Interview Questions

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Java 8:

- What are the changes done to Java 8 interface ?
  - Introduction of Static and default methods
- What is the need or what is the advantage of having the default methods in interface in Java 8
  - Backward compatibility.
- Can we override default method of interface ?
- What is the advantage of static methods in Java 8 interface ?
  - Utility method or null check.
- How to call default method present in interface ?
  - InterfaceName.super.methodName()
- How to call static method present in interface ?
  - InterfaceName.methodName()
- What is functional interface ?
  - It's an interface which has 1 abstract method and it can have any number of static and default methods also it should be annotated with @functional Interface
- What is lamda and what are the advantages of Lamda ?
  - Lamda enables functional programming
  - Anonymous inner class can be replaced by lamda
  - Reduced code
- What is functional programming ?
  - Passing the functionality as method argument
- What happens when we write more than 1 abstract in interface for which already lamda expression is present (If the interface is annotated with @functional interface)?
  - Compilation error during writing the second abstract method
  - If there is no @functional interface annotation then it allows to write more than 1 abstract method but compilation at the place lamda expression
- What is the difference between interface and functional interface ?
  - Difference is only in number of abstract methods. Functional interface will have only 1 abstract method, where as interface can have any number of abstract methods.
  - Both can have any number of default and static methods
- What are the different functionals interfaces introduced in Java 8.
  - Predicate, Supplier, Consumer, Function
- What is Stream ?
  - Java.util.Stream -> it's an interface.

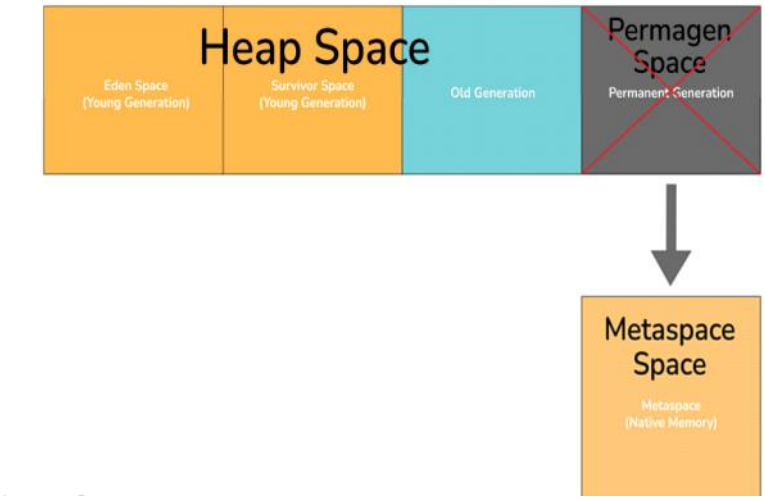
- What is the advantage of Stream ?
  - It can be used to perform operation on the collection.
- How to create the stream ?
  - Stream.of(array)
  - CollectionObject.stream()
  - Stream.of(directly providing the array values)
- What are the changes introduced in collection in Java 8 ?
  - forEach, removeIf
- Write a stream code to delete the duplicates from array List
  - Here List object is h-> h.stream().distinct().collect(Collectors.toList())
- Write a stream code to delete the duplicates from array list which has Department object
  - Here List object is h-> h.stream().distinct().collect(Collectors.toList()) and override hash code and equals method
- Write a program to sort the Array List which has user defined data (Department Object)?

  h.stream.sorted((d,d1)->d.getDepId()
  <d1.getDepId()).collect(Collectors.toList())
- Write a Stream program to convert the array into List
  - Array is int[] x={10,11,2,4,5,6,7};
  - Stream.of(x).collect(Collectors.toList());
- Write a Stream program to convert the Employee Array into Map (Map should have key as Emp id and value as Emp Object)

  Employee[] e={new Employee("Karthik",10),new
  Employee("Ashok",13)}
  Stream.of€.collect(Collectors.toMap(p->p.getId(),p->p))
- What is the difference between map and flat Map ?
  - Map provides one to one mapping
  - flatMap provides one to many mapping
  - If you want to convert List<List<Employee>> to List<employee> - then u go for flat map
  - List<Employee> -> EmpId as key and value as emp Object then go for Map
- Write a stream program to get minimum, maximum, average salary of an employee (given employee array)
  - l.stream().min(comparator).get() -> Min salary
  - l.stream().max(comparator).get() -> Max salary Or
  - l.stream().collect(Collectors.summerizingInt())
  - DoubleSummaryStatistics d
    =empList.stream().collect(Collectors.summarizingDouble((e)->e.getEmpSalary()));
- What is difference between intermediate operation and terminal operation
  - Intermediate operation doesn't provide output until terminal operation is called
- What is short circuit operation ?

- It comes under terminal operation and based on the value it stops the execution immediately

- What is the difference forEach and forEachOrdered ?
  - forEach is not ordered in case of parallel stream
  - forEachOrdered is ordered in case of parallel Stream
  - For the foreachOrdered method if the input is ordered object output is ordered else it can follow any order
- What are the examples of intermediate operation ?
  - Filter, map, sorted, distinct
- What are the examples of terminal operation ?
  - forEach, collect, min, count, max
- What is the difference between limit and skip methods of Stream ?
  - Limit will limit the elemnts
  - Skip will skip elements and do the operation afterwards
- What is optional ?
  - Optional is a class in Java 8 which is introduced to over come null pointer exception
- How to create the optional object ?
  - Optional.ofNullable(null or not null value):
  - Optional.ofNullable(null)
  - Optional.ofNullable(10)
  - Optional.ofNullable(new Employee("karthgik"))
- What is Local Date Time or Local Date or Local Date ?
  - New Date and time objects in java 8
- How to get current date and time using the LocalDateTime class ?
  - LocalDateTime.now()
- Array List consists of 5 employees and Write a lamda to sort the employee by last name.
  - Collections.sort(l,(e1,e2)->e1.getLastName().compareTo(e2.getLastName()));
- Print all the employees whose name starts with c ?
  - l.stream().filter(p->p.startswith("c")).forEach(p->sysout(p))
- Print all the employees using the enhanced collections in Java 8
  - forEach
- What is MetaSpace? How does it differ from PermGen?



PremGen: MetaData information of classes was stored in PremGen (Permanent-Generation) memory type before Java 8. PremGen is fixed in size and cannot be dynamically resized. It was a contiguous Java Heap Memory.
MetaSpace: Java 8 stores the MetaData of classes in native memory called 'MetaSpace'. It is not a contiguous Heap Memory and hence can be grown dynamically which helps to overcome the size constraints. This improves the garbage collection, auto-tuning, and de-allocation of metadata

- What are functional or SAM interfaces?

  - Functional Interfaces are an interface with only one abstract method. Due to which it is also known as the Single Abstract Method (SAM) interface. It is known as a functional interface

- Can a functional interface extend/inherit another interface?

  - A functional interface cannot extend another interface with abstract methods as it will violate the rule of one abstract method
  - It can extend only marker interface (or) if it extends any other functional interface which has 1 abstract method then in child we should not write any abstract method
  - Out of n interfaces if we are performing inheritance then only 1 abstract method should be present

- It can extend other interfaces which do not have any abstract method and only have the default, static, another class is overridden

- **Given a list of integers, find out all the even numbers exist in the list using Stream functions?**

  - List<Integer>myList =Arrays.asList(**10**,**15**,**8**,**49**,**25**,**98**,**32**);myList.stream().filter(n ->n%**2**== **0**).forEach(System.out::println);

- **Given a list of integers, find out all the numbers starting with 1 using Stream functions?**

  - List<Integer>myList =Arrays.asList(**10**,**15**,**8**,**49**,**25**,**98**,**32**);myList.stream().map(s ->s +"")// Convert integer to String.filter(s -> s.startsWith("1")).forEach(System.out::println);

- **Given a list of integers, find the total number of elements present in the list using Stream functions?**

  - List<Integer>myList =Arrays.asList(**10**,**15**,**8**,**49**,**25**,**98**,**98**,**32**,**15**);**long**count =myList.stream().count();System.out.println(count);

- **Given a list of integers, find the maximum value element present in it using Stream functions?**

  - List<Integer>myList =Arrays.asList(**10**,**15**,**8**,**49**,**25**,**98**,**98**,**32**,**15**);**int**max =myList.stream().max(**Integer:**:compare).get();System.out.println(max);

- Write a Lamda to Sort the given numbers ?

  - List<Integer> list = Arrays.asList(57, 38, 37, 54, 2);
    list.stream()
    .sorted()
    .forEach(System.out::println);

- Write a Program to sort the elements in decending order ?
  - List<String> strings =
    Arrays.asList("Stream","Operations","on","Collections");
    strings.stream()
    .sorted((s1, s2) -> s2.length() - s1.length())
    .forEach(System.out::println);
  - Strings.stream().sorted(collections.reverseOrder()).forEach()
- How to write the method reference for a Static method ?
  ClassName::MethodName
- How to write method reference for instance method ?
  - ObjectName::MethodName
- How to write method reference for constructor ?
  - ClassName::New
- How to create local date with values ?
  - Of() method of LocalDate

- Is the Local date class immutable ?
  - yes
- What is the advantage of orElse() or OrELseGet() method of Optional class ?
  - If we want to replace the Null with a specific String value then we go for OrElse()
  - You can get the default value using OrElseGet(supplier)
- What is the difference between findAny() and findfirst() ?
  - If it is ordered then first element will be returned by findfirst or findANy
  - If it is not ordered output can be anything.
- Write a Program to sort hashmap by keys using Stream ?
  - Refer to the code mentioned in telegram group
- Write a program to Sort hashmap by values using Stream ?
  - Refer to the code mentioned in telegram group

Java 9

- What is Jshell ?
  - Jshell is Repl tool
- Why Java 9 doesn't have rt.jar ?
  - Because from Java 9 onwards java follows modular approach
- What is the difference between module and Jar ?
  - Module contains extra file called module-info.java
- What principle does Jshell follow ?
  - REPL: Read, Evaulate, Print, Loop
- What are the advantages of Jshell ?
  - Developer firendly
- What is snippet in Jshell ?
  - Any valid java statement, variable declarion or method, or interface or class
- What is the command to know all the snippets in Jshell
  - /list -all
- What is scratch variable ?
  - It is something which is create by Jshell
- What is the command to see all the methods in Jshell ?
  - /methods
- How to delete the method or variable in Jshell ?
  - /drop snippetId
- What is inactive snippet ?
  - /list - Active snippets
  - /list -all - inactive
- How to list all active and inactive snippets ?
- What is the command to see all the interfaces and classes present in Jshell ?

- /types
- How to edit the content in Jshell ?
  - /edit
- How Many modules present in Jdk 9 ?
  - 98
- What is the base module in Jdk 9 ?
  - Java.base
- What does module-info.java contains ?
  - Module description, exports, requires etc
- Explain the project architecture with multiple module ?
  - Look at the example code
- How to access one module code in another module ?
  - Exports packageName in 1 module and which ever module is using then it should requires PackageName
- What is the difference between requires and requires transitive ?
  - Requires transistive-> compile time
  - Requires both compile and run time
- What is the difference between Qualified export and exports ?
  - Export PackageName -> will be visible for all the mdoules
  - Export packageName to module1, module2 -> this package will be visible for only module 1 and module 2 packages
  - To reduce the visibility of a module we go for Qualified exports.
- What is try with resource ?
  - Generally we close the resource in finally block, but with the help of try with Resource JVM will close the resource automatically without mention finally block
- What is the change performed in try with resource in Java 1.9 ?
  - Local variable reference can be accepted in Java 1.9 try() block
  - Bufferread r1, bufferReader r2
  - Try(r1,r2) -> This is possible in java 1.9
- What is the change performed for diamond operator in java 1.9 ?
  - We can use diamond operator for Anonymous innerclass
- What is takeWhile() ?
  - Same as Limit method but the difference is limit will take number and takewhile will accept predicate -> if performs the operation till the condition is satisfied. Once the condition is failed it will stop
- What is dropWhile()?
  - Same as Skip() but the difference is skip() will take number and dopwhile will take predicate -> it ignores the data till the predicate is satisfied once fails then does the operation
- Write a Stream program to display the employees whose salary is <10000 using takeWhile()
  - empList.Stream.takeWhile(p->p.getSalary>10000).forEach() ->
- What is the difference between takeWhile and filter?
  - Filter will execute through out the stream

- Takewhile will execute till the predicate is true. Once the predicate fails then it will stop the execution and doesn't apply that condition to the rest of the stream.

- Write a program to create the immutable collection object without Java 9?
  - List<Integer> c= new ArrayList<Integer>();
  - c.add(10);c.add(20);
  - I want make C as immutable object ->Collections.unmodifiableList();
- Write a program to create the immutable collection object with Java 9?
  - List.of(arguements);
  - Set.of(arguements)
- What happens if you perform add or remove on immutable collection ?
  - Runtime Exception-> Unsupported Exception
- Is it possible to declare same package in different modules ?
  - No.
- What is the advantage of modularity or module-info.java in Java 9 ?
  - Security,
  - Jar size will be reduced.
  - JVM will check for dependencies before start of the program so there is no way we get no class def error from Java 9
- Write a program to close the specific task ?
  - Process API->
  - ProcessHandler pr=ProcessHandler.of(taskId)
  - Pr.destory();
- Write a program to display all the running processes ?
  - ProcessHandler pr=ProcessHandler.allProcesses()
- Write a program to open eclipse using java program or start the process using java 9 Process API?
  - ProcessBuilder("exepath").start()
- What is the advantage of having the private methods in interface ?
  - Reusability of code present in interface
- Can you access interface private method outside of interface ?
  - No

Java 11

- Can you execute a program without compilation ?
  - Yes from java 11, we can execute the program using the below command and it does the compilation internally
  - Java className.java (Example: java Test.java)
- What is the difference between trim() and strip() method in Java 11
  - strip() method uses Character.isWhitespace() method to check if the character is a whitespace. This method uses Unicode code points whereas trim() method identifies any character having codepoint value less than or equal to 'U+0020' as a whitespace character

- What are the changes to predicate in Java 11 ?
  - Not method
- What are the file changes
  - readString and Write String
- What are the String API changes
  - isBlank(), isEmpty(), Strip(), leadingString(), tralingStrip(), lines()
- What are the collection API changes ?
  - toArray()
- What is local variable var and how can we use it in lamda ?