual units or components of

a software are tested. The purpose is to validate that each unit of the software code performs as

expected. Unit Testing is done during the development (coding phase) of an application by the

developers. Unit Tests isolate a section of code and verify its correctness.A unit may be an

individual function, method, procedure, module, or object.

Q- 319) @Autowired annotation

Ans -> In Spring, you can use @Autowired annotation to auto-wire bean on

the setter method, constructor, or a field. Moreover, it can autowire the property in a

particular bean.

Q- 320) If you don’t use @Autowired annotation then how you do that

Ans -> We can use XML configuration for Autowiring .The XML-configuration-based

autowiring functionality has five modes – no, byName, byType, constructor, and

autodetect. The default mode is no.

Q- 321) @componentScan annotation

Ans -> The @ComponentScan annotation is used with the @Configuration annotation to tell

the Spring packages to scan for annotated components.

Q- 322) Sql basic query

• SELECT - extracts data from a database

• UPDATE - updates data in a database

• DELETE - deletes data from a database

• INSERT INTO - inserts new data into a database

• CREATE DATABASE - creates a new database

• ALTER DATABASE - modifies a database

• CREATE TABLE - creates a new table

• ALTER TABLE - modifies a table

• DROP TABLE - deletes a table

• CREATE INDEX - creates an index (search key)

• DROP INDEX - deletes an index

Q- 323) Soap vs rest : Ans ->

No. SOAP REST

1) SOAP is a protocol. REST is an architectural style.

2) SOAP stands for Simple

Object Access Protocol.

REST stands
for REpresentational State
Transfer.
3) SOAP can't use
REST because it is a
protocol.
REST can use SOAP web
services because it is a concept
and can use any protocol like
HTTP, SOAP.
4) SOAP uses services
interfaces to expose the
business logic.
REST uses URI to expose
business logic.
5) JAX-WS is the java API
for SOAP web services.
JAX-RS is the java API for
RESTful web services.
6) SOAP defines

standards to be strictly
followed.
REST does not define too much
standards like SOAP.
7) SOAP requires more
bandwidth and resource
than REST.
REST requires less
bandwidth and resource than
SOAP.
8) SOAP defines its own
security.
RESTful web services inherits
security measures from the
underlying transport.
9) SOAP permits
XML data format only.
REST permits different data
format such as Plain text,
HTML, XML, JSON etc.

10) SOAP is less

preferred than REST.

REST more preferred than

SOAP.

Q- 324) Different types of indxes into database

Indexing is a data structure technique to efficiently retrieve records from the database files

based on some attributes on which the indexing has been done.

• Primary Index

• Secondary Index

• Clustering Index

Primary Indexing is of two subtypes –

a. Dense Index

b. Sparse Index

Q- 325) Cartesian product in sql

Ans -> CARTESIAN JOIN: The CARTESIAN JOIN is also known as CROSS JOIN. In a

CARTESIAN JOIN there is a join for each row of one table to every row of another table.

This usually happens when the matching column or WHERE condition is not specified.

In the absence of a WHERE condition the CARTESIAN JOIN will behave like a

CARTESIAN PRODUCT . i.e., the number of rows in the result-set is the product of

the number of rows of the two tables.

In the presence of WHERE condition this JOIN will function like a INNER JOIN.

Generally speaking, Cross join is similar to an inner join where the join-condition will

always evaluate to True

Q- 326) Savepoint and trigger in sql

Ans -> SAVEPOINT: creates points within the groups of transactions in which to

ROLLBACK. A SAVEPOINT is a point in a transaction in which you can roll the transaction

back to a certain point without rolling back the entire transaction.

Trigger: A trigger is a stored procedure in database which automatically invokes whenever a

special event in the database occurs. For example, a trigger can be invoked when a row is

inserted into a specified table or when certain table columns are being updated.

Q- 34 Singleton and factory design pattern

Ans -> Singleton Pattern says that just “define a class that has only one instance and provides

a global point of access to it". A class must ensure that only single instance should be created

and single object can be used by all other classes.

Factory Pattern says that just define an interface or abstract class for creating an object but

let the subclasses decide which class to instantiate. Subclasses are responsible to create the

instance of the class.

Q- 327) Did you use JSF, (answer is NO)

JavaServer Faces :- It is a server side component based user interface framework. It is used

to develop web applications. It provides a well-defined programming model and consists of

rich API and tag libraries.

Q- 328) Difference between arraylist and list

Base of

Comparison List ArrayList

General It is an interface. It is class.

Work It creates a list of objects that can be

accessed by the individual index number.

It creates a dynamic array that

can be expanded when needed.

Implementation List <data-type> list1= new ArrayList(); ArrayList myList = new

ArrayList();

Extend/Implement It extends the collection framework.

It extends AbstractList class

and implements the List

interface.

Base Package Java.util Java.util

Namespace System.Collection.Generic System.Collection

Performance It provides faster manipulation of objects. It provides slow manipulation

on objects compared to List.

Instantiation It cannot be instantiated. It can be instantiate

Q- 329) Iterator vs collection

Iterator can only move to next() element or remove() an element.

However Collection can add(), iterate, remove() or clear() the

elements of the collection.

Iterator provides a better speed than Collections, as the Iterator interface has limited

number of operations.

Q- 330) Array vs arraylist

Ans ->

Basis Array ArrayList

Definition

An array is a dynamically-created

object. It serves as a container that

holds the constant number of values

of the same type. It has a contiguous

memory location.

The ArrayList is a class of

Java Collections framework. It

contains popular classes like Vector,

HashTable, and HashMap.

Static/

Dynamic Array is static in size. ArrayList is dynamic in size.

Resizable An array is a fixed-length data

structure.

ArrayList is a variable-length data structure. It can be resized itself when needed.

Initialization

It is mandatory to provide the size of an array while initializing it directly or indirectly.

We can create an instance of ArrayList without specifying its size. Java creates ArrayList of default size.

Performance It performs fast in comparison to ArrayList because of fixed size.

ArrayList is internally backed by the array in Java. The resize operation in ArrayList slows down the performance.

Primitive/

Generic type

An array can store both objects and primitives type.

We cannot store primitive type in ArrayList. It automatically converts primitive type to object.

Iterating Values

We use for loop or for each loop to iterate over an array.

We use an iterator to iterate over ArrayList.

Type-Safety

We cannot use generics along with array because it is not a convertible type of array.

ArrayList allows us to store only generic/ type, that's why it is type-safe.

Length Array provides a length variable which denotes the length of an array.

ArrayList provides the size() method to determine the size of ArrayList.

Adding

Elements

We can add elements in an array by

using the assignment operator.

Java provides the add() method to add

elements in the ArrayList.

Single/ Multi_Dimensional Array can be multi-dimensional.

ArrayList is always single_dimensional.

Q- 331) Data access object layer

Ans -> Data Access Object Pattern or DAO pattern is used to separate low level data accessing

API or operations from high level business services. Following are the participantsin Data

Access Object Pattern.

Data Access Object Interface - This interface defines the standard operations to be

performed on a model object(s).

Data Access Object concrete class - This class implements above interface. This class

is responsible to get data from a data source which can be database / xml or anyother

storage mechanism.

Model Object or Value Object - This object is simple POJO containing get/set

methods to store data retrieved using DAO class.

Q- 332) What is hibernate

Ans -> Hibernate is a Java framework that simplifies the development of Java application to

interact with the database. It is an open source, lightweight, ORM (Object Relational Mapping)

tool.

Hibernate implements the specifications of JPA (Java Persistence API) for data persistence.

Q-333) JDBC vs Hibernate

1. As Hibernate is set of Objects , you don’t need to learn SQL language.

You can treat TABLE as a Object . Only Java knowledge is need.

In case of JDBC you need to learn SQL.

2. Hibernate supports Query cache and It will provide the statistics about your query and

database status.

JDBC Not provides any statistics.

3.Hibernate is data base independent, your code will work for all ORACLE, MySQL ,

SQLServer etc.

In case of JDBC query, it must be data base specific.

4.You will get benefit of Cache. Hibernate support two level of cache. First level and 2nd

level. So you can store your data into Cache for better performance.

In case of JDBC you need to implement your java cache .

5.No need to create any connection pool in case of Hibernate. You can use c3p0.

In case of JDBC you need to write your own connection pool

6.Development fast in case of Hibernate because you don't need to write queries

7.You can load your objects on start up using lazy=false in case of Hibernate.

JDBC Don't have such support.

8. Hibernate Supports automatic versioning of rows but JDBC Not.

Q- 334) Internal working of hashmap

If you want to represent group of objects as key-value pair then you should go for map.

How hashCode() and equals() methods works into HashMap?

hashCode() method

hashCode method is used to get the hashcode of every objects.

equals() method

equals method is used to check that 2 objects are equal or not. This method is provided by

Object class. HashMap uses equals() to compare the key whether they are equal or not. If

equals() method return true, they are equal otherwise not equal.

How to calculate index internally?

Put(K k, V v) //Here put is the method having key and value pair

hash(k) -> hash(jeevan) ->23560520

index= hash & (n-1) here index=2

so jeevan will be stored at 2

nd position.

Next time again I get the 2nd index or position then what will happen?

It will store it at 2nd and uses the linked list as shown in fig.

After than I get the 6th index so kulkarni will be stored at 6th position then next time get the

index 10th then pune will be placed at 10th positon.

How get method works here?

Now let’s try some get method to get a value. get(K key) method is used to get a

value by its key. If you don’t know the key then it is not possible to fetch a value.

Q- 335) Microservices basics

It is a kind of architectural style which structures an application as a collection of Services

Advantage_1. Simple to deploy

2. Simple to understand

3. Reusability across business

4. Faster defect isolation

5. Minimized risk of change

6. They are loosely coupled.

7. Independently deployable.

In Case of Monolithic we consider whole project as a single code-base & hence we deploy

the whole app as a single war file.

But when it comes to Microservices application, each of the service is considered as a

separate code-base & hence we deploy a separate war file for each code-base (service).

Note

1. We need to create a separate spring boot project for every microservice in the project

2. We need the separate tomcat instances for running each of the application

independently.

3. For microservices to communicate with each other , we will use Spring-cloud

[EurekaServer].

4. EurekaServer can be considered as a Discovery server.

5. For Microservices to communicate with each other, we have to register them on this

EurekaServer.

6. Here each Microservice will be the Client for the EurekaServer.

Q- 336) @SpringBootApplication annotation use ?

o @SpringBootApplication: It is a combination of following three annotations -

o @EnableAutoConfiguration - , @ComponentScan, and @Configuration.

o @EnableAutoConfiguration: It auto-configures the bean that is present in the

classpath and configures it to run the methods..

o @ComponentScan: It is used when we want to scan a package for beans. It is used

with the annotation @Configuration. We can also specify the base packages to scan for

Spring Components.

o @Configuration: It is a class-level annotation. The class annotated with

@Configuration used by Spring Containers as a source of bean definitions.

Q- 337) What dependancies you have used in

your project Q- 46 What is devtool

dependency

Spring Boot 1.3 provides another module called Spring Boot DevTools. DevTools stands

for Developer Tool. The aim of the module is to try and improve the development time while

working with the Spring Boot application. Spring Boot DevTools pick up the changes and

restart the application.

Spring Boot DevTools provides the following features:

o Property Defaults - When we use the spring-boot-devtools module, we are notrequired

to set properties. During the development caching for Thymeleaf, Freemarker, Groovy

Templates are automatically disabled.

o Automatic Restart - Auto-restart means reloading of Java classes and configure it at

the server-side. After the server-side changes, it deployed dynamically, server restarts

happen, and load the modified code.

o LiveReload - The Spring Boot DevTools module includes an embedded server called

LiveReload. It allows the application to automictically trigger a browser refresh

whenever we make changes in the resources. It is also known as auto-refresh.

o Remote Debug Tunneling - Spring Boot can tunnel JDWP (Java Debug Wire

Protocol) over HTTP directly to the application. It can even work application

deployment to Internet Cloud providers that only expose port 80 and 443.

o Remote Update and Restart - it supports remote application updates and restarts. It

monitors local classpath for file changes and pushes them to a remote server, which is

then restarted. We can also use this feature in combination with LiveReload.

Q- 338) What is immutable, what is immutable classes in java

Immutable class means that once an object is created, we cannot change its content.

In Java, all the wrapper classes (like Integer, Boolean, Byte, Short) and String class is

immutable.

We can create our own immutable class as well. ... The class must be declared as final (So

that child classes can't be created)

Q- 339) Collection classes and interfaces, which you have

used in your projectQ- 49 Internal working of hashmap -

repeated

Q- 340) Why map is not under collection

Because they are of an incompatible type. List Set and Queue are a collection of similar kind

of objects but just values where as a Map is a collection of Key

and Value pairs.

List, Set and Queue have add as a function which takes a value as a param to add an element

whereas Map has put as a function which takes a key and a value as params to add a key

value pair.

List, Set and Queue provide iterate functionality over the value whereas Map has keys to iterate

over which is ultimately a Set and Values as Collection.

Q- 51 Why we use hibernate over JDBC you define pojo class

In JDBC, if we open a database connection we need to write in try, and if any exceptions

occurred catch block will takers about it, and finally used to close the connections.

We must close the connection, or we may get a chance to get connections error message.

Actually if we didn't close the connection in the finally block, then jdbc

doesn't responsible to close that connection.

In JDBC we need to write Sql commands in various places, after the program has created

if the table structure is modified then the JDBC program doesn't

work, again we need to

modify and compile and re-deploy required, which is tedious.

To overcome above drawbacks we should go for Hibernate framework.

POJO Class

Java classes whose objects or instances will be stored in database tables are called persistent

classes in Hibernate. Hibernate works best if these classes follow some simple rules, also

known as the Plain Old Java Object (POJO) programming model.

There are following main rules of persistent classes, however, none of these rules are hard

requirements –

All Java classes that will be persisted need a default constructor.

All classes should contain an ID in order to allow easy identification of your objects

within Hibernate and the database. This property maps to the primary key column of

a database table.

All attributes that will be persisted should be declared private and have getter

and setter methods defined in the JavaBean style.

A central feature of Hibernate, proxies, depends upon the persistent class being either

non-final, or the implementation of an interface that declares all public methods.

The POJO name is used to emphasize that a given object is an ordinary Java Object

Q- 341) In many-to-many mapping, how many tables are created. – 3 tables

Q- 342) What is rest API

Suppose I have one online website called as fresherworlds.com in which I want to show the

tour packages of different countries then what options I have?

There is only one option call the API of tour packages into my site.

That’s why Rest API’s comes into picture.

Or

If your application supports third party application in that case we can use REST API.

What is REST?

The term REST stands for REpresentational State Transfer. It is an architectural style that

defines a set of rules in order to create Web Services.

In a client-server communication, REST suggests to create an object of the data requested by

the client and send the values of the object in response to the user.

There are four types of method as

➢ Get-It is used to read resource

➢ Post-It is used to create new resource.

➢ Put-It is generally used to update resource

➢ Delete-it is used to delete source

Pre-requisites_1. Create the spring boot project.

2. Pom.xml

3. Postman tool

Q- 343) Scope of maven

Maven defines the behaviour for each scope as following –

o compile This is the default scope, used if none is specified. Compile dependencies

are available in all classpaths of a project. Furthermore, those dependencies are

propagated to dependent projects.

o provided This is much like compile, but indicates you expect the JDK or a container

to provide the dependency at runtime. For example, when building a web application

for the Java Enterprise Edition, you would set the dependency on the Servlet API and

related Java EE APIs to scope provided because the web container provides those

classes. This scope is only available on the compilation and test classpath, and is not

transitive.

o runtime This scope indicates that the dependency is not required for compilation,

but is for execution. It is in the runtime and test classpaths, but not the compile

classpath.

o test This scope indicates that the dependency is not required for normal use of the

application, and is only available for the test compilation and execution phases.

This scope is not transitive.

o system This scope is similar to provided except that you have to provide the JAR

which contains it explicitly. The artifact is always available and is not looked up in

a repository.

o import (only available in Maven 2.0.9 or later) This scope is only supported on a

dependency of type pom in the section. It indicates the dependency to be replaced

with the effective list of dependencies in the specified POM's section. Since they

are replaced, dependencies with a scope of import do not actually participate in

limiting the transitivity of a dependency.

Q- 344) What is SDLC

SDLC (Software Development Life Cycle) is a process followed for a software project, within

a software organisation. It consists of a detailed plan describing how to develop. Maintain,

replace and alter or enhance specific software. The life cycle defines a methodology for

improving the quality of software and the overall development process.

Below are the list of different SDLC phases as

1. Requirement analysis-In this phase, details requirements of software are to be taken

by the client.

2. System design- It decides the programming language such as java or .net, database

like MYSQL or oracle, then front end tool, etc.

3. Implementation- In this, actual project development is to be started.

4. System testing- It performs the testing of software, also check whether the software is

designed as per client requirement or not.

5. System deployment- It will deploy the application on respective environments e.g.

tomcat server.

6. System maintenance- Once you deploy the application on server, later point you

might be add or changes the requirement as per client request.

Q- 345) What is

static?

Static_It is used for memory management.

It can be applied to variable, method, inner class and static block.

It means single copy storage.

Static variable_A variable which is defined with static keyword called as “static variable.”

It is used to refer the common property of all the objects.

Static variables get loaded into memory at the time of class loading.

Note- Static members get loaded into memory as soon as (StaticDemo sd1) read this line.

Non static members gets loaded into memory after reading new StaticDemo()- this line.

Static method_If you define any method with static keyword then it is called as static method.

It belongs to class rather than object of class.

It loads into memory before object creation.

It can access only static data member only.

Note: - Main method is static method.

Static block_It is group of statements that are executed when class is loading into memory by Classloader.

It is widely used to create the static resource.

We cannot access non-static variable into static block.

It is always executed first.

Q- 346) Have you use static block in your project

Q- 347) How to make thread as safe

There are 4 ways to achieve thread safety in Java. The ways are as follows –

1. By using Synchronization - Synchronization is the process of allowing only one

thread at a time to complete the particular task. It means when multiple threads

executing simultaneously, and want to access the same resource at the same time,

then the problem of inconsistency will occur. so synchronization is used to resolve

inconsistency problem by allowing only one thread at a time.

Synchronization uses a synchronized keyword. Synchronized is the modifier that

creates a block of code known as a critical section.

2. By using Volatile Keyword -

A volatile keyword is a field modifier that ensures that the object can be used by

multiple threads at the same time without having any problem. volatile is one good way

of ensuring that the Java program is thread-safe. a volatile

keyword can be usedas an

alternative way of achieving Thread Safety in Java.

3. By using Atomic Variable - Using an atomic variable is another way to achieve thread_safety in java. When variables are shared by multiple threads, the atomic variable

ensures that threads don’t crash into each other.

4. By using Final Keyword -

Final Variables are also thread-safe in java because once assigned some reference of an

object It cannot point to reference of another object.

Q- 348) Suppose I have static method and static block which will be executed

first.

The static block in a program always executed first before any static method

Q- 349) pipes in angular

Pipes are simple functions to use in template expressions to accept an input value and return a

transformed value. Pipes are useful because you can use them throughout your application,

while only declaring each pipe once.

Angular 7 provides some built-in pipes:

o Lowercasepipe

o Uppercasepipe

o Datepipe

o Currencypipe

o Jsonpipe

o Percentpipe

o Decimalpipe

o Slicepipe

Q- 350) interpolation in angular

Angular interpolation is used display a component property in the respective view template

with double curly braces syntax. We can display all kind of properties data into view e.g. string

number, date, arrays, list or map. Interpolation is used for one way data binding. Interpolation

moves data in one direction from our components to HTML elements.

Usage of Interpolation in angular

Display simple properties

Evaluate arithmetic expressions

Invoke methods and display return values

Display array items

Q- 351) Spring Initializer

The Spring Initializer is ultimately a web application that can generate a Spring Boot project

structure for you. It doesn’t generate any application code, but it will give you a basic project

structure and either a maven or a gradle build specification to build your code with.

It provides an extensible API to generate JVM based projects and to inspect the metadata

used to generate projects, for instance to list the available dependencies and versions.

Q- 352) project architecture

Q- 353) annotation used

in project

Q- 354) spring scope

there are five types of bean scopes supported :

1. singleton(default*)

Scopes a single bean definition to a single object instance per Spring IoC container.

2. prototype

Scopes a single bean definition to any number of object instances.

3. request

Scopes a single bean definition to the lifecycle of a single HTTP request; that is each and every

HTTP request will have its own instance of a bean created off the back of a single bean

definition. Only valid in the context of a web-aware Spring ApplicationContext.

4. session

Scopes a single bean definition to the lifecycle of a HTTP Session. Only valid in the context of

a web-aware Spring ApplicationContext.

5. global session

Scopes a single bean definition to the lifecycle of a global HTTP Session. Typically, only valid

when used in a portlet context. Only valid in the context of a web-aware Spring

ApplicationContext.

Q- 355) Component and controller annotation we can replace or not

If we use it on a controller class in Spring MVC and it will be

more readable and appropriate.

If we replace @Controller with @Component, Spring can automatically detect and register the

controller class but it may not work with respect to request mapping.

Q- 356) Put and post annotation difference

Put Annotation (@put mapping) is generally used to update the resources

Post annotation (@post mapping) is generally used to create new resources

Q- 357) Key in mysql other than primary and foreign

There are mainly Eight different types of Keys in DBMS and each key has it’s different

functionality:

1. Super Key

2. Primary Key

3. Candidate Key

4. Alternate Key

5. Foreign Key

6. Compound Key

7. Composite Key

8. Surrogate Key

Let’s look at each of the keys in DBMS with example:

• Super Key - A super key is a group of single or multiple keys which identifies rows

in a table.

• //Primary Key - is a column or group of columns in a table that uniquely identify every

row in that table.

• Candidate Key - is a set of attributes that uniquely identify tuples in a table. Candidate

Key is a super key with no repeated attributes.

• Alternate Key - is a column or group of columns in a table that uniquely identify every

row in that table.

• //Foreign Key - is a column that creates a relationship between two tables. The purpose

of Foreign keys is to maintain data integrity and allow navigation between two different

instances of an entity.

• Compound Key - has two or more attributes that allow you to uniquely recognize a

specific record. It is possible that each column may not be

unique by itself within the

database.

• Composite Key - is a combination of two or more columns that uniquely identify

rows in a table. The combination of columns guarantees uniqueness, though individual

uniqueness is not guaranteed.

• Surrogate Key - An artificial key which aims to uniquely identify each record is called

a surrogate key. These kind of key are unique because they are created when you don't

have any natural primary key.

Q- 358) singleton class

It means define the class which has single instance that provide the global point of access to it

called as singleton class. If you have business requirement in which only one object is created

then you should go for singleton design pattern.

For example –If we created the three instance of same class but we want to create only one

instance of class then we should go for singleton design pattern.

Q- 359) ioc container

IOC container is responsible to instantiate, configure and assemble this object.

Why container?

If you want to pass / apply any input to POJO classes. You must have container supports.

What does IOC container?

1. Read the XML file.

2. Create the instantiation of xml bean(java classes)

3. It will manage the life cycle of your bean classes.

4. Passing the dynamic parameter to bean (java classes).

There are two types of IOC container as

1. BeanFactory- It is called as core container.By using this, we can develop the

standalone application.

2. ApplicationContext- It is called as J2EE container.

Q- 350) @controller , @service @repository, @component difference

Spring provides four different types of auto component scan annotations, they are

@Component, @Service, @Repository and @Controller. Technically, there is no difference

between them, but every auto component scan annotation should be used for a special purpose

and within the defined layer.

@Component: It is a basic auto component scan annotation, it indicates annotated class is an

auto scan component.

@Controller: Annotated class indicates that it is a controller component, and mainly used at

the presentation layer.

POJO classes

IOC

Input (XML)

@Service: It indicates annotated class is a Service component in the business layer.

@Repository: You need to use this annotation within the persistence layer, this acts like

database repository.

Q- 351) lamda expression means and how it used

Lambda expression is a new and important feature of Java which was included in Java SE 8.

It provides a clear and concise way to represent one method interface using an expression. It

is very useful in collection library. It helps to iterate, filter and extract data from collection.

The Lambda expression is used to provide the implementation of an interface which has

functional interface. It saves a lot of code. In case of lambda expression, we don't need to define

the method again for providing the implementation. Here, we just write the implementation

code.

Java lambda expression is treated as a function, so compiler does not create .class file.

Q- 352) spring MVC flow

In MVC, the whole functionality is divided into three parts as-model, view

and controller

Model- It can be an object or collection of objects which basically contains the data of the

application which consist of POJO.

View- It is used for displaying the information to the user.

Controller- provides information between model and view. It contains the logical part of the

application. @Controller annotation is used to mark that class as

controller.

Fig- Spring MVC Flow

Description_Step 1: When browser sent the request will be received by DispatcherServlet.

Step 2: DispatcherServlet will take the help of HandlerMapping and get to

knowthe Controller class name associated with the given request.

Step 3: So request transfer to the Controller, and then controller will process the request

by executing appropriate methods and returns ModeAndView object (contains

Model data and View name) back to the DispatcherServlet.

Step 4: Now DispatcherServlet send the model object to the ViewResolver to get the

actual view page.

Step 5: Finally DispatcherServlet will pass the Model object to the View page to display

the result.

Q- 77 I have two jar 5 lit and 3 lit then I want 4 lit how you can give me

Q- 78 Car A 100km/hr and car B 200 km/hr distance between

two car

100 km atwhat point they meet

Q- 353) fail-fast Iterator

Iterators in Java are part of the Java Collection framework. They are used to retrieve

elementsone by one. The Java Collection supports two types of iterators; Fail Fast and

Fail Safe. These iterators are very useful in exception handling.

The Fail fast iterator aborts the operation as soon it exposes failures and stops the entire

operation. Comparatively, Fail Safe iterator doesn't abort the operation in case of a

failure. Instead, it tries to avoid failures as much as possible.

Q- 354) Can we access the non-final local variable, inside the local inner

class?

Till JDK 7 Local Inner class can access only final local variable of the enclosing block

however from JDK 8, it is possible to access the non final local variable of enclosing

block inlocal inner class.

355) What is an applet, methods in applets?

Ans:- Applet is a special type of program that is embedded in the webpage to generate the dynamic

content. It runs inside the browser and works at client side.

For creating any applet java.appletsclass must be inherited. It provides 4 life cycle methods of applet.

10Hello Java Program for Beginners

1. public void init(): is used to initialized the Applet. It is invoked only once.

2. public void start(): is invoked after the init() method or browser is maximized. It is used to start the

Applet.

3. public void stop(): is used to stop the Applet. It is invoked when Applet is stop or browser is

minimized.

4. public void destroy(): is used to destroy the Applet. It is invoked only once.

356) transient keyword?

Ans:- transient variable in Java is a variable whose value is not serialized during Serialization and which

is initialized by its default value during de-serialization, for example for object transient variable it would

be null.

357) javap command, strictfp keyword?

Ans:- The javap command disassembles a class file. The javap command displays information about the

fields,constructors and methods present in a class file.

Syntax to use javap tool

Let's see how to use javap tool or command.

1. javap fully_class_name

Example to use javap tool

1. javap java.lang.Object

Java strictfp keyword ensures that you will get the same result on every platform if you perform operations

in the floating-point variable. The precision may differ from platform to platform that is why java

programming language have provided the strictfp keyword, so that you get same result on every platform.

So, now you have better control over the floating-point arithmetic.

358) Can we declare an interface as final?

Ans:- If you declare a class final cannot extend it. ... If you make an interface final, you cannot implement

its methods which defines the very purpose of the interfaces. Therefore, you cannot make an interface final

in Java.

359) Can we override the static method?

Ans:- No, we can not override static method in java. Static methods are those which can be called without

creating object of class,they are class level methods.

360) Can we override overloaded method?

Ans:- Yes, we can override a method which is overloaded in super class.

370) SQL query to display the current date?

Ans:- To get the current date and time in SQL Server, use the GETDATE() function. This function returns

a datetime data type; in other words, it contains both the date and the time, e.g. 2019-08-20 10:22:34 .

SYSDATE returns the current date and time set for the operating system

```
SELECT TO_CHAR
  (SYSDATE, 'MM-DD-YYYY HH24:MI:SS') "NOW"
  FROM DUAL;
```

371) -what is unique,composite key?

Ans:-

unique: A unique key is a set of one or more than one

fields/columns of a table that uniquely identify a

record in a database table. You can say that it is little like primary key but it can accept only one null value

and it cannot have duplicate values.

Composite key:- A composite key is a candidate key that consists of two or more attributes (table columns)

that together uniquely identify an entity occurrence (table row). A compound key is a composite key for

which each attribute that makes up the key is a foreign key in its own right.

372) linux command smkdir & rmdir,ping,cat,ls,pwd?

Ans:-

mkdir:- mkdir command in Linux allows the user to create directories (also referred to as folders in some

operating systems). This command can create multiple directories at once as well as set the permissions

for the directories.

Rmdir:- The rmdir command removes the directory, specified by the Directory parameter, from the system.

The directory must be empty before you can remove it, and you must have write permission in its parent

directory. Use the ls -al command to check whether the directory

is empty.

Ping:- PING (Packet Internet Groper) command is used to check the network connectivity between host

and server/host. This command takes as input the IP address or the URL and sends a data packet to the

specified address with the message “PING” and get a response from the server/host this time is recorded

which is called latency.

Cat:- Cat(concatenate) command is very frequently used in Linux. It reads data from the file and gives

their content as output. It helps us to create, view, concatenate files.

Ls:- The ls is the list command in Linux. It will show the full list or content of your directory. Just

type ls and press the enter key

Pwd:- pwd stands for Print Working Directory. It prints the path of the working directory, starting from

the root. pwd is shell built-in command(pwd) or an actual binary(/bin/pwd). $PWD is an environment

variable which stores the path of the current directory.

373) Is Session a thread-safe object?

Ans:- No, Session is not a thread-safe object, many threads can

access it simultaneously. In other words,

you can share it between threads.

374) -lazy loading in hibernate?

Ans:- Its a design pattern which is used to delay initialization of an object as long as it's possible.

375) @PathVariable, @ResponseBody,

@Valid,@RequestMapping,annotation?

Ans:- @pathvariable:-The @PathVariable annotation is used to extract the value from the URI. It is most

suitable for the RESTful web service where the URL contains some value. Spring MVC allows us to use

multiple @PathVariable annotations in the same method

@responsebody:-The @ResponseBody annotation tells a controller that the object returned is

automatically serialized into JSON and passed back into the HttpResponse object.

@valid:-The @Valid annotation will tell spring to go and validate the data passed into the controller

by checking to see that the integer numberBetweenOneAndTen is between 1 and 10 inclusive because of

those min and max annotations.

@requestmapping:-@RequestMapping is one of the most

common annotation used in Spring Web

applications. This annotation maps HTTP requests to handler methods of MVC and REST controllers.

376) routingmodule, filter, factory method in Angular?

Ans:- rouiting module:- In Angular, the best practice is to load and configure the router in a separate,

top-level module that is dedicated to routing and imported by the root AppModule . By convention, the

module class name is AppRoutingModule and it belongs in the app-routing. ... --flat puts the file in

src/app instead of its own folder.

Filter:- Filters allow us to format the data to display on UI without changing original format. Filters can

be used with an expression or directives using pipe | sign. Angular includes various filters to format data

of different data types.

Factory methods:- Factory Method makes the development process of AngularJS application more

robust. A factory is a simple function which allows us to add some logic to a created object and return

the created object.

377) Custom exception query?

Ans:-

378) Why we use runtime exception to extend?

Ans:- Having to add runtime exceptions in every method declaration would reduce a program's clarity.

Thus, the compiler does not require that you catch or specify runtime exceptions (although you can). If

you extend RuntimeException , you don't need to declare it in the throws clause (i.e. it's an unchecked

exception).

379) Versions of java spring?

Ans:-

380) Which collection used mostly?

Ans:- The Java Collections Framework provides several general-purpose implementations of the core

interfaces: For the Set interface, HashSet is the most commonly used implementation. For the List

interface, ArrayList is the most commonly used implementation.

381) Hibernate cache types?

• Ans:- Session Cache. The session cache caches objects within the current session. It is enabled

by default in Hibernate. ...

• Second Level Cache. The second level cache is responsible for caching objects across sessions. ...

• Query Cache. Query Cache is used to cache the results of a query

382) Hibernate ORM (native query) joining tables?

Ans:- You can assign aliases to associated entities or to elements of a collection of values using a join.

from Cat as cat

inner join cat.mate as mate

left outer join cat.kittens as kitten

383) Spring Boot - building tool?

Ans:- Spring STS - The Spring Tool Suite (STS) is an Eclipse-based development environment that is

customized for developing Spring applications. Maven: A tool that you can use for building and

managing any Java-based project.

384) Use of service in REST API - business logic?

Ans:- An API can be a front-end controller that receives the command from a user action or a REST

Controller. ... The API is the facade. It should not contain the actual business logic of the task at hand.

Instead, the real behavior should remain within the underlying

Service class.

385) -Rest api crud operations (only Logic needed)?

Ans:- (Project related question)

386) -why java primitive?

Ans:- The main reason primitive data type are there because, creating object, allocating heap is too costly

and there is a performance penalty for it. As you may know primitive data types like int, float etc are most

used, so making them as Objects would have been huge performance hit.

387) features of java ??

Ans:-

1. Simple:-.Java is easy to learn and its syntax is quite simple, clean and easy to understand.

2. Object oriented:-In java, everything is an object which has some data and behaviour. Java can be

easily extended as it is based on Object Model. Following are some basic concept of OOP's.

3. Portable:-Java Byte code can be carried to any platform. No implementation dependent features.

Everything related to storage is predefined, example: size of primitive data types

4. Platform independent:-On compilation Java program is compiled into bytecode. This bytecode is

platform independent and can be run on any machine, plus this bytecode format also provide

security. Any machine with Java Runtime Environment can run Java Programs.

5. Robust:-Java makes an effort to eliminate error prone codes by emphasizing mainly on compile time

error checking and runtime checking. But the main areas which Java improved were Memory

Management and mishandled Exceptions by introducing automatic garbage collector and Exception

Handling.

388) what is multi threading and what is difference between sleep vs awake?

Ans: - Multithreading refers to a process of executing two or more threads simultaneously for maximum

utilization of the CPU.

sleep() is used to introduce pause on execution

389) hibernate mapping in your project(project related question)

390) hibernate lazy loding ?

Ans: Lazy loading is a fetching technique used for all the entities

in Hibernate. It decides whether to load

a child class object while loading the parent class object. When we use association mapping in Hibernate,

it is required to define the fetching technique. The main purpose of lazy loading is to fetch the needed

objects from the database.

For example, we have a parent class, and that parent has a collection of child classes. Now, Hibernate can

use lazy loading, which means it will load only the required classes, not all classes. It prevents a huge load

since the entity is loaded only once when necessary. Lazy loading improves performance by avoiding

unnecessary computation and reduce memory requirements.

391) spring MVC vs spring Boot difference

SPRING MVC	SPRING BOOT
1	
Spring MVC is a Model View, and Controller based web framework widely used to develop web applications.	Spring Boot is built on top of the

conventional spring framework, widely used to develop REST APIs.

2.

If we are using Spring MVC, we need to build the configuration manually.

If we are using Spring Boot, there is no need to build the configuration manually.

3.

In the Spring MVC, a deployment descriptor is required.

In the Spring Boot, there is no need for a deployment descriptor.

4.

Spring MVC specifies each dependency separately.

It wraps the dependencies together in a single unit.

5.

Spring MVC framework consists of

four components : Model, View,

Controller, and Front Controller.

There are four main layers in Spring

Boot: Presentation Layer, Data Access

Layer, Service Layer, and Integration

Layer.

6. It takes more time in development.

It reduces development time and

increases productivity.

392) spring boot annotation use in your project(project related question)

393) how internally spring MVC work ?(spring MVC flow)

Step 1: When browser sent the request will be received by DispatcherServlet.

Step 2 : DispatcherServlet will take the help of HandlerMapping and get to know the Controller class

name associated with the given request.

Step 3 : So request transfer to the Controller, and then controller will process the request by executing

appropriate methods and returns ModeAndView object (contains

Model data and View name) back to the

DispatcherServlet.

Step 4: Now DispatcherServlet send the model object to the ViewResolver to get the actual view page.

Step 5: Finally DispatcherServlet will pass the Model object to the View page to display the result.

394) basics of git .how to push data and how to check status in git

Basics of git : Git is a DevOps tool used for source code management. It is a free and open-source version

control system used to handle small to very large projects efficiently. Git is used to tracking changes in the

source code, enabling multiple developers to work together on non-linear development

The git status command is used to display the state of the repository and staging area. It allows us to see the

tracked, untracked files and changes. This command will not show any commit records or information.

395) what is agile difference between agile vs waterfall model ?

Waterfall Agile

The waterfall methodology is

sequential and linear.

Agile methodology is incremental and iterative.

Requirements have to be frozen at the beginning of SDLC.

Requirements are expected to change and changes are incorporated at any point.

The working model of software is delivered at the later phases of SDLC.

The working model is delivered during the initial phases and successive iteration of the model is delivered to the client for feedback.

It is difficult to scale-up projects based on waterfall methodology.

Scaling up of products is easy because of the iterative approach.

Customers or end-user doesn’t have a say after the requirements are frozen during the initial phases. They only get

to know the product once it is built completely.

Frequent customer interaction and feedbacks are involved in agile methodology.

Waterfall requires formalized documentations.

In agile documentation is often neglected and a working prototype serves as the basis for customer evaluation and feedback.

Testing is performed once the software is built.

Continuous testing is performed during each iteration.

396)

what you have used for connecting to DB in REST?

Ans: (Project related)

397). Methods of JPA

Ans: JPA stands for Java Persistence API. JPA allows you to

avoid writing DML in the database specific

dialect of SQL. JPA allows you to load and save Java objects and graphs without any DML language at all.

When you do need to perform queries JPQL allows you to express the queries in terms of the Java entities

rather than the (native)QL tables and columns

1.deleteAllByIdInBatch(Iterable<ID> ids)

Deletes the entities identified by the given ids using a single query.

2.deleteAllInBatch()

Deletes all entities in a batch call.

3.findAll()

4.flush()

Flushes all pending changes to the database.

5.getById(ID id)

Returns a reference to the entity with the given identifier.

6.getOne(ID id)

Deprecated.

use JpaRepository#getById(ID) instead.

398) where you have used multithreading in project?(project related question)

399). what is circle injection?

400) what is method reference ?

Ans: Method references are a special type of lambda expressions. They're often used to create simple

lambda expressions by referencing existing methods.

There are four kinds of method references:

• Reference to Static methods

Syntax: ContainingClass::staticMethodName :

• Reference to Instance methods

Syntax: containingObject::instanceMethodName

401) Reference to Constructor

Syntax: ClassName::new

Example: reference of static method

```
interface Sayable{
  void say();
}
public class MethodReference {
  public static void saySomething(){
  System.out.println("Hello, this is static method.");
  }
```

```
public static void main(String[] args) {
// Referring static method
Sayable sayable = MethodReference::saySomething;
// Calling interface method
sayable.say();
} }
```

402). what is spring initializr ?

Ans: Spring Initializr is a web-based tool provided by the Pivotal Web Service. With the help of Spring

Initializr, we can easily generate the structure of the Spring Boot Project. It offers extensible API for

creating JVM-based projects.

It also provides various options for the project that are expressed in a metadata model. The metadata

model allows us to configure the list of dependencies supported by JVM and platform versions, etc. It

serves its metadata in a well-known that provides necessary assistance to third-party clients.

403). advantage of spring boot other than web application development ?

Ans: Spring Boot uses the Spring Framework as its foundation. It simplifies Spring dependencies and runs

applications directly from the command line. It also doesn't require an external application container. Spring

Boot helps control and customize application components externally.

• Fast and easy development of Spring-based applications;

• No need for the deployment of war files;

• The ability to create standalone applications;

• Helping to directly embed Tomcat, Jetty, or Undertow into an application;

• No need for XML configuration;

• Reduced amounts of source code;

404). types of collection ?

Ans: collection represent group of object as single entity.

Collection are divided into three interfaces:

1. Set: it is a child interface of collection. It represent group of object as a single entity . in set duplicates

are not allowed and insertion order is not preserved.

2. List: : it is a child interface of collection. It represent group of individual object as a single entity .In

list duplicates are allowed and insertion order is preserved.

3 Queue: it is a child interface of collection. If we want to

represent a group of individual objects prior to

processing then we should go for queue.

Eg: before sending a mail all mail id's we have to store somewhere and in which order we saved in the

same order mail's should be delivered (First In First Out)for this requirement queue is best choice.

405).what is collection ?

Ans: If we want to represent group of object as a single entity then we should go for collection. Collection

is a growable in nature. It holds homogenous and heterogeneous type of data .

406).What is REST?

The term REST stands for REpresentational State Transfer. It is an architectural style that defines a set of

rules in order to create Web Services.

In a client-server communication, REST suggests to create an object of the data requested by the client

and send the values of the object in response to the user.

407).Resquest used in REST?

Ans:The first REST API request in a session must be a sign-in request. This is a POST request that sends

the user credentials in the body of the request. Because this is a

POST request, the request must include the

Content-Type header. You can send your the body of the request block as XML or JSON.

408).Use of GET and POST?

➢ Ans: Get-It is used to read and retrieve resource

By using @GetMapping annotation

➢ Post-It is used to save and create new resource.

409).Can we send data using (HTTP)GET req.?

Ans: No, HTTP GET requests cannot have a message body. But you still can send data to the server using

the URL parameters. In this case, you are limited to the maximum size of the URL, which is about 2000

characters (depends on the browser).

410).How you manage connection Front end with Back ?

Ans: Frontend and backend communicate with each other - via Http requests. The frontend will, for

example, send entered data to the backend. The backend might then again validate that data (since

frontend code can be tricked) and finally store it in some database.

411).How you do unit testing in Angular and REST?((project

related)

412).How do you pass status code from service of REST?(project related)

413).What is angular?

Ans: Angular is a Typescript-based free and open-source web application framework led by the Angular

Team at Google and by a community of individuals and corporations. Angular is a complete rewrite from

the same team that built AngularJS.

414).What is Singleton design pattern?

Ans: It means define the class which has single instance that provide the global point of access to it called

as singleton design pattern.

415).What is Factory Design pattern?

Ans: Design the factory method in which multiple objects are stored called as factory design pattern.

Sometime our application or frameworks don’t know what kind of object has to create at run time. It only

knows when it has to create so that time we need to use factory design pattern.

416).Sql constrain?

Ans: SQL constraints are a set of rules implemented on tables in

relational databases to dictate what data

can be inserted, updated or deleted in its tables. This is done to ensure the accuracy and the reliability of

information stored in the table. Page 20 complete

1) Sql Join?

Ans- A SQL Join statement is used to combine data or rows from two or more tables based on a

common field between them. Different types of Joins are:

1)INNER JOIN :- SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

INNER JOIN table2

ON table1.matching_column = table2.matching_column;

2)LEFT JOIN :- SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

LEFT JOIN table2

ON table1.matching_column = table2.matching_column;

3)RIGHT JOIN : - SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

RIGHT JOIN table2

ON table1.matching_column = table2.matching_column;

4)FULL JOIN :- SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

FULL JOIN table2

ON table1.matching_column = table2.matching_column;

417) How you manage Session within angular?

Ans:- With most AngularJS apps, there is no concept of a session. There might still be

authentication and some kind of token, but storing session information, like form contents

between pages, is stored in the browser in ram, cookies, session storage or local storage.

This is how session is maintained from front end

418)How you authorized the user?

Ans: - In authentication, the user or computer has to prove its identity to the server or

client. Usually, authentication by a server entails the use of a user name and

password.

(Add project's details about authentication).

419What are Collection Type?

Ans:- There are three generic types of collection: ordered lists, dictionaries/maps, and sets.

419)Whats Servlet?

Ans:- Servlet is the technology that is used to create the dynamic web pages.

Ivy comptect (2nd round)-its company name

420)Custom exception query in notpad

Ans :- its wrong question

421)How hashcode & equal works in hashmap

Ans :- In HashMap, hashCode() is used to calculate the bucket and therefore calculate the

index. equals method is used to check that 2 objects are equal or not. HashMap

uses equals() to compare the key whether they are equal or not. If equals() method return

true, they are equal otherwise not equal.

422)what is REST (EXACT MEANING)

Ans:- (a bodily state characterized by minimal functional and metabolic activities.)

REST stands for REpresentational State Transfer. It means when a RESTful API is called, the

server will transfer to the client a representation of the state of the requested resource.

423) overload and method overriding

Ans:- Method Overloading :-

Method Overloading is a Compile time polymorphism. In method overloading, more than

one method shares the same method name with different signature in the class. In

method overloading, return type can or can not be be same, but we must have to change

the parameter because in java, we can not achieve the method overloading by changing

only the return type of the method.

Method Overriding :-

Method Overriding is a Run time polymorphism. In method overriding, derived class

provides the specific implementation of the method that is already provided by the base

class or parent class. In method overriding, return type must be same or co-variant

(return type may vary in same direction as the derived class).

424) Internal working of Map?

Ans :-

the process of converting an object into an integer value. The integer value helps in indexing and faster

searches.

What is HashMap

HashMap is a part of the Java collection framework. It uses a technique called Hashing. It implements the

map interface. It stores the data in the pair of Key and Value. HashMap contains an array of the nodes, and

the node is represented as a class. It uses an array and LinkedList data structure internally for storing Key

and Value. There are four fields in HashMap.

o equals(): It checks the equality of two objects. It compares the Key, whether they are equal or not.

It is a method of the Object class. It can be overridden. If you override the equals() method, then it

is mandatory to override the hashCode() method.

o hashCode(): This is the method of the object class. It returns the memory reference of the object in

integer form. The value received from the method is used as the

bucket number. The bucket number

is the address of the element inside the map. Hash code of null Key is 0.

o Buckets: Array of the node is called buckets. Each node has a data structure like a LinkedList. More

than one node can share the same bucket. It may be different in capacity.

Insert Key, Value pair in HashMap

We use put() method to insert the Key and Value pair in the HashMap. The default size of HashMap is 16

(0 to 15).

When we call the put() method, then it calculates the hash code of the Key "Aman." Suppose the hash

code of "Aman" is 2657860. To store the Key in memory, we have to calculate the index.

Calculating Index

Index minimizes the size of the array. The Formula for calculating the index is:

1. Index = hashcode(Key) & (n-1)

Where n is the size of the array. Hence the index value for "Aman" is:

1. Index = 2657860 & (16-1) = 4

The value 4 is the computed index value where the Key and value will store in HashMap.

Hash Collision

This is the case when the calculated index value is the same for two or more Keys. Let's calculate the hash

code for another Key "Sunny." Suppose the hash code for "Sunny" is 63281940. To store the Key in the

memory, we have to calculate index by using the index formula.

1. Index=63281940 & (16-1) = 4

The value 4 is the computed index value where the Key will be stored in HashMap. In this case, equals()

method check that both Keys are equal or not. If Keys are same, replace the value with the current value.

Otherwise, connect this node object to the existing node object through the LinkedList. Hence both Keys

will be stored at index 4.

Similarly, we will store the Key "Ritesh." Suppose hash code for the Key is 2349873. The index value will

be 1. Hence this Key will be stored at index 1.

get() method in HashMap

get() method is used to get the value by its Key. It will not fetch the value if you don't know the Key. When

get(K Key) method is called, it calculates the hash code of the Key.

Suppose we have to fetch the Key "Aman." The following method will be called.

1. map.get(new Key("Aman"));

It generates the hash code as 2657860. Now calculate the index value of 2657860 by using index formula.

The index value will be 4, as we have calculated above. get() method search for the index value 4. It

compares the first element Key with the given Key. If both keys are equal, then it returns the value else

check for the next element in the node if it exists. In our scenario, it is found as the first element of the node

and return the value 19.

Let's fetch another Key "Sunny."

The hash code of the Key "Sunny" is 63281940. The calculated index value of 63281940 is 4, as we have

calculated for put() method. Go to index 4 of the array and compare the first element's Key with the given

Key. It also compares Keys. In our scenario, the given Key is the second element, and the next of the node

is null. It compares the second element Key with the specified Key and returns the value 29. It returns null

if the next of the node is null.

425)write code for remove duplicate from string=hello

Ans:-

```
1. //Creating RemoveDuplicatesExample1 class
2. class RemoveDuplicatesExample1
3. {
4. //Creating removeDuplicates() method to remove duplicates from array
5. static void removeDuplicate(char str[], int length)
6. {
7. //Creating index variable to use it as index in the modified string
8. int index = 0;
9.
10. // Traversing character array
11. for (int i = 0; i < length; i++)
12. {
13.
14. // Check whether str[i] is present before or not
15. int j;
```

```
16. for (j = 0; j < i; j++)
17. {
18. if (str[i] == str[j])
19. {
20. break;
21. }
22. }
23. // If the character is not present before, add it to resulting string
24. if (j == i)
25. {
26. str[index++] = str[i];
27. }
28. }
29.             System.out.println(String.valueOf(Arrays.copyOf(str, index)));
30. }
31.
32. // main() method starts
33. public static void main(String[] args)
```

```
34. {
35. String info = "javaTpoint is the best learning website";
36. //Converting string to character array
37. char str[] = info.toCharArray();
38. //Calculating length of the character array
39. int len = str.length;
40. //Calling removeDuplicates() method to remove duplicate characters
41. removeDuplicate(str, len);
42. }
43. }
```

426)can we replace @RestContoller annotation with @controller

Ans :-

@Controller is used in legacy systems which use JSPs. it can return views. @RestController is to mark

the controller is providing REST services with JSON response type. so it

wraps @Controller and @ResponseBody annotations together.

427)can we replace @repository to @service

Ans:-

According to documentaion @Repository,@Service,@Controller are all synonyms.

They all are just specializations of @Component annotation. So, generally, they can be

used one instead of other. But ... you should not do this.

428)difference between comparable and comparator

Ans:-

Comparable Comparator

1) Comparable provides a single sorting

sequence. In other words, we can sort the

collection on the basis of a single element such

as id, name, and price.

The Comparator provides multiple

sorting sequences. In other words, we

can sort the collection on the basis of

multiple elements such as id, name, and

price etc.

2) Comparable affects the original class, i.e.,

the actual class is modified.

Comparator doesn't affect the original

class, i.e., the actual class is not

modified.

3) Comparable provides compareTo()

method to sort elements.

Comparator provides compare()

method to sort elements.

4) Comparable is present in java.lang package. A Comparator is present in

the java.util package.

5) We can sort the list elements of Comparable

type by Collections.sort(List) method.

We can sort the list elements of

Comparator type

by Collections.sort(List,

Comparator) method.

429)difference between @controller and @restcontroller

Ans:-

1. The @Controller is a annotation to mark class as Controller Class in Spring

While @RestController is used in REST Web services and

similar

to @Controller and @ResponseBody.

2. The @Controller annotation indicates that the class is controller like web Controller

while @RestController annotation indicates that the class is controller

where @RequestMapping Method assume @ResponseBody by Default(i.e REST APIs).

3. The key difference is that you do not need to use @ResponseBody on each and every handler method

once you annotate the class with @RestController.

4. @Controller create a Map of Model Object and find a view while @RestController simply return

object and object data directly written into http response as JSON orXML.

430)Stack Data-Structure push () & pop () methods implementation

Ans:-

• push() – Pushing (storing) an element on the stack.

• pop() – Removing (accessing) an element from the stack.

When data is PUSHed onto stack.

Push Operation

The process of putting a new data element onto stack is known as a Push Operation. Push operation

involves a series of steps −

• Step 1 − Checks if the stack is full.

• Step 2 − If the stack is full, produces an error and exit.

• Step 3 − If the stack is not full, increments top to point next empty space.

• Step 4 − Adds data element to the stack location, where top is pointing.

• Step 5 − Returns success.

If the linked list is used to implement the stack, then in step 3, we need to allocate space dynamically.

Pop Operation

Accessing the content while removing it from the stack, is known as a Pop Operation. In an array

implementation of pop() operation, the data element is not actually removed, instead top is decremented

to a lower position in the stack to point to the next value. But in linked-list implementation, pop() actually

removes data element and deallocates memory space.

A Pop operation may involve the following steps −

• Step 1 − Checks if the stack is empty.

• Step 2 – If the stack is empty, produces an error and exit.

• Step 3 – If the stack is not empty, accesses the data element at which top is pointing.

• Step 4 – Decreases the value of top by 1.

• Step 5 – Returns success.

431)Different steps of Tomcat server

Ans:-

432)How to use Junit

Ans:- To use JUnit you must create a separate . java file in your project that will test one of

your existing classes. In the Package Explorer area on the left side of the Eclipse window,

right-click the class you want to test and click New → JUnit Test Case. A dialog box will

pop up to help you create your test case.

433)what is index

Ans:- An index is an on-disk structure associated with a table or view that speeds retrieval

of rows from the table or view.

434)What is stored procedure

Ans:- A procedure is a combination of SQL statements written to

perform a specified tasks.

It helps in code re-usability and saves time and lines of code.

435)what is trigger

Ans:- A trigger is a special kind of procedure which executes only when some triggering

event such as INSERT, UPDATE, DELETE operations occurs in a table.

436)How to control amount of thread execution at one time

Ans:- By using Synchronization.

437).what is servlet filter

Ans:- A Servlet filter is an object that can intercept HTTP requests targeted at your web

application. A servlet filter can intercept requests both for servlets, JSP's, HTML files or

other static content, as illustrated in the diagram below: A Servlet Filter in a Java Web

Application

438)10.difference between union and union all.

Ans:- The only difference between Union and Union All is that Union extracts the rows

that are being specified in the query while Union All extracts all the rows including the

duplicates (repeated values) from both the queries.

361) diff betn controller and restcontroller ?

@Controller @Restcontroller

1) The @Controller is a common annotationwhich is used to mark a class as Spring MVC Controller

1) The @RestController is a special controllerused in RESTFul web services and the equivalent of @Controller + @ResponseBody.

2) @Controller is an old annotation, exists since Spring started supporting annotation,and officially it was added on Spring 2.5 version.

2) The @RestController is relatively new, addedonly on Spring 4.0

3) The @Controller annotation indicates thatthe class is a “Controller” e.g. a web controller

3) @RestController annotation indicates that the class is a controller where @RequestMappingmethods assume @ResponseBody semantics by default i.e. servicing REST API.

439)What is spring bean? How it is defined?

Ans: In Spring, the objects that form the backbone of your application and thatare managed by the

Spring IoC container are called beans. A bean is an objectthat is instantiated, assembled, and otherwise

managed by a Spring IoC container. Otherwise, a bean is simply one of many objects in your

application.

A bean is an object that is instantiated, assembled, and otherwise managed by aSpring IoC container.

These beans are created with the configuration metadata that you supply to the container.

440)status code?

Ans: Status code is a 3-digit integer. The first digit of status code is used to specify one of five standard

classes of responses. The last two digits of statuscode do not have any categorization ro

441)diff between native query and named query ?

Ans: 1) Native query refers to actual sql queries(referring to actual database objects). These queries are

the sql statements which can be directly executed indatabase using a database client.

2) Named query is the way you define your query by using by giving it a name.You could define this in

mapping file in hibernate or also using annotations at entity level.

442) how do you integrate spring with hibernate ?

Ans: In hibernate framework, we provide all the database informationhibernate.cfg.xml file.

But if we are going to integrate the hibernate application with spring, we don't need to create the

hibernate.cfg.xml file. We can provide all the information in the applicationContext.xml file.

We can simply integrate hibernate application with spring application.

...

Steps

1. create table in the database It is optional.

2. create applicationContext.xml file It contains information of DataSource,SessionFactory

etc.

3. create Employee.java file It is the persistent class.

4. create employee.hbm.xml file It is the mapping file.

443) why jps come into picture ?

Ans: JPS command is used to check if a specific daemon is up or not. The command of JPS displays all

the processes that are based on Java for a particularuser. The command of JPS should run from the root

to check all the operating nodes in the host

444) diff betn properties file and map ?

Ans: 1. HashMap :- If you are searching for a particular key in the HashMap and you haveimplemented correct

hashcode() and equals() contract then by the hashing the getting andsetting key, value will be fast as it will use

hashing and red black tree indexing for searching.

cons :- you have to initialize the HashMap i.e. reading every value from File and put it tothe HashMap.

2. PropertyFile :- If you look at the internal implementation of PropertyFile.java it internallyuses the HashTable.

public class Properties extends Hashtable<Object,Object> So once you loaded the property fileinto the object. The

performance comparison between them is same as HashTable vs.

HashMap performance.

445)real time example of dependency injection ?

Ans: Suppose you gives 1ltr water to me frequently, You use 10 cups of 100ml for that.So every time you come

with 10 cups !....

Now, suppose you got a jug of 1ltr .....What would you

do.?

U'll use that every time, because it has functionality of doing your work easily...simple...

In technical way, The 1ltr jug is your Dependency Injection, it will make your work much

easier…

446)how can you manage users in application ?

Ans: Add new user profiles to the app.

1. Search for a user's profile.

2. Assign user tags to user's profiles.

3. Ban and unban users.

4. Export the data of your registered users.

447)why spring bean is immutable ?

Ans: In fact, spring beans are immutable by idea, even though you are notenforcing this. You can

provide only a getter to a final field that is initializedthrough constructor injection.

448) strong oops concept required.

Ans: OOps, concepts in java is to improve code readability and reusability bydefining a Java program

efficiently. The main principles of object-oriented programming

are abstraction, encapsulation,

inheritance, and polymorphism.These concepts aim to implement real-world entities in programs.

OOP concepts let us create working methods and variables, then re-use all or partof them without

compromising security.

449) Strong exception handling and string is

required.Ans:

Java exception handling is important because it helps maintain the normal, desired flow of the program

even when unexpected events occur. If Java exceptions are not handled, programs may crash or requests

may fail. This can bevery frustrating for customers and if it happens repeatedly, you could lose those

customers.

450) java 8 features must 1 question definitely someties program

also.Ans: java 8 provides following features for Java Programming:

Lambda expressions,

Method references,

Functional interfaces,

Stream API,

Default methods, Base64

Encode Decode,

Static methods in interface,

Optional class,

Collectors class,

ForEach() method,

Parallel array sorting,

Nashorn JavaScript Engine,

Parallel Array Sorting,

Type and Repating Annotations,IO

Enhancements,

Concurrency Enhancements,JDBC

Enhancements etc.

Lambda Expressions

Lambda expression helps us to write our code in functional style. It provides a clearand concise way to

implement SAM interface(Single Abstract Method) by using anexpression. It is very useful in collection

library in which it helps to iterate, filter and extract data.

Method References

Java 8 Method reference is used to refer method of functional interface . It is compact and easy form of

lambda expression. Each time when you are using lambda expression to just referring a method, you can

replace your lambda expression with method reference.

Functional Interface

An Interface that contains only one abstract method is known as functional interface. It can have any

number of default and static methods. It can also declaremethods of object class.

Functional interfaces are also known as Single Abstract Method Interfaces (SAM Interfaces).

Optional

Java introduced a new class Optional in Java 8. It is a public final class which is used to deal with

NullPointerException in Java application. We must import java.util package to use this class. It

provides methods to check thepresence of value for particular variable.

forEach

Java provides a new method forEach() to iterate the elements. It

is defined inIterable and Stream

interfaces.

It is a default method defined in the Iterable interface. Collection classes whichextends Iterable

interface can use forEach() method to iterate elements.

This method takes a single parameter which is a functional interface. So, you canpass lambda expression

as an argument.

Date/Time API

Java has introduced a new Date and Time API since Java 8. The java.time packagecontains Java 8 Date

and Time classes.

Default Methods

Java provides a facility to create default methods inside the interface. Methods which are defined inside

the interface and tagged with default keyword are knownas default methods. These methods are non_abstract methods and can have method body.

Nashorn JavaScript Engine

Nashorn is a JavaScript engine. It is used to execute JavaScript code dynamically at JVM (Java Virtual

Machine).Java provides a command-line tool jjs which is usedto

execute JavaScript code.

You can execute JavaScript code by two ways:

1. Using jjs command-line tool, and

2. By embedding into Java source code.

StringJoiner

Java added a new final class StringJoiner in java.util package. It is used to constructa sequence of characters

separated by a delimiter. Now, you can create string by passing delimiters like comma(,), hyphen(-) etc.

Collectors

Collectors is a final class that extends Object class. It provides reduction operations,such as accumulating

elements into collections, summarizing elements according to various criteria etc.

Stream API

Java 8 java.util.stream package consists of classes, interfaces and an enum to allow functional-style

operations on the elements. It performs lazy computation. So, it executes only when it requires.

Stream Filter

Java stream provides a method filter() to filter stream elements on the basis of given predicate. Suppose,

you want to get only even elements of your list, you cando this easily with the help of filter() meth

This method takes predicate as an argument and returns a stream of resulted elements.

Java Base64 Encoding and Decoding

Java provides a class Base64 to deal with encryption and decryption. You need to import java.util.Base64

class in your source file to use its methods.

This class provides three different encoders and decoders to encrypt informatio

Java Parallel Array Sorting

Java provides a new additional feature in Arrays class which is used to sort array elements parallelly. The

parallelSort() method has added to java.util.Arrays class that uses the JSR 166 Fork/Join parallelism

common pool to provide sorting of arrays. It is an overloaded method.

451) .Junit basics is imp and also diff tools used for that .

Ans: JUnit is a unit testing framework for the Java programming language. JUnithas been important in the

development of test-driven development and is one of a family of unit testing frameworks which is collectively

known as xUnit that originated with SUnit.

452) How to handle exception in java project?

• Use try/catch/finally blocks to recover from errors or release resources. ...

• Handle common conditions without throwing exceptions. ...

• Design classes so that exceptions can be avoided. ...

• Throw exceptions instead of returning an error code.

OR

• If a method is considered risky (it might not execute properly due to excep-tional circumstances) it must

declare that it throws an exception.

• The risky method that is called will throw the exception.

• The method that calls the risky method will catch the exception.

• The files are in the computer…

453) Define default exception provided by spring boot?

Handling exceptions and errors in APIs and sending the proper response to theclient is good for enterprise

applications.

Controller Advice :

The @ControllerAdvice is an annotation, to handle the

exceptions globally.

Exception Handler :

The @ExceptionHandler is an annotation used to handle the specific exceptionsand sending the custom

responses to the client.