Sl No	Category	Subcategory	Question
1	OOPs	Main()	**Can a main() be abstract?**
2	OOPs	Main()	**Can a main() be called recursively?**
3	OOPs	Main()	**Can a main() call static method?**
4	OOPs	Main()	**Can a static method() call main()**
5	Java Fundamentals	OOPs	**Can a static method call a non-static method?**
6	Java Fundamentals	OOPs	**Can a static method call another static method?**
7	OOPs	Inheritance	**Can a static method be inherited?**
8	OOPs	Inheritance	**Can a static method be overriden?**
9	OOPs	Polymorphism	**Can a static method be overloaded?**
10	Java Fundamentals	OOPs	**Can a static method use instance variables?**
11	Java Fundamentals	OOPs	**Can a static method be private? public, protected?**
12	OOPs	Non-Access Modifier	**Can a static method be final?**
13	OOPs	Interface	**Can we declare static methods in interface?**
14	Java Fundamentals	OOPs	**Can static methods use this and super keywords?**
15	Memory	Memory	**Where does the class metadata get stored? In memory**
16	OOPs	Interface	**Can we have non-abstract methods in interface?**
17	OOPs	Interface	**What is the use of default keyword in interface?**
18	OOPs	Interface	**Can a class implement multiple interfaces?**
19	OOPs	Interface	**What are sealed interfaces?**
20	OOPs	Interface	**Can we have static blocks in interface?**
21	OOPs	Interface	**Difference between interface and abstract class?**
22	OOPs	Interface	**What happens if you try to instantiate interface directly?**
23	OOPs	Interface	**What if you override a same method(default, abstract, static) from other different superclasses?**
24	OOPs	Inheritance	**Why multiple inheritance is not supported in Java?**
25	OOPs	Inheritance	**What is diamond problem?**
26	OOPs	Inheritance	**Can we mark abstract class as protected?**
27	OOPs	Main()	**Can an abstract class have main()**

28	OOPs	Inheritance	Can abstract class have default and static methods?
29	OOPs	Inheritance	Can we have a constructor in abstract class?
30	OOPs	Class	Why is super keyword used?
31	OOPs	Class	Can you use super keyword in abstract and interface level?
32	OOPs	Class	Can you use super keyword in static method?
33	OOPs	Main()	Can you use super keyword in main()
34	OOPs	Class	Can you use super keyword in static blocks?
35	OOPs	Class	if subclass does not call super method explicitely what happens?
36	Java Fundamentals	String	How can two strings be compared?
37	Java Fundamentals	String, String Builder, String Buffer	State the difference between String and StringBuffer
38	Java Fundamentals	String, String Builder, String Buffer	State the difference between StringBuffer and StringBuilder
39	Java Fundamentals	String	What is the difference between str1 == str2 and str1.equals(str2)?
40	Java Fundamentals	String Builder	How can we convert String to StringBuilder?
41	Java Fundamentals	String	Is String thread-safe in Java?
42	Java Fundamentals	String	What do you mean by StringJoiner?
43	Java Fundamentals	String	What is the String class in Java? Is String a data type?
44	Java Fundamentals	String	What are some different ways to create a String object in Java?
45	Java Fundamentals	String	Why is String immutable in Java?
46	Java Fundamentals	String	What is the string pool in Java?
47	Java Fundamentals	String	What does the Java String.intern() method do?
48	Java Fundamentals	String	How Is a String Stored in Memory?
49	Java Fundamentals	String	What are the performance implications of string concatenation using +?
50	Java Fundamentals	String Buffer	How do you append data to a StringBuffer?
51	Java Fundamentals	String Buffer	What are the commonly used methods of StringBuffer?
52	Java Fundamentals	String Buffer	How does StringBuffer grow in size internally when appending strings?
53	Java Fundamentals	String Buffer	What happens if multiple threads access a StringBuffer instance?
54	Java Fundamentals	String Builder	Explain the use of insert(), replace(), and delete() in StringBuilder

55	Java Fundamentals	String	What is the time complexity of charAt(), substring(), or indexOf() in String
56	Java Fundamentals	String	Explain how memory is allocated when using new String("abc") vs "abc"
57	Java Fundamentals	String Builder	What is the default capacity of StringBuilder and how is it resized?
58	Java Fundamentals	String Builder	What happens when a StringBuilder exceeds its capacity?
59	Java Fundamentals	Type Casting	What is typecasting in Java? How is it different from type conversion?
60	Java Fundamentals	Type Casting	Difference between widening and narrowing casting?
61	Java Fundamentals	Type Casting	Is explicit typecasting always required?
62	Java Fundamentals	Type Casting	What is the difference between primitive typecasting and reference typecasting?
63	Java Fundamentals	Type Casting	What is upcasting and downcasting in Java?
64	Java Fundamentals	Type Casting	What is ClassCastException and when does it occur?
65	Java Fundamentals	Type Casting	Can we typecast between two unrelated classes? What will happen?
66	Java Fundamentals	Type Casting	What is the role of the instanceof operator in typecasting?
67	Java Fundamentals	Type Casting	Can you cast between wrapper classes ?
68	Java Fundamentals	Type Casting	What happens if you try to cast a null reference?
69	Collections	Collections	What is the Java Collections Framework?
70	Collections	Collections	What is the difference between Collection and Collections in Java?
71	Collections	Collections	What are the key interfaces in the Java collection Framework?
72	Collections	Collections	What is the difference between List, Set, and Map?
73	Collections	Collections	What are the characteristics of List?
74	Collections	Collections	What are the characteristics of List?
75	Collections	Collections	How does an ArrayList Works Internally
76	Collections	Collections	What are the difference between ArrayList and LinkedList?
77	Collections	Collections	What are the difference between Hashset and Tree set?
78	Collections	Collections	What are the differences between HashMap and HashTable ?
79	Collections	Collections	Why is HashSet not allowed to have duplicate values?
80	Collections	Collections	What is the initial capacity and load factor of hashmap?
81	Collections	Collections	What is the Fail-fast behaviour in collections
82	Collections	Collections	What are the differences between Iterator and List Iterator
83	Collections	Collections	What is the difference between Synchronized and Concurrent collections?
84	Java 8	Collections	What is Fail-safe condition in java

85	Collections	ArrayList,Arrays	What is an array in java?
86	Collections	ArrayList,Arrays	What are multi dimensional arrays?
87	Collections	ArrayList,Arrays	What is jagged array ?
88	Collections	ArrayList,Arrays	How do you access and assign an element at index i?
89	Collections	ArrayList,Arrays	What is a Sparse Array?
90	Collections	ArrayList,Arrays	What are the advantages and disadvantages of using arrays?
91	Collections	ArrayList,Arrays	Why is binary search possible only on sorted arrays
92	Collections	ArrayList,Arrays	What are default values for array elements by type?
93	Collections	ArrayList,Arrays	What is List interface in Java?
94	Collections	ArrayList,Arrays	Operations on list?
95	Collections	ArrayList,Arrays	What are the key features of the List interface in Java?
96	Collections	ArrayList,Arrays	How does ArrayList manage its internal storage?
97	Collections	ArrayList,Arrays	When should you pre-size an ArrayList, and why?
98	Collections	ArrayList,Arrays	When should you prefer LinkedList over ArrayList?
99	Collections	ArrayList,Arrays	How does ArrayList differ from an array in Java?
100	Collections	ArrayList	How to convert an ArrayList to an array and vice versa?
101	Collections	ArrayList	What is the default initial capacity of an ArrayList?
102	Collections	ArrayList	Can ArrayList store different data types?
103	Collections	ArrayList	How to add, retrieve, and remove elements from an ArrayList?
104	Collections	ArrayList	How to iterate over elements in an ArrayList?
105	Collections	ArrayList	Can we store null values in ArrayList?
106	Collections	ArrayList	Advantages and Disadvantages of using ArrayList
107	Collections	ArrayList	Does ArrayList allow to insert duplicate elements?
108	Collections	ArrayList	Is it possible to join two or more ArrayLists?
109	Collections	ArrayList	What is ensureCapacity() method used for?
110	Collections	ArrayList	Capacity vs size in ArrayList
111	Collections	ArrayList	How to remove duplicates from ArrayList?
112	Collections	Stack, Queue, DeQueue	What is a stack? Explain LIFO principle.
113	Collections	Stack, Queue, DeQueue	What is stack overflow and underflow?
114	Collections	Stack, Queue, DeQueue	What is a PriorityBlockingQueue and how is it different from PriorityQueue?

115	Collections	Stack, Queue, DeQueue	**What is a LinkedBlockingDeque and when would you use it?**
116	Collections	Stack, Queue, DeQueue	**What is the difference between circular queue and linear queue?**
117	Collections	Stack, Queue, DeQueue	**What is a deque? How is it different from a queue?**
118	Collections	Stack, Queue, DeQueue	**What are the different types of deques?**
119	Collections	Stack, Queue, DeQueue	**What is the difference between input-restricted and output-restricted deque?**
120	Data Structure	Stack, Queue, DeQueue	**Compare deque vs stack vs queue – when to use what?**
121	OOPS	Main Method()	**Can we declare the main() method as private or protected or with no access modifier?**
122	OOPS	Main Method()	**Can we declare the main() method as a non-static?**
123	OOPS	Main Method()	**Can we change the return type of the main() method?**
124	OOPS	Main Method()	**Can the main() method take an argument other than String array?**
125	OOPS	Main Method()	**Can we run define Java Class without the main() method?**
126	OOPS	Main Method()	**Why the main() method is public static?**
127	OOPS	Main Method()	**Can we make the main final in Java?**
128	Thread	Thread Synchronization Methods	**Two threads call wait() on the same object. A third thread calls notify(). What happens, and how does the JVM decide which waiting thread gets notified? Can you control this?**
129	Thread	Thread Management	**What happens if you call join()?**
130	Thread	Thread Management	**What happens if you call start() on the same thread twice?**
131	Thread	Thread Management	**What's the difference between run() and start() methods in a thread?**
132	Thread	Thread Management	**Can two threads call join() on each other? What would happen?**
133	Thread	Thread creatin	**How is using Runnable different from extending Thread in terms of object reuse and thread safety?**
134	Thread	Thread Priority	**What is the default priority of a thread in Java? How is it set?**
135	Thread	Thread Priority	**You set one thread's priority to 10 and another to 1. Will the thread with priority 10 always run first?**
136	Thread	Thread Priority	**You create 10 threads and assign different priorities. But in your tests, they execute in random order. Why might that happen?**
137	Thread	Thread synchronization	**You call notify() but have two threads waiting using wait(). Which one gets woken up? Can you control that?**
138	Thread	Thread synchronization	**What happens if a thread calls join() on itself?**

139	Thread	Thread state	You call Thread.sleep(1000). What is the state of the thread during that time?
140	Thread	Thread state	You call wait() on an object. What state does the thread enter? When does it leave?
141	Thread	Thread state	What happens to the thread state when an exception is thrown inside a thread?
142	Collections	Map	Why doesn't Map extend Collection?
143	Collections	ArrayList	What's the diference between ArrayList.subList() and creating a new list?
144	Collections	ArrayList	Can you remove elements from a List while iterating using for-each?
145	Java Fundamentals	Serialization	How do you make a Java class serializable
146	Collections	Collections	How does TreeMap maintain order?
147	Collections	Collections	What is the role of equals() and hashCode() in collections
148	Collections	Collections	How to implement a custom collection class?
149	Collections	Collections	What are the best practices for choosing the right collection?
150	Collections	Collections	How to sort a collection of custom objects?
151	Collections	Collections	What are Thread-safe collection classes
152	Collections	Collections	What makes Collections in Java capable of efficient manipulation (insertion, deletion, updating)?
153	Collections	Collections	Why are some collection classes thread-safe while others are not in Java
154	Collections	Collections	What are the differences between Arrays and Collections in terms of mutability and flexibility
155	Collections	Collections	How does improper use of collections lead to memory leaks
156	Collections	Collections	Can a HashMap have null keys or values
157	Collections	Collections	What is the default load factor of a HashMap
158	Collections	Collections	Explain how hash collisions are handled in a HashMap
159	Collections	Collections	What are the limitations of the Collections API when working with large datasets (in-memory)
160	Collections	Collections	Which Java Collections to use for building a highly concurrent caching system
161	Collections	Collections	What is Spliterator
162	Thread	Virtual Threads	What are virtual threads
163	Thread	Virtual Threads	How are virtual threads different from platform threads?
164	Thread	Virtual Threads	what are the different ways to create a virtual thread?
165	Thread	Virtual Threads	Can Virtual threads are used with existing blocking API's

166	Thread	Virtual Threads	How does the JVM manage scheduling of virtual threads?
167	Thread	Virtual Threads	What is a carrier thread
168	Thread	Virtual Threads	Can a virtual thread be reused like in a thread pool
169	Thread	Virtual Threads	Why are Virtual Threads managed by the JVM and not by the Operating System?
170	Thread	Virtual Threads	How do virtual threads handle blocking operations like I/O or Thread.sleep()
171	Thread	Virtual Threads	How do virtual threads interact with synchronized blocks and thread-local variables? What impact can this have on application performance?
172	Thread	Concurrency Utilities	What is Executor Service
173	Thread	Concurrency Utilities	What is the difference between Executor and ExecutorService?
174	Thread	Concurrency Utilities	What is ScheduledExecutorService?
175	Thread	Concurrency Utilities	What is CountDownLatch?
176	Exceptions	Exception Handling	What are checked and unchecked exceptions?
177	Exceptions	Exception Handling	How does the try-catch-finally block work?
178	Exceptions	Exception Handling	What is finally block and when is it executed?
179	Exceptions	Exception Handling	what is exception chaining
180	Exceptions	Exception Handling	Can finally block override the return value from try/catch?
181	Exceptions	Exception Handling	Can we have a try block without a catch?
182	Exceptions	Exception Handling	What happens when exceptions are thrown in both try and finally?
183	Exceptions	Exception Handling	What is the difference between final, finally, and finalize()?
184	Exceptions	Exception Handling	What is try-with-resources?
185	Exceptions	Exception Handling	Can we rethrow an exception?
186	Exceptions	Exception Handling	What happens if you return from both try and finally blocks? Which value is returned?
187	Exceptions	Exception Handling	When System.exit(0) is called inside a try block. Will the finally block execute?
188	Exceptions	Exception Handling	Can parent and child exceptions be caught in the same method?
189	Exceptions	Exception Handling	Stack Unwinding vs Exception propagation
190	Exceptions	Exception Handling	How Does JVM Handle an Exception?
191	Exceptions	Exception Handling	What is an unreachable catch block error?
192	Exceptions	Exception Handling	What is the order of execution of try-catch-finally blocks?
193	Exceptions	Exception Handling	What is Exception Swallowing
194	Exceptions	Exception Handling	Can exceptions be used for control flow?

195	Java 8	Streams API	What is the Java Stream API
196	Java 8	Streams API	How is a stream different from a collection?
197	Java 8	Streams API	What is the difference between intermediate and terminal operations?
198	Java 8	Streams API	what are the different ways to create a Stream in Java?
199	Java 8	Streams API	What is the difference between sequential and parallel streams?
200	Java 8	Streams API	Are Java Streams Thread-Safe?
201	Java 8	Streams API	What Are Short-Circuiting Operations
202	Java 8	Streams API	What is the Role of Optional in Stream Operations?
203	Java 8	Streams API	What is the performance impact of using Streams vs for-loops?
204	Java 8	Streams API	Where in JVM memory (heap or stack) are Stream objects stored?
205	Java 8	Streams API	What happens in memory if a stream pipeline is created but not consumed?
206	Java 8	Streams API	In what scenarios can Java Streams cause an OutOfMemoryError?
207	Java Fundamentals	Strings	What is a String in Java?
208	Java Fundamentals	Strings	What is the difference between == and .equals() in Strings?
209	Java Fundamentals	Strings	Why Strings are immutable? How does interning work?
210	Java Fundamentals	Strings	What is String Constant Pool?
211	Java Fundamentals	Strings	what is the internal memory representation of a String in Java 8 vs Java 9+.
212	Java Fundamentals	Strings	What are the performance implications of using String concatenation with '+' in a loop?
213	Java Fundamentals	Strings	How does JVM optimize string concatenation using '+'
214	Java Fundamentals	Strings	What is String Deduplication
215	Java Fundamentals	Strings	How to Enable String Deduplication
216	Java Fundamentals	Strings	String Deduplication vs intern()
217	Java Fundamentals	Strings	What is the impact of using + or concat() on a String
218	Java Fundamentals	Strings	What's the difference between String, StringBuilder, and StringBuffer?
219	Java Fundamentals	Strings	What is String.valueOf() vs toString()?
220	Java Fundamentals	Strings	What is substring() memory leak issue in Java 6, and how was it resolved in Java 7+?
221	Java Fundamentals	Strings	Is a String passed by reference or value in Java?
222	Java Fundamentals	Strings	Why Should Strings Be Used Cautiously in Large-Scale Concatenations?
223	Java Fundamentals	Strings	How Does StringBuilder Improve Performance Over String in Loops
224	Java Fundamentals	Strings	What is the difference Between String and char[]

225	Java Fundamentals	Strings	How does Java 9 improve memory efficiency for Strings compared to Java 8
226	Java Fundamentals	Strings	Which one is thread-safe – StringBuilder or StringBuffer?
227	Java Fundamentals	Strings	What happens when the internal buffer of a StringBuilder overflows?
228	Java Fundamentals	Strings	How does append() work in StringBuilder vs StringBuffer?
229	Java Fundamentals	Strings	What Is the Time Complexity of Appending Characters in StringBuilder
230	Java Fundamentals	Strings	When to Prefer StringBuffer Over StringBuilder?
231	Java Fundamentals	Strings	Can StringBuilder Throw OutOfMemoryError?
232	Java Fundamentals	Strings	How does StringBuilder.delete() and insert() affect the buffer?
233	Java Fundamentals	Strings	What kind of copy is made when a StringBuilder is converted to a String—deep or shallow?
234	Java Fundamentals	File Handling	How do you create a new file?
235	Java Fundamentals	File Handling	How do you check if a file exists?
236	Java Fundamentals	File Handling	Difference between byte streams and character streams?
237	Java Fundamentals	File Handling	How to read a file line by line?
238	Java Fundamentals	File Handling	How to read all lines at once?
239	Java Fundamentals	File Handling	How to write to a file?
240	Java Fundamentals	File Handling	How to append to a file?
241	Java Fundamentals	File Handling	Which exceptions occur in file handling?
242	Java Fundamentals	File Handling	What is the difference between java.io and java.nio.file?
243	Java Fundamentals	File Handling	How to copy, move, delete files (Java 7+)?
244	Java Fundamentals	File Handling	What is Path vs File?
245	Java Fundamentals	File Handling	What is a memory-mapped file?
246	Java Fundamentals	File Handling	What happens when you unbox a null file length?
247	Java Fundamentals	File Handling	What happens if two threads/programs write to the same file
248	Java Fundamentals	File Handling	How to delete a directory with contents?
249	Java 8	File Handling	How does Java 8 improve file handling?
250	Java 8	File Handling	What is the difference between Files.walk() and Files.list()?
251	Java 8	File Handling	What are the benefits of using streams (Files.lines, Files.walk) compared to traditional I/O?
252	Java 8	File Handling	Can you read a file as a stream of objects

253	Java 8	File Handling	What are common exceptions to handle when working with file APIs
254	Java 8	File Handling	How does Java 8 improve working with large files compared to older versions?
255	Java 9	File Handling	What file handling improvements were introduced in Java 9?
256	Java 11	File Handling	What new file handling methods were added in Java 11
257	OOPs	Main()	Can a main() be final?
258	OOPs	Main()	Can a main() be synchronized?
259	OOPs	Main()	Can a main() take no arguments?
260	OOPs	Main()	Can a main() take null value
261	OOPs	Main()	Can we use reflection and invoke a main method?
262	OOPs	Main()	Can we call a main() from anther non-static method?
263	OOPs	Main()	Can main() throw exception?
264	OOPs	Main()	Can an abstract class have a main()
265	OOPs	Main()	Can an enum or interface have main()
266	OOPs	Main()	Can you have void static main? instead of static void main()
267	OOPs	Class	Can non-static methods be generic
268	OOPs	Interface	Can an interface extend another interface
269	OOPs	Interface	Can an interface implements another interface
270	OOPs	Interface	Can an interface extends another class
271	OOPs	Interface	Can an interface extends abstract class
272	OOPs	Interface	What is interface?
273	OOPs	Interface	what is marker interface?
274	OOPs	Interface	What is functional interface?
275	OOPs	Interface	What is nested interface?
276	OOPs	Interface	Can we have variables inside interface?
277	OOPs	Interface	Comparator interface vs comparable interface?
278	OOPs	Inheritance	can we have concrete methods in abstract?
279	OOPs	Inheritance	can we have non-static members in abstract class?
280	OOPs	Inheritance	Can abstract class have only and all concrete methods?
281	OOPs	Inheritance	Can abstract class implement interface?
282	OOPs	Inheritance	Can abstract class implement interface and not implement it's methods?

283	OOPs	Inheritance	Can we mark abstract class as final?
284	OOPs	Inheritance	Can we mark abstract class as static?
285	OOPs	Inheritance	Can we mark abstract class as private?
286	OOPs	Class	when to avoid using this keyword?
287	OOPs	Class	why does java require a public class as a entry point
288	OOPs	Class	what are command line aruguments
289	OOPs	Polymorphism	Can you overload a method based on return type only
290	OOPs	Polymorphism	How java decides which method to call incase of overriding
291	Collections	ArrayList	Difference between array and arraylist?
292	Thread	Thread	What is a thread?
293	Java Fundamentals	Naming Standards	Class, Interface, method, variable, constant, enums, package, project, groupId, artifactId
294	Java Fundamentals	Java Runtime Environment	Types of class loaders?
295	Java Fundamentals	Java Runtime Environment	Class loading process
296	Java Fundamentals	Classpath	What is classpath?
297	Java Fundamentals	Classpath	Different ways to set the classpath?
298	Java Fundamentals	Classpath	How do you set a classpath in windows machine?
299	Java Fundamentals	Classpath	How do you set a classpath in linux machine?
300	Java Fundamentals	Java Runtime Environment	How do you set/configure a classpath in eclipse?
301	Java Fundamentals	Java Runtime Environment	which class loader loads classes from maven dependency?
302	Java Fundamentals	Class Loaders	Which class loader throws classNotFoundException? As it is delegating, always system class loader?
303	Java Fundamentals	Class Loaders	Difference between classNotFoundException and NoClassDefFoundException
304	OOPs	Constructor	Can constructor be final?
305	OOPs	Constructor	Can constructor have return type?
306	OOPs	Constructor	Can constructor be private?
307	OOPs	Constructor	Can constructor be abstract?
308	OOPs	Synchronization	Can constructor be synchronized?
309	OOPs	Synchronization	How synchronization happens on regular method?
310	OOPs	Synchronization	How synchronization happens on static method?

311	OOPs	Synchronization	How synchronization happens on block of code?
312	OOPs	Constructor	Can constructor be volatile?
313	OOPs	Volatile	How volatile variables are cached in cpu cached L1 and L2
314	OOPs	Constructor	Can constructor have any name?
315	OOPs	Constructor	Types of constructors?
316	OOPs	Constructor	Can constructor be overloaded?
317	OOPs	Constructor	Can constructor be overridden?
318	OOPs	Constructor	No constructor vs default constructor
319	OOPs	Constructor	Can a constructor have throws key word?
320	OOPs	Constructor	Can constructor raise an exception?
321	OOPs	Constructor	what happens if a constructor runs into exception?
322	OOPs	Constructor	new keyword vs newInstance() difference
323	OOPs	Constructor	new Integer() vs Integer.valueOf()
324	OOPs	Constructor	IntegerCache
325	OOPs	Constructor	Object creation using new keyword
326	OOPs	Constructor	Object creation using reflection
327	OOPs	Constructor	Object creation using clone
328	OOPs	Constructor	Object creation using deserialization
329	OOPs	Constructor	Object creation using factory methods
330	Data types	Type casting	Why Java silently overflows and does not raise an exception?
331	Data types	Type casting	Does long just like Integer also has long overflow?
332	Data types	Type casting	Does overflow cause errors in calculations?
333	Data types	Type casting	Best practices to avoid overflow errors?
334	Control Flow Statements	Switch case	When will default case executed?
335	Control Flow Statements	Switch case	When will you use if-elseif and switch?
336	OOPs	Class	what is a class?
337	OOPs	Class	Types of class?
338	OOPs	Class	What is an Object class?
339	OOPs	Class	What is the root object in the class hierarchy

340	OOPs	Class	Inner class? Hidden class? Nested class? Anonymous class?, outer class?
341	OOPs	Class	Can class name and file name be different?
342	OOPs	Class	Can class be private?, default? protected?
343	OOPs	Class	Can file have multiple classes? yes, but only one public class
344	OOPs	Non-Access Modifier	Can class be final?
345	OOPs	Non-Access Modifier	Can class be static?
346	OOPs	Inheritance	What is an abstract class?
347	OOPs	Inheritance	Can abstract class be instantiated?
348	OOPs	Class	Can we have a static class?
349	OOPs	Class	What is an instance block?
350	OOPs	Class	Can we have multiple instance blocks? if what order they are executed?
351	Memory	Memory	Where does the static method get memory allocated? in memory
352	Thread	Thread	Static method thread safe by default?
353	OOPs	Non-Access Modifier	How do you make a static method synchronized?
354	Memory	Memory	Can static method create memory leaks?
355	OOPs	Class	Can we have a method in child class with same name of parent class static method?
356	OOPs	Class	Can we achieve polymorphism using static methods?
357	OOPs	Class	Can a non-static methods be final, private, synchronized, volatile?
358	OOPs	Class	Can we call a non-static method from a static method?
359	OOPs	Class	can we call a static method from non-static method?
360	OOPs	Class	Can we override a non-static method?
361	OOPs	Inheritance	What is hybrid inheritance?
362	OOPs	Inheritance	What is single level inheritance?
363	OOPs	Inheritance	What is Multiple level inheritance?
364	OOPs	Inheritance	Can a subclass access private methods of superclass
365	OOPs	Inheritance	A a = new A()
366	OOPs	Inheritance	A a = new B()
367	OOPs	Inheritance	What is reference type and instance name?
368	OOPs	Inheritance	When to go for extends and when to go for implements?
369	OOPs	Inheritance	When do you use abstract class and when do you use interface?

370	OOPs	Inheritance	Can a subclass access private members of superclass
371	OOPs	Class	Can we access private members using super keyword
372	OOPs	Class	this vs super
373	OOPs	Constructor	Can we call super after first line in a constructor?
374	Java Fundamentals	OOPs	Can we pass super as an method argument
375	Java Fundamentals	OOPs	can we pass this as an method argument
376	Java Fundamentals	OOPs	Can we access parent's parent member using super keyword?
377	OOPs	Class	What does this means in the constructor?
378	OOPs	Class	can we use this and super keywords in the same constructor?
379	OOPs	Class	how this is used in method overloading
380	OOPs	Class	how super is used in method overriding
381	Exceptions	Exception Handling	What should be the order of catch blocks
382	Exceptions	Exception Handling	Can we handle multiple exceptions using single catch block
383	Exceptions	Exception Handling	when do you go for single catch block verses separate catch blocks
384	Exceptions	Exception Handling	Can you raise multiple exceptions using single throw
385	Exceptions	Exception Handling	Can you propagate multiple exceptions using single throws
386	Exceptions	Exception Handling	Difference between error and exception
387	Memory	Memory	What are the variours Garbage collectors available in java?
388	Memory	Memory	what error you get if stack runs out of memory?
389	Memory	Memory	what error you get if heap runs of of memory?
390	Java 8	Streams API	what is the difference between map() and flatmap()?
391	Java 8	Streams API	How do you filter elements using streams
392	Java 8	Streams API	How do you limit the results in the streams?
393	Java 8	Streams API	what does foreach do in stream?
394	Java 8	Streams API	how foreach in the stream is different from foreach loop?
395	Java 8	Streams API	Can stream be reused?
396	Java 8	Streams API	what is the purpose of limit() and skip() methods?
397	Java 8	Streams API	How do you collect the elements while processing streams?
398	Java 8	Streams API	how would you sort a list of objects using streams?
399	Java 8	Streams API	Difference between findFirst() and findAny()

400	Java 8	Streams API	explain the use of reduce() in stream
401	Java 8	Streams API	What is lazy evaluation in the context of streams?
402	Java 8	Streams API	difference between peek() and map() and skip()
403	Java 8	Streams API	What happens if a stream operation throws an exceptions?
404	Java 8	Streams API	How would you remove duplicates using streams?
405	Java 8	Streams API	How would you groupby the elements in streams?
406	Java 8	Streams API	How to write a custom collectors in the streams?
407	Java 8	Streams API	
408	Java 8	Streams API	Does stream.sorted() sort original stream? why or why not?
409	Java 8	Streams API	Are stream results(collect(collectors.asList()) unmodifiable list?
410	Java 8	Streams API	How do you collect unique or distinct elements from streams? or remove duplicates?
411	Java 8	Streams API	Does the order of the methods make a difference in the stream process?
412	Memory	Memory	Tell me an example of memory leak in java?
413	Memory	Memory	Difference between weakReference and SoftRefernce and strongReference and phantom reference
414	Data types	Default	what is the default value of an object in the context of (local scope, instance scope, static scope)
415	Memory	Memory	what error you get if metaspace runs out of memory?
416	Memory	Memory	Why is finalization discouraged in moden java?
417	Memory	Memory	How does object promotion work in GC?
418	FileSystem	FileSystem	How do you read a file in Java?
419	FileSystem	FileSystem	What is java NIO?
420	FileSystem	FileSystem	How is java NIO different from traditional IO?
421	FileSystem	FileSystem	What is the difference between absolute and relative path?
422	FileSystem	FileSystem	What happens if you try to open a file that does not exist?
423	Generics	generics	What are generics in java? why are they used?
424	Generics	generics	How do generics provide type safety?
425	Generics	generics	what is type erasure in java generics?
426	Generics	generics	difference between "? extends" and "? super"
427	Generics	generics	What are bounded type parameters and how do you use multiple bounds?

428	Generics	generics	Why can't you use primitive types like int or double in generics?
429	Java 8	Functional Interface	How many abstract methods can we have in Functional Interface?
430	Java 8	Functional Interface	Can we have multiple default and static methods?
431	Java 8	Functional Interface	is @FunctionalInterface annotation mandatory?
432	Java 8	Functional Interface	What is a functional interface in java8?
433	Java 8	Functional Interface	What is the purpose of functional interface annotation?
434	Java 8	Functional Interface	What are the built-in functional interfaces ?
435	Java 8	Functional Interface	How is a Predicate<T> different from Function<T,R>
436	Java 8	Functional Interface	When could you use Consumer vs Function?
437	Java 8	Functional Interface	What is the difference between Supplier<T> and Function<Void, T>
438	Java 8	Functional Interface	What is the difference between UnaryOperator<T> and Function<T,T>
439	Java 8	Functional Interface	What is BooleanSupplier<T> different from Supplier<Boolean>
440	Java 8	Functional Interface	Can you implement a function interface using anonymous class instead of lambda?
441	Java 8	Functional Interface	Can functional interface extend another interface?
442	Java 8	Functional Interface	Can functional interface extend another functional interface?
443	Java 8	Functional Interface	What happens if you define 2 abstract() in functional interface?
444	Java 8	Functional Interface	Can functional interface be generic?
445	Java 8	Functional Interface	What is the relationship b/w lambdas and functional interface?
446	Java 8	Functional Interface	Can functional interface throw checked exceptions? how do you handle them
447	Java 8	Functional Interface	How do you create a functional interface that takes 3 arguments?
448	Java 8	Functional Interface	Can runnable be used as a functional interface?
449	Java 8	Functional Interface	Is Comparator<T> a functional interface? why?
450	Java 8	Functional Interface	Is Serializable a funcational interface?
451	Java 8	Functional Interface	Does compiler enforce the functional interface rules if you omit the @functionalInterface annotation
452	Java 8	Functional Interface	What is SAM (Single abstract method) conversion?
453	Java 8	Functional Interface	What is a TriFunction<T, U, V, R>?
454	Java 8	Functional Interface	Can you have an interface insider class or method?
455	Java 8	Functional Interface	can you have an functional interface inside class or method?
456	Java 8	Streams API	what is statefull and stateless operation in intermediate operations?

457	Control Flow Statements	Switch case	Can a switch statement work with char?
458	Data types	char	System.out.println('a' + 1)?
459	Data types	char	Difference between char and Character?
460	Data types	char	How to compare two char values
461	Data types	char	char a = 'A', b = 'B'; a+b =?
462	Data types	char	Can you convert char to int and int to char? how
463	Data types	char	A' + 5 = ?
464	Data types	char	A' + 5 + "" = ?
465	Data types	char	"" + 'A' + 5 = ?
466	Data types	char	A' + "" + 5 = ?
467	Data types	char	Start with string everything is treated as string.
468	Data types	char	A' + double
469	Data types	char	A' + boolean
470	Control Flow Statements	Switch case	What datatypes are allowed prior to java 7 and after java 7?
471	Control Flow Statements	Switch case	Is boolean allowed in switch?
472	Control Flow Statements	Switch case	why long, float, double not allowed in java switch?
473	Collections	Collections	What is the 'Big O' notation?
474	Collections	Collections	Big O notation for insertion, deletion and random access in each of the collection
475	Collections	Collections	Order is guaranteed for what all collections?
476	Collections	Collections	What is Red-Black tree implementation?
477	Collections	Collections	What is the underlying data structure of an array?
478	Collections	Collections	What is the time complexity if an array?
479	Collections	Collections	what is the underlying data structure of an arraylist?
480	Collections	Collections	What is the time complexity if an arraylist? get(), add(), remove(), contains()
481	Collections	Collections	Dynamic arraylist >>> elementData = Arrays.copyOf(elementData, newCapacity);
482	Collections	Collections	Limitations of arraylist? primitives, not threadsafe, add or remove at arbitrary position
483	Memory	Memory	What is the role of the JVM in memory management?
484	Memory	Memory	What are the different memory areas allocated by the JVM?
485	Memory	Memory	What is the difference between heap and stack memory?

486	Memory	Memory	What is the difference between instance variables and local variables (in terms of memory)?
487	Memory	Memory	What is the default value of an object reference in Java?
488	Memory	Memory	What is Garbage Collection in Java?
489	Memory	Memory	How does Java handle memory leaks if it has automatic garbage collection?
490	Memory	Memory	What is PermGen and how is it different from Metaspace?
491	Memory	Memory	What is OutOfMemoryError? What causes it, and how do you troubleshoot it?
492	Memory	Memory	What are the JVM options you can use to tune memory?
493	Memory	Memory	Can objects be collected if they are referenced in a static field? Why or why not?
494	Thread	Thread	What is the lifecycle of a thread?
495	Thread	Thread	what are the different ways for creating the threads?
496	Thread	Thread	What is the most effective way for creating a thread?
497	Thread	Thread	What is a Thread Pool?
498	Thread	Thread	What are the methods associated with the thread lifecycle?
499	Thread	Thread	What are the differences between the synchronized and volatile keywords?
500	Memory	Garbage Collection	What is garbage collection, and what does its internal process involve?
501	OOPs	Inheritance	What is dynamic method dispatch?
502	Java Fundamentals	Control Flow Statements	what are the control flow statements in java?
503	Java Fundamentals	Control Flow Statements	Explain the differneces between the if,else if and else statements?
504	Java Fundamentals	Control Flow Statements	How does the 'switch' statement work in java?
505	Java Fundamentals	Control Flow Statements	What is the purpose of 'break' and 'continue' statements?
506	Java Fundamentals	Control Flow Statements	Explain the concept of 'Fall Through' in 'switch' statements?
507	Java Fundamentals	Control Flow Statements	What is the Significance of the 'default' case in 'switch' statement?
508	Java Fundamentals	Control Flow Statements	What will happen if we forgot to add 'break' statement at the 'switch' case?
509	Java Fundamentals	Control Flow Statements	What are the difference between the 'break' and 'return' statements?
510	Java Fundamentals	Control Flow Statements	When we will use 'Switch' statement and other statements?
511	Java 8	Optional	Should Optional<T> be used as a field in a Java class? Why or why not?
512	Java 8	Optional	What is the difference between orElse() and orElseGet()?
513	Java 8	Optional	What happens if you call get() on an empty Optional?
514	Java 8	Optional	What are the different ways to create an Optional in Java?

515	Java 8	Optional	What is the difference between Optional.empty() and null?
516	Java 8	Optional	How would you convert a Stream<Optional<T>> into Stream<T>?
517	Java 8	Optional	Can Optional be serialized?
518	Java 8	Optional	What is the difference between ifPresent() and ifPresentOrElse()?
519	Java 8	Optional	What happens if you pass a null to Optional.of()?
520	Java 8	Optional	Can Optional be used with primitive types? What is the alternative?
521	OOPs	Class	Can a class have static block?
522	OOPs	Class	can we have 2 static blocks?
523	OOPs	Class	Is static keyword mandatory on a static block?
524	OOPs	Main()	Can we have multiple main()?
525	OOPs	Main()	Can we have a private main()
526	OOPs	Main()	Why main() is always public, static and void?
527	OOPs	Main()	Can a main() return a value?
528	OOPs	Main()	Can a main() be overriden?
529	OOPs	Main()	Can a main() be overloaded
530	OOPs	Main()	Can a main() take any arguments?
531	OOPs	Main()	Can a main() take args[] and extra arguments?
532	OOPs	Main()	Can a main() be non-static?
533	OOPs	Class	Can we overload a non-static method?
534	OOPs	Class	Can we have a non-static methods in abstract class and interface?
535	OOPs	Class	Can a non-static method be called without object creation
536	OOPs	Class	Can we override final non-static method?
537	OOPs	Class	Where and when does the non-static method get memory allocated?
538	OOPs	Class	What is covarient return type?
539	OOPs	Class	what is method hiding?
540	OOPs	Class	Can a non-static method use static variables?
541	OOPs	Class	Can a static method use non-static variables?
542	OOPs	Class	Can a non-static methods change the state of an object?
543	OOPs	Class	Can a static methods change the state of an object?
544	OOPs	Inheritance	Can a subclass access abstract methods of superclass

545	OOPs	Inheritance	Can a class inherit from another final class, methods?
546	OOPs	Inheritance	IS-A, Has-A, Composition(Use-A),
547	OOPs	Inheritance	How does the JVM resolve which method to invoke in inheritence chain?
548	OOPs	Inheritance	Compile time and run time resolving the inheritence ?
549	OOPs	Interface	What is runnable interface?
550	OOPs	Interface	what is clonable interface?
551	OOPs	Interface	what is serialization interface?
552	OOPs	Interface	what is callable interface?
553	OOPs	Interface	difference between callable and runnable?
554	Generics	generics	How do generics improve type safety?
555	Generics	generics	Why is this invalid: new T() in a generic class?
556	Generics	generics	What is the difference between List<?> and List<Object>?
557	Generics	generics	What is <? extends T> used for?
558	Generics	generics	Can you overload a generic method by changing the type parameter?
559	Generics	generics	What's the default type of a raw generic?
560	Generics	generics	Can static methods use class-level generic types?
561	Generics	generics	Difference between List<Object> and List<?> when passing to a method?
562	Generics	generics	Can you use instanceof with generics?
563	Generics	generics	Can a generic class implement a generic interface?
564	Generics	generics	Can you pass List<String> to a method expecting List<Object>?
565	Generics	generics	How to pass a generic vararg method safely?
566	Generics	generics	What is a generic constructor?
567	Generics	generics	Can generics be used with exceptions?
568	Generics	generics	What is covariance and contravariance in Java generics?
569	Generics	generics	Why are Java generics invariant?
570	Generics	generics	Why can't you create a generic array in Java?
571	Generics	generics	What is a generic signature in the JVM bytecode?
572	Generics	generics	What are the limitations of generics in Java?
573	Generics	generics	Can you use generic types with reflection?
574	Generics	generics	What is type inference in generics?

575	Generics	generics	What are recursive type bounds?
576	Generics	generics	Difference between E, T, K, V, and actual class names as generics?
577	Generics	generics	How to write a method that works for multiple type parameters using generics?
578	Generics	generics	What is a bridge method in generics?
579	Generics	generics	Why can't generic types be used in switch statements or enums?
580	Generics	generics	Can you use wildcards in generic class declarations?
581	Generics	generics	Explain PECS in detail
582	Generics	generics	What is heap pollution in generics?
583	Generics	generics	How to prevent heap pollution in generic varargs?
584	Generics	generics	What are the risks of unchecked casts in generics?
585	Generics	generics	What is GenericArrayType in Java reflection?
586	Generics	generics	Can you create a Singleton class with generics?
587	Generics	generics	How does the Java compiler ensure backward compatibility with generics?
588	Generics	generics	What real problems are solved by Java Generics?
589	FileSystem	FileSystem	What are the key classes in java.io package?
590	FileSystem	FileSystem	What is the difference between byte streams and character streams?
591	FileSystem	FileSystem	Explain InputStream vs Reader and OutputStream vs Writer.
592	FileSystem	FileSystem	What is the purpose of BufferedReader and BufferedWriter?
593	FileSystem	FileSystem	How do you read a file line-by-line in Java?
594	FileSystem	FileSystem	How do you write to a file using FileWriter?
595	FileSystem	FileSystem	What are the benefits of using buffered streams?
596	FileSystem	FileSystem	What is the difference between File and FileInputStream?
597	FileSystem	FileSystem	What is FileOutputStream used for?
598	FileSystem	FileSystem	How can you copy a file using Java I/O?
599	FileSystem	FileSystem	What is DataInputStream and DataOutputStream?
600	FileSystem	FileSystem	What is the purpose of ObjectInputStream and ObjectOutputStream?
601	FileSystem	FileSystem	Can you read/write a serialized object to/from a file?
602	FileSystem	FileSystem	What is the transient keyword, and how does it work with serialization?
603	FileSystem	FileSystem	Explain the difference between FileReader and BufferedReader.

604	FileSystem	FileSystem	What are some common exceptions in Java I/O?
605	FileSystem	FileSystem	What does IOException represent?
606	FileSystem	FileSystem	What are best practices for closing I/O streams?
607	FileSystem	FileSystem	What is try-with-resources? Give an example.
608	FileSystem	FileSystem	How can you list files and directories using the File class?
609	FileSystem	FileSystem	How do you check if a file exists or create a new one?
610	FileSystem	FileSystem	How do you get the size of a file in Java?
611	FileSystem	FileSystem	Can you change file permissions in Java?
612	FileSystem	FileSystem	How can you delete files in Java I/O?
613	FileSystem	FileSystem	What is Java NIO and how is it different from I/O?
614	FileSystem	FileSystem	Explain the key packages in NIO (like java.nio.file, java.nio.channels).
615	FileSystem	FileSystem	What is a Buffer in NIO? How is it different from a stream?
616	FileSystem	FileSystem	What are the types of buffers in NIO (ByteBuffer, CharBuffer, etc.)?
617	FileSystem	FileSystem	How does ByteBuffer work?
618	FileSystem	FileSystem	What is a Channel in NIO and how does it differ from streams?
619	FileSystem	FileSystem	How do you read/write data using FileChannel?
620	FileSystem	FileSystem	What are Selectors in NIO?
621	FileSystem	FileSystem	What is non-blocking I/O and how does it work in NIO?
622	FileSystem	FileSystem	How do you copy files using Files.copy() (NIO)?
623	FileSystem	FileSystem	How does MappedByteBuffer work? Where is it used?
624	FileSystem	FileSystem	What is memory-mapped file I/O in NIO?
625	FileSystem	FileSystem	What is Path in NIO? How is it different from File?
626	FileSystem	FileSystem	What is the Files.walk() method used for?
627	FileSystem	FileSystem	How does asynchronous file channel work (AsynchronousFileChannel)?
628	FileSystem	FileSystem	Explain the role of WatchService API in Java NIO.
629	FileSystem	FileSystem	How can you watch a directory for changes using NIO?
630	FileSystem	FileSystem	Explain zero-copy in the context of Java NIO.
631	FileSystem	FileSystem	Can you use NIO with TCP/UDP sockets? How?
632	FileSystem	FileSystem	What is the difference between blocking and non-blocking IO in Java?
633	FileSystem	FileSystem	How would you build a scalable network server with NIO?

634	FileSystem	FileSystem	What is scatter/gather in NIO?
635	FileSystem	FileSystem	What are DirectByteBuffer and HeapByteBuffer?
636	FileSystem	FileSystem	How do you handle large file processing efficiently using NIO?
637	FileSystem	FileSystem	When Would You Choose NIO Over Traditional IO in a Production Application? or Best use cases for NIO?
638	Memory	Garbage Collection	What are the different GC roots?
639	Memory	Garbage Collection	How does Java identify unused objects for garbage collection?
640	Memory	Garbage Collection	What are the core algorithms used for garbage collectors in Java?
641	Memory	Garbage Collection	What is Stop-the-World (STW) event in GC?
642	Memory	Garbage Collection	Explain the mark-and-sweep algorithm.
643	Memory	Garbage Collection	What is a "minor GC" and a "major GC"?
644	Memory	Garbage Collection	What is a full GC and when does it occur?
645	Memory	Garbage Collection	What is the difference between Serial GC and Parallel GC?
646	Memory	Garbage Collection	How does the G1 (Garbage First) collector work?
647	Memory	Garbage Collection	What is ZGC (Z Garbage Collector) and when would you use it?
648	Memory	Garbage Collection	What is Shenandoah GC? How is it different from ZGC?
649	Memory	Garbage Collection	What GC options are available from Java 8 to Java 21?
650	Memory	Garbage Collection	How do you tune heap memory in a production JVM?
651	Memory	Garbage Collection	What is GC overhead limit exceeded error? How do you fix it?
652	Memory	Garbage Collection	What is the effect of using -XX:+UseG1GC or -XX:+UseZGC?
653	Memory	Garbage Collection	How does escape analysis help optimize memory allocation?
654	Memory	Garbage Collection	What are TLABs (Thread Local Allocation Buffers)?
655	Memory	Garbage Collection	What does it mean when objects are tenured?
656	Memory	Garbage Collection	How do ReferenceQueues and Cleaner APIs work?
657	Memory	Memory	How would you analyze a heap dump in Java?
658	Memory	Memory	What is VisualVM and how do you use it to detect memory issues?
659	Memory	Memory	What's the jconsole? How we can lunch it?
660	Memory	Memory	How would you monitor GC activity in a live system?
661	Memory	Memory	What is MAT (Memory Analyzer Tool) and how is it used?
662	Java 9	Enhancements	What is JPMS (Java Platform Module System)?

663	Java 9	Enhancements	How do you create a module in Java 9?
664	Java 9	Enhancements	What is JShell and what are its benefits?
665	Java 9	Enhancements	What are the new methods added to the Stream API in Java 9?
666	Java 9	Enhancements	How are private methods in interfaces helpful?
667	Java 9	Enhancements	What are Compact Strings?
668	Java 9	Enhancements	What is the Process API update in Java 9?
669	Java 9	Enhancements	What is the HTTP/2 Client and how is it better than HttpURLConnection?
670	Java 9	Enhancements	What is the enhancement to try-with-resources in Java 9?
671	Java 9	Enhancements	What are Multi-Release JARs?
672	Java 11	Enhancements	What new methods were added to the String class in Java 11?
673	Java 11	Enhancements	What is the var enhancement in lambda parameters?
674	Java 11	Enhancements	What is the HttpClient in Java 11 and how does it differ from Java 9's incubator version?
675	Java 11	Enhancements	What is the significance of the Files.readString() and writeString() methods?
676	Java 11	Enhancements	How do you run a Java file without compiling it using java command in Java 11?
677	Java 11	Enhancements	What is the Predicate.not() method?
678	Java 16	Enhancements	What are the finalized features in Java 16 (Records, instanceof, etc.)?
679	Java 17	Enhancements	What are sealed classes and how are they finalized in Java 17?
680	Java 17	Enhancements	What is context-specific deserialization filter?
681	Java 17	Enhancements	How does Java 17 improve performance with new compiler optimizations?
682	Java 17	Enhancements	What are the finalized features in Java 17?
683	Java 17	Enhancements	What are the deprecated and removed APIs in Java 17?
684	Java 18	Enhancements	What is the Simple Web Server feature?
685	Java 18	Enhancements	What is UTF-8 as the default charset in Java 18?
686	Java 18	Enhancements	What is code snippet API for Javadoc?
687	Java 21	Enhancements	What features are finalized in Java 21 (e.g., Virtual Threads)?
688	Java 21	Enhancements	How does Java 21 support pattern matching for switch (finalized)?
689	Java 21	Enhancements	What is sequenced collections?
690	Java 21	Enhancements	How are string templates introduced and used in Java 21?
691	Java 21	Enhancements	What is Key Encapsulation Mechanism (KEM) in Java 21?
692	Java 8	Date and Time API	How is LocalDateTime differ from java.util.Date

693	Java 8	Date and Time API	What is the output of LocalDateTime.now()?
694	Java 8	Date and Time API	Is LocalDateTime immutable? Why is that useful?
695	Java 8	Date and Time API	What is the difference between LocalDate,LocalTime,LocalDateTime, ZonedDateTime?
696	Java 8	Date and Time API	Why is LocalDateTime not suitable for use in a global application?
697	Java 8	Date and Time API	What is the difference between hh and HH, mm and MM in DateTimeFormatter?
698	Java 8	Date and Time API	What is DateTimeFormatter in Java?
699	Java 8	Date and Time API	How do you display time in AM/PM format using LocalDateTime?
700	Java 8	Date and Time API	Can you change time zone using DateTimeFormatter when formatting LocalDateTime?
701	Java 8	Date and Time API	What is ChronoField used for in Java?
702	Java 8	Date and Time API	What is difference between MMM, MMMM, MM ?
703	Java 8	Date and Time API	What is epoch?
704	Java 8	Date and Time API	Can we override Epoch?
705	Java 8	Date and Time API	What method should I use when converting my string to date?
706	Java 8	Date and Time API	What method should I use when converting my date to string
707	Java 8	Date and Time API	What are the different types of Exceptions we have in Date Time API
708	Java 8	Date and Time API	What exception will we get when my string pattern is different from our DatetimeFormatter pattern?
709	Java 8	Date and Time API	What is the difference between Duration and Period
710	Java 8	Date and Time API	What is Instant
711	Java 8	Date and Time API	What will parse method returns
712	Java 8	Date and Time API	What's the difference between ChronoField and ChronoUnit?
713	Java 8	Date and Time API	What will instant class gives?
714	Java 8	Date and Time API	What is temporal in Java?
715	Java 8	Date and Time API	Differnce between Temporal and TemporalAccessor
716	Java 8	Date and Time API	How do you add days to a LocalDate?
717	Java 8	Date and Time API	What is TemporalUnit?
718	Java 8	Date and Time API	What is TemporalAdjuster?
719	Java 8	Date and Time API	What is the difference between Period and Duration?
720	Java 8	Date and Time API	How do you parse a date string into a LocalDate

721	Java 8	Date and Time API	**How do you format a LocalDate to string**
722	Java 8	Date and Time API	**How do you convert LocalDateTime to Instant?**
723	Java 8	Date and Time API	**How to convert between LocalDateTime and ZonedDateTime?**
724	Java 8	Date and Time API	**How can we get current time in another time zone?**
725	Java 8	Date and Time API	**How do we get a list of all available time zones?**
726	Java 8	Date and Time API	**How do you truncate LocalDateTime to minutes/hours**
727	Java 8	Date and Time API	**How to check if two LocalDateTime's fall on the same calender day?**
728	Java 8	Date and Time API	**Waht are the main features of Date-Time API?**
729	Java 8	Date and Time API	**What are the different ways to get a DateTimeFormatter?**
730	Java 8	Date and Time API	**What causes UnsupportedTemporalTypeException?**
731	Java 8	Date and Time API	**How to safely parse a date and handle DateTimeParseException**
732	Java 8	Date and Time API	**Is DateTimeFormatter thread-safe?**
733	Java 8	Date and Time API	**What happens if LocalDateTime is converted with a null zoneid?**
734	Memory	Garbage Collection	**What is a memory leak in Java?**
735	Thread	Multi Threading	**What is the Java Memory Model (JMM)?**
736	Java Fundamentals	Annotations	**What are annotations in Java?**
737	Memory	Memory	**What is the Java String Pool?**
738	Collections	Map	**What is a Map in Java?**
739	Collections	Map	**What are the main classes that implement Map in Java?**
740	Collections	Map	**How do you add and retrieve elements from a Map?**
741	Collections	Map	**What happens if you add a duplicate key in a Map?**
742	Collections	Map	**How do you iterate over a Map?**
743	Collections	Map	**How is HashMap implemented in Java?**
744	Collections	Map	**What is the difference between HashMap and TreeMap?**
745	Collections	Map	**What is the initial capacity and load factor of a HashMap?**
746	Collections	Map	**What is LinkedHashMap and when would you use it?**
747	Collections	Map	**What is the internal implementation of LinkedHashMap(Data structure)?**
748	Collections	Map	**What is the difference between entrySet(), keySet(), and values()?**
749	Collections	Map	**How can you make a Map thread-safe?**
750	Collections	Map	**How do you sort a Map by keys or values?**

751	Collections	Map	Why are Map keys immutable?
752	Collections	Map	What is a ConcurrentHashMap and how is it different from Hashtable?
753	Collections	Map	How does Java 8 improve HashMap performance?
754	Collections	Map	What is Map.of() and when should you use it?
755	Collections	Map	Can you store a null key and null value in a Map?
756	Collections	Map	How do you merge two maps in Java 8?
757	Collections	Map	Explain fail-fast vs fail-safe in context of Map.
758	Collections	Map	How does Map differ from a Set in Java?
759	Collections	Map	In a Map, What occurs when you insert a duplicate key?
760	Collections	Map	How does a HashMap differ from a Hashtable?
761	Collections	Map	What is the importance of load factor and initial capacity in a HashMap?
762	Collections	Map	Describe in detail how HashMap and LinkedHashMap differ.
763	Collections	Map	How to sort a Map in ascending order by keys and descending order by values?
764	Collections	Map	Java 8 Maps: What is the use of java.util.Map.computeIfAbsent Method
765	Collections	Map	Can we have an immutable Map? In what way?
766	Collections	Map	When should you use getorDefault vs. computeIfAbsent in Map?
767	Collections	Map	What is collision in HashMap?
768	Collections	Map	How Does Java's Capacity And Size Of Hashmap Differ?
769	Collections	Map	Does hashmap allow you to store null values?
770	Collections	Map	Can you store multiple keys with the same value in a hashmap?
771	Collections	Map	What is the maximum number of entries you can store in HashMap?
772	Collections	Map	What factors determine the performance of a hashmap?
773	Collections	Map	What is the difference between put() and putIfAbsent() in a Map?
774	Collections	Map	What happens if the hashCode() method always returns the same value for all keys in a HashMap?
775	Collections	Map	Does Map extends the collections framework in java?
776	Collections	Map	Can we use any user-defined class as Map key?
777	Collections	Map	Which method will you use to add an entry with a specified key and value to the map?
778	Java Fundamentals	Java Runtime Environment	What is the difference between JDK, JRE, and JVM?
779	Java Fundamentals	Java Runtime Environment	Is JVM platform-independent?

780	Java Fundamentals	Java Runtime Environment	**Can we execute Java bytecode without a JVM?**
781	Java Fundamentals	Compilation and Execution	**What is bytecode in Java?**
782	Java Fundamentals	Compilation and Execution	**What is the difference between JIT compiler and JVM?**
783	Java Fundamentals	Java Runtime Environment	**How is JIT different from an interpreter?**
784	Java Fundamentals	Compilation and Execution	**When does JIT compilation happen?**
785	Java Fundamentals	OOPs	**Why is Java not purely object-oriented?**
786	Data types	Type casting	**What is type casting?**
787	Data types	Type casting	**What is widening and narrowing conversion?**
788	Data types	Type casting	**What is the difference between == and .equals() in Java?**
789	Data types	Type casting	**How does Java handle integer overflow?**
790	Data types	Type casting	**What are wrapper classes in Java?**
791	Data types	Type casting	**What is autoboxing and unboxing?**
792	Data types	Type casting	**Can we directly Type cast double to string?**
793	Control Flow Statements	Switch case	**What happens if we don't use break in a switch statement?**
794	Control Flow Statements	Switch case	**Can a switch statement work with strings in Java?**
795	Collections	Collections	**What makes Collections in Java capable of efficient searching?**
796	Collections	Collections	**What makes Collections in Java capable of efficient sorting?**
797	Collections	Set	**What is the purpose of the Set interface in Java Collections Framework?**
798	Collections	Set	**How does a Set differ from a List?**
799	Collections	Set	**Why are duplicate elements not allowed in a Set?**
800	Collections	Set	**Can a Set contain null elements?**
801	Collections	Set	**define types of sets?**
802	Collections	Set	**Which Set implementation maintains insertion order and sorted order?**
803	Collections	Set	**What is the difference between HashSet and TreeSet and LinkedHashSet?**
804	Collections	Set	**How do you perform a union of two Sets in Java?**
805	Collections	Set	**Can TreeSet store null values?**
806	Collections	Set	**How can you convert a Set to a List in Java?**
807	Collections	Set	**When would you prefer TreeSet over HashSet?**
808	Collections	Set	**Operations in sets?**
809	Collections	Set	**What happens if you add a duplicate to a HashSet?**

810	Collections	Set	Which package contains the Set interface?
811	Collections	Set	Explain load factor and initial capacity in HashSet ?
812	Collections	Set	What does "ordering must be consistent with equals" mean for TreeSet? What breaks if it isn't?
813	Collections	Set	What is the difference between Set.of(...), Collections.unmodifiableSet(...), and a modifiable HashSet?
814	Collections	Set	How do you check if a Set is a subset of another Set in Java?
815	Collections	Set	What is the difference between retainAll() and removeAll() in Set operations?
816	Collections	Set	How do fail-fast iterators work for HashSet/LinkedHashSet/TreeSet? What exception is thrown and when?
817	Collections	Set	What is the difference between HashSet and IdentityHashMap when used as a set?
818	Collections	Set	what is custom comparator ?
819	Collections	Set	How does CopyOnWriteArraySet differ from ConcurrentSkipListSet?
820	Collections	Set	Can you create a Set of primitive types directly? If not, how do you handle primitives?
821	Collections	Set	How can you efficiently find the difference between two sets in Java?
822	Collections	Set	What is the time complexity of basic operations (add, remove, contains) in HashSet, LinkedHashSet, and TreeSet?
823	Collections	Set	
824	Collections	Set	How can you serialize and deserialize a Set in Java?
825	Collections	Set	How to check whether an element is present in the set or not?
826	Collections	Set	What are the ways to iterate over a set ?
827	Collections	Set	What happens if two threads simultaneously modify TreeSet?
828	Collections	Set	Do TreeSet range views reflect changes bidirectionally with the original set?
829	Collections	Set	How can you create an identity-based Set in Java and when is it appropriate?
830	Collections	Set	How can you obtain a thread-safe Set, and when should each option be used?
831	Collections	Set	How do headSet, tailSet, and subSet work, and how do you choose inclusive vs exclusive bounds?
832	Collections	Set	Can you explain the difference between shallow and deep copying of a Set?
833	Collections	Set	How can you produce an unmodifiable Set from a collection or stream?
834	Collections	Set	What does Map.keySet() return, and how do changes to that view affect the map?

835	Collections	Set	How can you obtain a thread-safe Set, and when should each option be used?
836	Collections	Set	What risks come from exposing a mutable Set in a public API?
837	Collections	Set	When merging many sets, how can you avoid excessive intermediate allocations?
838	Collections	Set	What do lower, floor, ceiling, and higher accomplish in NavigableSet terms?
839	Collections	Set	What is the effect of many colliding hash codes on HashSet lookup times?
840	Collections	Set	What are the consequences of inserting the same object reference twice into a Set?
841	Collections	Set	In a LinkedHashSet, what happens to iteration order if you remove an element and later add it back?
842	Collections	Set	When would Set.copyOf(...) be your first choice in a method that stores a Set?
843	Collections	Set	Under what circumstances can a TreeSet operation throw ClassCastException?
844	Collections	Set	In what scenarios is Collections.singleton(...) preferable to other ways of creating one-element sets?
845	Collections	Set	What is a Red-Black Tree?
846	Collections	Set	What is Fine-grid locking?
847	Memory	Garbage Collection	What is the difference between finalize() and Garbage Collection?
848	Memory	Garbage Collection	What is the purpose of the System.gc() method?
849	Memory	Garbage Collection	How does the Minor GC differ from Major GC (or Full GC)
850	Memory	Garbage Collection	What are some tools used to monitor or analyze GC in Java?
851	Memory	Garbage Collection	Can you force garbage collection in Java?
852	Memory	Garbage Collection	What is the role of the JVM in Garbage Collection
853	Memory	Garbage Collection	How does Parallel GC reduce GC time compared to Serial GC?
854	Memory	Garbage Collection	How do you enable G1GC?
855	Memory	Garbage Collection	How do you enable ZGC?
856	Memory	Garbage Collection	How do you enable Shenandoah GC?
857	Thread	Volatile	How does volatile ensure visibility across threads?
858	Thread	Volatile	What is instruction reordering, and how does volatile prevent it?
859	Thread	Thread Pools	What is ExecutorService? How does it differ from creating threads manually?
860	Thread	Multi Threading	How do you create a thread pool using Executors?
861	Java 8	Lambda Expressions	What is a lambda expression in Java
862	Java 8	Lambda Expressions	How do lambda expressions relate to functional interfaces?

863	Java 8	Lambda Expressions	What is the "target type" of a lambda, and how is it determined?
864	Java 8	Lambda Expressions	When can parentheses around a single parameter be omitted?
865	Java 8	Lambda Expressions	When can you omit the return keyword and braces in a lambda body?
866	Java 8	Lambda Expressions	What is a Single Abstract Method (SAM) type?
867	Java 8	Lambda Expressions	When is a method reference not interchangeable with a lambda?
868	Java 8	Lambda Expressions	Explain "effectively final" and why lambdas require it for captured variables.
869	Java 8	Lambda Expressions	How does variable capture in lambdas differ from anonymous inner classes?
870	Java 8	Lambda Expressions	In a lambda, what does this refer to? How about in an anonymous class?
871	Java 8	Lambda Expressions	Can a lambda introduce variable shadowing of local variables? Why/why not?
872	Java 8	Lambda Expressions	Are lambdas compiled to inner classes? If not, what mechanism is used?
873	Java 8	Lambda Expressions	What is invokedynamic and LambdaMetafactory's role in lambdas?
874	Java 8	Lambda Expressions	Do two identical lambdas refer to the same object instance? Explain.
875	Java 8	Lambda Expressions	Are lambda instances serializable by default? How can you make them serializable?
876	Java 8	Lambda Expressions	What happens to checked exceptions thrown inside a lambda?
877	Java 8	Lambda Expressions	How do you handle checked exceptions with standard functional interfaces?
878	Java 8	Lambda Expressions	How do you wrap a lambda to rethrow checked exceptions as unchecked?
879	Java 8	Lambda Expressions	Can a lambda be generic?
880	Java 8	Lambda Expressions	How does type inference work for lambda parameter types?
881	Java 8	Lambda Expressions	When do you need explicit parameter types in a lambda?
882	Java 8	Lambda Expressions	What ambiguity can arise when overloading methods that accept lambdas?
883	Java 8	Lambda Expressions	How can you resolve lambda overload ambiguity?
884	Java 8	Lambda Expressions	How can you log within a lambda cleanly without cluttering stream pipelines?
885	Java 8	Lambda Expressions	What are the rules for using annotations on lambda parameters in Java 8?
886	Java 8	Lambda Expressions	What does a lambda's generated class name look like at runtime
887	Java 8	Lambda Expressions	Can you get a lambda's parameter name via reflection at runtime?
888	Java 8	Lambda Expressions	How do you unit test behavior that's implemented as a lambda?
889	Java 8	Lambda Expressions	Do non-capturing lambdas get cached? What is the benefit?
890	Java 8	Lambda Expressions	How do captured variables affect lambda allocation and performance?
891	Java	Core Java	What is immutability in Java and how to create an immutable class?
892	Java	Core Java	Difference between deep copy and shallow copy.

893	Collections	Collections	What is the difference between Comparable and Comparator?
894	Java	Exception Handling	Is it necessary that each try block must be followed by a catch block?
895	Java	Exception Handling	What is the difference between checked and unchecked exceptions?
896	Java	Exception Handling	Explain the difference between checked and unchecked exceptions in Java with an example.
897	Java	Exception Handling	How does the try-with-resources work, and how is it different from a traditional try-finally block?
898	Java	Exception Handling	What is the difference between throw and throws in Java?
899	Java	Exception Handling	What is ClassCastException in Java?
900	Java	Exception Handling	What are chained exceptions in Java?
901	Java	Exception Handling	Can you override a method and throw a broader exception than the one declared in the superclass?
902	Java	Exception Handling	What is the difference between ClassNotFoundException and NoClassDefFoundError in Java?
903	Java	Exception Handling	What is the difference between Error and Exception in Java?
904	Java	Exception Handling	What happens if an exception is thrown inside a finally block?
905	Java	Exception Handling	How does exception chaining work in Java, and why is it useful?
906	Java	Exception Handling	What is Exception Handling?
907	Java	Exception Handling	How many types of exceptions can occur in a Java program?
908	Java	Exception Handling	What is the hierarchy of exception classes in Java?
909	Java	Exception Handling	What is the difference between Throwable, Exception, and RuntimeException?
910	Java	Exception Handling	What is a custom exception? How do you create one?
911	Java	Exception Handling	What is the purpose of the getCause() method in exception handling?
912	Java	Exception Handling	What is the difference between try-catch-finally and try-finally?
913	Java	Exception Handling	What is multi-catch in Java? What are its limitations?
914	Java	Exception Handling	What is the difference between StackOverflowError and OutOfMemoryError?
915	Java	Exception Handling	What happens when an exception is thrown but not caught?
916	Java	Exception Handling	Can we write only try block without catch and finally blocks?
917	Java	Exception Handling	Can you catch an Error in Java?
918	Java	Exception Handling	What is unreachable catch block error?

919	Java	Exception Handling	What is the difference between printStackTrace(), getMessage(), and getCause()?
920			
921	Java	Memory Management	Why Garbage Collection is necessary in Java?
922	Java	Memory Management	What is a memory leak, and how does it affect garbage collection?
923	Java	Multithreading	What is a thread?
924	Java	Multithreading	Describe the life cycle of the thread.
925	Java	Multithreading	What are the ways in which Thread can be created?
926	Java	Multithreading	What is a daemon thread?
927	Java	Multithreading	What are the ways in which a thread can enter the waiting state?
928	Java	Multithreading	What are the different types of Thread Priorities in Java? And what is the default priority of a thread assigned by JVM?
929	Java	Multithreading	Difference between synchronized method and synchronized block.
930	Java	Multithreading	What is the difference between wait() and sleep()?
931	Java	Multithreading	What is the difference between volatile and synchronized?
932	Java	Multithreading	What are Callable and Future in Java concurrency?
933	Java	Multithreading	Difference between process and thread.
934	Java	Multithreading	Difference between ExecutorService and manually creating threads.
935	Java	Multithreading	What is a deadlock and how to prevent it?
936	Java 8	Optional	What problem does the Optional class solve, and how does it help avoid NullPointerException?
937	Java 8	Optional	Explain the difference between orElse(), orElseGet(), and orElseThrow() in Optional.
938	Java 8	Optional	What happens if you call get() on an empty Optional?
939	Java 8	Optional	How would you convert a potentially null value into an Optional?
940	Java 8	Optional	What is the difference between isPresent() and ifPresent()?
941	Java 8	Stream	What is the difference between map() and flatMap() in Streams?
942	Java 8	Stream	What is the difference between reduce() and collect() in Streams?
943	Java 8	Stream	How can you handle exceptions inside a Stream pipeline?
944	Java 8	Stream	What is the difference between findFirst() and findAny() in Streams?
945	Java 8	Stream	How can you convert a Stream back into a List or Set?
946	Java 8	Stream	Explain the difference between Stream.of() and Arrays.stream().

947	Java 8	Stream	What is the difference between peek() and map() in Streams?
948	java 8	Stream	What are short-circuiting operations in Stream API?
949	java 8	Stream	What are the advantages and disadvantages of parallelStream()?
950	java 8	Stream	How do you create an infinite Stream?
951	java 8	Stream	When should you not use Stream API?
952	java 8	Stream	What is the performance impact of using streams for large data sets?
953	java 8	Stream	How to debug or print intermediate stream operations?
954	java 8	Stream	Can streams be reused? Why or why not?
955	java 8	Stream	How do you compare the performance of traditional loops vs streams?
956	java 8	Stream	How does Stream API behave with mutable objects?
957	java 8	Stream	Can you use a stream inside another stream? (Nested streams)
958	java 8	Stream	What's the difference between sequential and parallel streams in a multi-core system?
959	java 8	Stream	When does a stream actually execute its operations?
960	java 8	Stream	What happens if a stream encounters a null or throws an exception mid-processing?
961	java 8	Stream	How do you remove null values from a Stream?
962	java 8	Stream	How do you collect the result of a Stream into a List?
963	java 8	Stream	
964	java 8	Stream	What's the behavior of distinct() on objects without proper equals() and hashCode() implementations?
965	java 8	Stream	How can you collect into a TreeMap or a custom Map using Collectors.toMap()?
966	java 8	Stream	What happens if you call a terminal operation inside an intermediate operation like map()?
967	java 8	Stream	How does collect(Collectors.joining()) behave with nulls?
968	java 8	Stream	Why might forEachOrdered() give different results from forEach() in a parallel stream?
969	java 8	Stream	Why can reduce() return Optional.empty() even if your stream contains elements?
970	java 8	Stream	How does flatMap() behave when used on nested collections that are null or empty?
971	java 8	Stream	Why should you avoid using peek() for debugging side-effects in production code?
972	java 8	Stream	How does the Stream.Builder class work internally, and when is it preferable over Stream.of() or Stream.generate()?

973	java 8	Stream	What is the behavior of Stream.concat() when one of the streams is infinite or throws an exception midway?
974	java 8	Stream	How does the Stream.peek() method interact with short-circuiting operations like limit() or findFirst()? Can it skip elements?
975	java 8	Stream	Can you explain how Collectors.reducing() can be used to replace reduce() and in what ways is it more flexible?
976	java 8	Stream	How does Stream.iterate() differ between Java 8 and Java 9+ in terms of control and performance?
977	Java 9	Java Modules/ Project Jigsaw	What is the purpose of module-info.java and what happens if it's missing?
978	Java 9	Java Modules/ Project Jigsaw	How does module resolution differ from classpath resolution?
979	Java 9	Java Modules/ Project Jigsaw	What is the difference between requires, exports, and opens in a module declaration?
980	Java 9	Java Modules/ Project Jigsaw	Why can two modules not export the same package?
981	Java 9	Java Modules/ Project Jigsaw	How do unnamed modules interact with named modules?
982	Java 9	Java Modules/ Project Jigsaw	Can a module depend on a non-modular JAR? If so, how?
983	Java 9	Java Modules/ Project Jigsaw	What is the difference between exports and opens in reflection scenarios?
984	Java 9	Java Modules/ Project Jigsaw	How do split packages affect modularization?
985	Java 21	Virtual Threads	What are virtual threads and how do they differ from platform threads?
986	Java 21	Virtual Threads	How are virtual threads scheduled by the JVM?
987	Java 21	Virtual Threads	Can virtual threads run blocking I/O operations safely?
988	Java 21	Virtual Threads	What are the main benefits of using virtual threads in web servers?
989	Java 21	Virtual Threads	How do ThreadLocal variables behave in virtual threads?
990	Java 21	Virtual Threads	What is the role of Executors.newVirtualThreadPerTaskExecutor()?
991	Java 21	Virtual Threads	Why can using thread pools be harmful when virtual threads are available?
992	Java 21	Virtual Threads	How do virtual threads improve scalability over CompletableFuture?
993	Java 21	Virtual Threads	How do you debug and trace virtual thread execution?
994	Java 21	Virtual Threads	What happens if you create millions of virtual threads?
995	Java 17	Sealed Classes	What is a sealed class and how does it affect inheritance hierarchies?
996	Java 17	Sealed Classes	How does a sealed interface enforce control over implementers?
997	Java 17	Sealed Classes	What happens if a permitted subclass is not marked final, sealed, or non-sealed?
998	Java 17	Sealed Classes	How does the compiler enforce sealing rules across packages and modules?

999	Java 17	Sealed Classes	Can sealed classes work with pattern matching?
1000	Java 17	Sealed Classes	What's the difference between sealed, non-sealed, and final?
1001	Java 17	Sealed Classes	What is the impact of sealed classes on polymorphism and maintainability?
1002	Java 17	Sealed Classes	What happens if you try to extend a sealed class from outside the permitted hierarchy?
1003	Java 17	Sealed Classes	How does sealing affect reflection and dynamic loading?
1004	Java 17	Sealed Classes	How do sealed classes interact with serialization?
1005	Java 16	Records	What are records and what problem do they solve?
1006	Java 16	Records	How do records handle immutability and field access?
1007	Java 16	Records	Can records extend other classes or implement interfaces?
1008	Java 16	Records	Can you override equals() and hashCode() in a record? Should you?
1009	Java 16	Records	How do records behave with inheritance and sealed classes?
1010	Java 16	Records	How are constructors handled in records?
1011	Java 16	Records	Are records suitable for Hibernate/JPA entities? Why or why not?
1012	Java 16	Records	Can you serialize records? How does it differ from normal classes?
1013	Java 16	Records	What is the impact of records on encapsulation?
1014	Java 16	Records	When should you avoid using records?
1015	Java 14	Pattern Matching	How does pattern matching for instanceof simplify type checks?
1016	Java 14	Pattern Matching	What are guarded patterns and when are they used?
1017	Java 14	Pattern Matching	What is the difference between switch as a statement vs an expression?
1018	Java 14	Pattern Matching	How do you combine multiple types in a single case in a switch expression?
1019	Java 14	Pattern Matching	Why is yield required in switch expressions?
1020	Java 14	Pattern Matching	Can you use pattern matching in enhanced switch with sealed classes?
1021	Java 14	Pattern Matching	How does type inference work with pattern variables in match expressions?
1022	Java 14	Pattern Matching	Can pattern variables escape the scope of their match block?
1023	Java 14	Pattern Matching	How is control flow affected when pattern matching fails?
1024	Spring & Spring Boot	Spring	What is the Spring Framework? Why is it used?
1025	Spring & Spring Boot	Spring	What are the advantages of Spring over other frameworks?
1026	Spring & Spring Boot	Spring	What are the different modules of Spring?
1027	Spring & Spring Boot	Spring	What is Dependency Injection? How is it implemented in Spring?
1028	Spring & Spring Boot	Spring	What is Inversion of Control? How does Spring achieve it?

1029	Spring & Spring Boot	Spring	Explain the difference between constructor injection and setter injection.
1030	Spring & Spring Boot	Spring	How does Spring manage bean scopes? List and explain different scopes.
1031	Spring & Spring Boot	Spring	What is the purpose of the @Autowired annotation?
1032	Spring & Spring Boot	Spring	Explain the Spring Bean lifecycle.
1033	Spring & Spring Boot	Spring	What are the roles of @PostConstruct and @PreDestroy?
1034	Spring & Spring Boot	Spring	What is the use of BeanFactory vs ApplicationContext?
1035	Spring & Spring Boot	Spring Annotations	What is the use of @Component, @Service, @Repository, @Controller?
1036	Spring & Spring Boot	Spring Annotations	What is @Qualifier and how is it different from @Primary?
1037	Spring & Spring Boot	Spring Annotations	What is the purpose of @Configuration and @Bean?
1038	Spring & Spring Boot	Spring Annotations	How does @ComponentScan work?
1039	Spring & Spring Boot	Spring Annotations	Differences Between @Component vs @Bean
1040	Spring & Spring Boot	Spring Annotations	Differences Between @Controller vs @RestController
1041	Spring & Spring Boot	Spring Annotations	Differences Between @Autowired vs @Inject vs @Resource
1042	Spring & Spring Boot	Spring Annotations	Differences Between @RequestParam vs @PathVariable vs @RequestBody
1043	Spring & Spring Boot	Spring Annotations	Differences Between @ComponentScan vs @EntityScan
1044	Spring & Spring Boot	Spring Annotations	Differences Between @Configuration vs @Component
1045	Spring & Spring Boot	Spring Annotations	Differences Between @EnableAutoConfiguration vs @SpringBootApplication
1046	Spring & Spring Boot	Spring Annotations	Differences Between @Primary vs @Qualifier
1047	Spring & Spring Boot	Spring Annotations	Differences Between @Value vs @ConfigurationProperties
1048	Spring & Spring Boot	Spring Annotations	Differences Between @RequestMapping vs @GetMapping / @PostMapping
1049	Spring & Spring Boot	Spring Annotations	Differences Between @PathVariable vs @MatrixVariable
1050	Spring & Spring Boot	Spring Annotations	Differences Between @ControllerAdvice vs @RestControllerAdvice
1051	Spring & Spring Boot	Spring Annotations	Differences Between @EnableJpaRepositories vs @EntityScan
1052	Spring & Spring Boot	Spring Annotations	Differences Between @SpringBootTest vs @WebMvcTest
1053	Spring & Spring Boot	Spring Annotations	Differences Between @MockBean vs @Mock
1054	Spring & Spring Boot	Spring Annotations	Can you use @Component alone for everything? Why or why not?
1055	Spring & Spring Boot	Spring Annotations	What's the difference between @RestController and @Controller? Can they be swapped?
1056	Spring & Spring Boot	Spring Annotations	How does Spring handle exceptions differently for a class annotated with @Repository?

1057	Spring & Spring Boot	Spring MVC	What is Spring MVC architecture?
1058	Spring & Spring Boot	Spring MVC	How do you define a controller in Spring MVC?
1059	Spring & Spring Boot	Spring MVC	What is the use of @RequestMapping?
1060	Spring & Spring Boot	Spring MVC	Difference between @RequestParam, @PathVariable, and @RequestBody.
1061	Spring & Spring Boot	Spring MVC	How do you handle exceptions in Spring MVC?
1062	Spring & Spring Boot	Spring MVC	How to return JSON or XML response from a controller?
1063	Spring & Spring Boot	Spring Boot	What is Spring Boot and how is it different from Spring?
1064	Spring & Spring Boot	Spring Boot	What are the advantages of using Spring Boot?
1065	Spring & Spring Boot	Spring Boot	How does Spring Boot auto-configuration work?
1066	Spring & Spring Boot	Spring Boot	What is the role of @SpringBootApplication?
1067	Spring & Spring Boot	Spring Boot	What are Spring Boot Starters?
1068	Spring & Spring Boot	Spring Boot	Explain some commonly used starters like spring-boot-starter-web, spring-boot-starter-data-jpa, etc.
1069	Spring & Spring Boot	Spring Boot	How do you configure properties in Spring Boot?
1070	Spring & Spring Boot	Spring Boot	What is the difference between application.properties and application.yml?
1071	Spring & Spring Boot	Spring Boot	How do you externalize configuration in Spring Boot?
1072	Spring & Spring Boot	Spring Security	What is Spring Security?
1073	Spring & Spring Boot	Spring Security	How do you configure authentication and authorization?
1074	Spring & Spring Boot	Spring Security	What is the difference between @Secured and @PreAuthorize?
1075	Spring & Spring Boot	Spring Security	Difference Between Authentication and Authorization ?
1076	Spring & Spring Boot	Spring Security	How to integrate JWT with Spring Security?
1077	Spring & Spring Boot	Spring Security	What is Spring Security and what problems does it solve?
1078	Spring & Spring Boot	Spring Security	What are the main features of Spring Security?
1079	Spring & Spring Boot	Spring Security	What are the types of authentication supported in Spring Security?
1080	Spring & Spring Boot	Spring Security	What is the default behavior of Spring Security?
1081	Spring & Spring Boot	Spring Data JPA	What is Spring Data JPA?
1082	Spring & Spring Boot	Spring Data JPA	What are repositories in Spring Data?
1083	Spring & Spring Boot	Spring Data JPA	What is the difference between CrudRepository, JpaRepository, and PagingAndSortingRepository?
1084	Spring & Spring Boot	Spring Data JPA	How do you create custom queries in Spring Data JPA?

1085	Spring & Spring Boot	Spring Data JPA	What is the purpose of @Query and native queries?
1086	Spring & Spring Boot	Spring REST / Web Services	How do you create REST APIs using Spring Boot?
1087	Spring & Spring Boot	Spring REST / Web Services	What is the role of @RestController?
1088	Spring & Spring Boot	Spring REST / Web Services	What is the difference between @Controller and @RestController?
1089	Spring & Spring Boot	Spring REST / Web Services	How to handle exceptions in REST APIs?
1090	Spring & Spring Boot	Spring REST / Web Services	How do you validate request data in Spring Boot REST?
1091	Spring & Spring Boot	Spring REST / Web Services	What is a RESTful web service?
1092	Spring & Spring Boot	Spring REST / Web Services	What are the principles of REST architecture?
1093	Spring & Spring Boot	Spring REST / Web Services	What are the HTTP methods supported by REST?
1094	Spring & Spring Boot	Spring REST / Web Services	What is the difference between REST and SOAP?
1095	Spring & Spring Boot	Spring REST Annotations	What is the purpose of @RestController in Spring Boot?
1096	Spring & Spring Boot	Spring REST Annotations	What is the difference between @GetMapping, @PostMapping, @PutMapping, and @DeleteMapping?
1097	Spring & Spring Boot	Spring REST Annotations	What is the difference between @RequestMapping and @GetMapping?
1098	Spring & Spring Boot	Spring REST Annotations	What is the difference between @RequestParam, @RequestBody, and @PathVariable?
1099	Spring & Spring Boot	Spring REST Annotations	When do you use @ResponseStatus?
1100	Java 8	Method References	What is a method reference in Java 8?
1101	Java 8	Method References	How is a method reference different from a lambda expression?
1102	Java 8	Method References	What are the types of method references in Java?
1103	Java 8	Method References	When should you use a method reference over a lambda expression?
1104	Java 8	Method References	What is the syntax of a method reference?
1105	Java 8	Method References	What is a static method reference? (ClassName::staticMethod)
1106	Java 8	Method References	What is an instance method reference of a particular object?
1107	Java 8	Method References	What is an instance method reference of an arbitrary object of a particular type?
1108	Java 8	Method References	What is a constructor reference?
1109	Java 8	Method References	How is ClassName::instanceMethod different from instance::instanceMethod?
1110	Java 8	Method References	How do you use method references with streams?
1111	Java 8	Method References	How can you use a constructor reference with map() to convert strings to objects?
1112	Java 8	Method References	How can you use method references for sorting with Comparator?
1113	Spring & Spring Boot	JDBC	What is JDBC, and how does it work?

1114	Spring & Spring Boot	JDBC	What is the difference between JdbcTemplate and plain JDBC?
1115	Spring & Spring Boot	JDBC	What are the key interfaces in JDBC ?
1116	Spring & Spring Boot	JDBC	What are JDBC Drivers? List and explain their types.
1117	Spring & Spring Boot	JDBC	What is driver class in JDBC?
1118	Spring & Spring Boot	JDBC	What is the difference between Connection, Statement, Prepared Statement and Callable Statement
1119	Spring & Spring Boot	JDBC	What are the methods available in the Connection interface?
1120	Spring & Spring Boot	JDBC	What is the purpose of Result Set Interface?
1121	Spring & Spring Boot	JDBC	What is a scrollable and updatable ResultSet?
1122	Spring & Spring Boot	JDBC	What is Row set?
1123	Spring & Spring Boot	JDBC	What are the types of Row Set?
1124	Spring & Spring Boot	JDBC	What is the difference between Result Set and Row Set?
1125	Spring & Spring Boot	JDBC	What is connection pooling, and why is it needed?
1126	Spring & Spring Boot	JDBC	What libraries/frameworks are used for connection pooling?
1127	Spring & Spring Boot	JDBC	What are ACID properties and why they are used?
1128	Spring & Spring Boot	JDBC	How do you handle transactions manually in JDBC?
1129	Spring & Spring Boot	JDBC	What are commit() and rollback() in JDBC?
1130	Spring & Spring Boot	JDBC	What is the default auto-commit behavior of JDBC?
1131	Spring & Spring Boot	JDBC	How do you disable auto-commit and manage transactions manually?
1132	Spring & Spring Boot	JDBC	How is exception handling managed in JDBC?
1133	Spring & Spring Boot	JDBC	When would you choose raw JDBC over Spring Data or Hibernate?
1134	Spring & Spring Boot	Hibernate	What is Hibernate and how does it differ from JDBC?
1135	Spring & Spring Boot	Hibernate	What are the advantages of using Hibernate over JDBC?
1136	Spring & Spring Boot	Hibernate	What is ORM?
1137	Spring & Spring Boot	Hibernate	What are the core annotations in Hibernate
1138	Spring & Spring Boot	Hibernate	What are the core components of Hibernate?
1139	Spring & Spring Boot	Hibernate	What is the role of the @Entity annotation?
1140	Spring & Spring Boot	Hibernate	What is the use of @Id annotation?
1141	Spring & Spring Boot	Hibernate	What are the different states of an entity in Hibernate?
1142	Spring & Spring Boot	Hibernate	What is lazy vs eager fetching?

1143	Spring & Spring Boot	Hibernate	What is the difference between get() and load()
1144	Spring & Spring Boot	Hibernate	What are the types of relationships in Hibernate
1145	Spring & Spring Boot	Hibernate	What is the role of Session and SessionFactory?
1146	Spring & Spring Boot	Hibernate	What is the difference between save(), persist(), and merge()?
1147	Spring & Spring Boot	Hibernate	How does cascading work in Hibernate?
1148	Spring & Spring Boot	Hibernate	What is HQL (Hibernate Query Language)?
1149	Spring & Spring Boot	Hibernate	How is transaction management handled in Hibernate?
1150	Spring & Spring Boot	Hibernate	What are interceptors in Hibernate?
1151	Spring & Spring Boot	Hibernate	When would you choose JDBC over Hibernate?
1152	Spring & Spring Boot	Hibernate	How does Hibernate caching work?
1153	Spring & Spring Boot	Hibernate	How does Java 8 LocalDate, LocalDateTime work with Hibernate?
1154	Spring & Spring Boot	JPA	What is JPA?
1155	Spring & Spring Boot	JPA	What are the core JPA annotations?
1156	Spring & Spring Boot	JPA	What is an EntityManager in JPA?
1157	Spring & Spring Boot	JPA	How is JPA different from Hibernate?
1158	Spring & Spring Boot	JPA	What are the object lifecycle states in JPA?
1159	Spring & Spring Boot	JPA	What are JPQL and Native Queries?
1160	Spring & Spring Boot	JPA	What is the difference between persist() and merge() in JPA?
1161	Spring & Spring Boot	JPA	What is a persistence unit?
1162	Spring & Spring Boot	Spring Data JPA	What is Spring Data JPA and how is it different from JPA and Hibernate?
1163	Spring & Spring Boot	Spring Data JPA	What is JpaRepository?What methods does it provide?
1164	Spring & Spring Boot	Spring Data JPA	How do you write custom queries in Spring Data JPA?
1165	Spring & Spring Boot	Spring Data JPA	What is the difference between CrudRepository, PagingAndSortingRepository and JpaRepository?
1166	Spring & Spring Boot	Spring Data JPA	What are the advantages of using Spring Data JPA?
1167	Spring & Spring Boot	Spring Data JPA	How does Spring handle transactions ?
1168	Spring & Spring Boot	Spring Data JPA	What is the role of @Transactional in Spring Data JPA?
1169	Spring & Spring Boot	Spring Data JPA	How are relationships managed in Spring Data JPA?
1170	Spring & Spring Boot	Spring Data JPA	How is the EntityManager used internally?
1171	Spring & Spring Boot	Spring Data JPA	Can you use native SQL in Spring Data JPA?

1172	Spring & Spring Boot	Spring Data JPA	**When would you use Spring Data JPA instead of Hibernate?**
1173	Spring & Spring Boot	Spring Data JPA	**How is exception handling different in JDBC, Hibernate, and Spring Data JPA?**
1174	Java Fundamentals	Scanner & Input	**What is Scanner in Java?**
1175	Java Fundamentals	Scanner & Input	**How do you create a Scanner object?**
1176	Java Fundamentals	Scanner & Input	**Which package must be imported to use Scanner?**
1177	Java Fundamentals	Scanner & Input	**How do you read an integer from user?**
1178	Java Fundamentals	Scanner & Input	**How do you read a string word ?**
1179	Java Fundamentals	Scanner & Input	**How do you read a full line (with spaces)?**
1180	Java Fundamentals	Scanner & Input	**How do you read a single character?**
1181	Java Fundamentals	Scanner & Input	**What is the difference between next() and nextLine()**
1182	Java Fundamentals	Scanner & Input	**What happens if user inputs wrong type?**
1183	Java Fundamentals	Scanner & Input	**How do you check if input is available before reading?**
1184	Java Fundamentals	Scanner & Input	**What is NoSuchElementException in Scanner?**
1185	Java Fundamentals	Scanner & Input	**What is IllegalStateException in Scanner?**
1186	Java Fundamentals	Scanner & Input	**What is the default delimiter used by Scanner?**
1187	Java Fundamentals	Scanner & Input	**How do you change Scanner delimiter?**
1188	Java Fundamentals	Scanner & Input	**Can Scanner read from a file instead of keyboard?**
1189	Java Fundamentals	Scanner & Input	**Why is Scanner considered slower for competitive programming?**
1190	Java Fundamentals	Operators	**What is the Difference between && and & operators**
1191	Java Fundamentals	Operators	**What is NaN in Java?**
1192	Java Fundamentals	Operators	**What's the difference between >> and >>>**
1193	Data Struture	Stack, Queue, DeQueue	**How do you implement a queue using two stacks?**
1194	Data Struture	Stack, Queue, DeQueue	**How do you implement a stack using two queues?**
1195	Data Struture	Stack, Queue, DeQueue	**What is priority queue?**
1196	Data Struture	Stack, Queue, DeQueue	**Difference between queue and priority queue?**
1197	Data Struture	Stack, Queue, DeQueue	**What is double-ended priority queue?**
1198	Data Struture	Stack, Queue, DeQueue	**What are the Real-world use of deque?**
1199	File System	File System	**What is a Path?**
1200	File System	File System	**What is Absolute path?**
1201	File System	File System	**What is Relative path?**

1202	File System	File System	What is the difference between File and Path?
1203	File System	File System	What is the difference between text and Binary files?
1204	File System	File System	What are the various operation in file system?
1205	Control Flow Statements	Switch case	Difference between for, while, and do-while?
1206	Control Flow Statements	Switch case	What is an infinite loop?
1207	Control Flow Statements	Switch case	What is the difference between break and continue?
1208	Control Flow Statements	Switch case	Can we use labeled break/continue in Java?
1209	Control Flow Statements	Switch case	What is the difference between exit(0) and break?
1210	Control Flow Statements	Switch case	Difference between for-each loop and for loop?
1211	Control Flow Statements	Switch case	Can we use multiple conditions in a for loop?
1212	Control Flow Statements	Switch case	What is the difference between iteration and recursion?
1213	Control Flow Statements	Switch case	What is a nested loop?
1214	Collections	Collections	How does Java Collections Framework ensure type safety?
1215	Collections	Collections	What are the main interfaces in the Java Collections Framework?
1216	Collections	Collections	How is thread safety achieved in Collections?
1217	Collections	Collections	How do you make a collection immutable?
1218	Collections	Collections	What happens if you try to modify the immutable coolection?
1219	Java 8	Enhancements	What is the difference between reduce() and collect() in Java Streams?
1220	Java 8	Enhancements	How does CompletableFuture differ from a regular Future?
1221	Java 8	Enhancements	How do default methods in interfaces affect multiple inheritance problems?
1222	Java 10	Enhancements	How are immutable collectors implemented in Java Streams?
1223	Java 10	Enhancements	Why do Java 10 immutable collections disallow null values?
1224	Java 10	Enhancements	What is the difference between Collections.unmodifiableList() and List.of() introduced in Java 10?
1225	Threads	ThreadPool	What does the submit() method do? How is it different from execute()?
1226	Threads	ThreadPool	What does the shutdown() method do in ExecutorService?
1227	Threads	ThreadPool	What happens if you submit a task after calling shutdown()?
1228	Threads	ThreadPool	What are the main types of thread pools provided by Executors class?
1229	Threads	ThreadPool	How does newFixedThreadPool(int nThreads) work internally?
1230	Threads	ThreadPool	What is the difference between shutdown() and shutdownNow()?

1231	Threads	ThreadPool	What is the return type of the submit() method and how is it used?
1232	Threads	ThreadPool	How can you handle exceptions from tasks submitted to an ExecutorService?
1233	Threads	ThreadPool	Can you reuse the same ExecutorService after shutdown? Why or why not?
1234	Threads	ThreadPool	What is a RejectedExecutionHandler and when is it used?
1235	Threads	ThreadPool	What is a work queue (BlockingQueue) in the context of thread pools?
1236	Threads	ThreadPool	How does CachedThreadPool behave under high load?
1237	Threads	ThreadPool	How can thread pool deadlocks occur?
1238	Threads	ThreadPool	How do you monitor the performance or health of a thread pool?
1239	Threads	ThreadPool	What parameters can you configure in ThreadPoolExecutor constructor?
1240	Data Struture	Stack, Queue, DeQueue	What is the difference between Stack, Deque, and LinkedList in Java?
1241	Data Struture	Stack, Queue, DeQueue	Why is Stack class in Java discouraged in favor of Deque?
1242	Data Struture	Stack, Queue, DeQueue	What interfaces does Deque implement in Java?
1243	Data Struture	Stack, Queue, DeQueue	Is it possible to implement a Queue with only one Stack? If yes, how?
1244	Data Struture	Stack, Queue, DeQueue	What is the difference between peek(), poll(), and remove() in Queue?
1245	Data Struture	Stack, Queue, DeQueue	How do you create a fixed-size queue in Java?
1246	Data Struture	Stack, Queue, DeQueue	What is the difference between offer() and add() in a Queue?
1247	Data Struture	Stack, Queue, DeQueue	Explain how PriorityQueue works in Java. What is its default ordering?
1248	Data Struture	Stack, Queue, DeQueue	What is the difference between BlockingQueue and ConcurrentLinkedQueue?
1249	Data Struture	Stack, Queue, DeQueue	How can you implement a circular queue using ArrayDeque in Java?
1250	Data Struture	Stack, Queue, DeQueue	Is PriorityQueue thread-safe? If not, how do you make it so?
1251	Data Struture	Stack, Queue, DeQueue	What is the internal structure of ArrayDeque? How does it resize?
1252	Data Struture	Stack, Queue, DeQueue	Explain how ConcurrentLinkedDeque achieves thread safety.
1253	Java Fundamentals	Strings	How do substring(), charAt(), and indexOf() work?
1254	Java Fundamentals	Strings	What is string interning in Java?
1255	Java Fundamentals	Strings	Difference between split() and StringTokenizer?
1256	Java Fundamentals	Strings	What is the difference between ==, .equals(), and .compareTo() for Strings?
1257	Java Fundamentals	Strings	Can you override the equals() and hashCode() methods in a String?
1258	Java Fundamentals	Strings	What happens when you pass null to String.valueOf()?
1259	Spring Boot	Hibernate	What is the configuration file (hibernate.cfg.xml) used for?
1260	Spring Boot	Hibernate	Explain the difference between @Entity and @Table annotations.

1261	Spring Boot	Hibernate	How do you map one-to-one, one-to-many, many-to-one, and many-to-many relationships in Hibernate?
1262	Spring Boot	Hibernate	What is the difference between @JoinColumn and @JoinTable?
1263	Spring Boot	Hibernate	What is the Criteria API in Hibernate?
1264	Spring Boot	Hibernate	How do you perform pagination using Hibernate?
1265	Spring Boot	Hibernate	What is a Named Query in Hibernate?
1266	Spring Boot	Hibernate	What is the difference between save(), persist(), and saveOrUpdate()?
1267	Spring Boot	Hibernate	What are the different states of a Hibernate entity object?
1268	Spring Boot	Hibernate	What is the significance of session.flush()?
1269	Spring Boot	Hibernate	What does session.evict() do?
1270	Spring Boot	Hibernate	What happens when you call session.clear()?
1271	Spring Boot	Hibernate	Explain the lifecycle callbacks/events (like @PrePersist, @PostLoad, etc.) in Hibernate.
1272	Spring Boot	Hibernate	What is the role of the Configuration object in Hibernate?
1273	Spring Boot	Hibernate	hat is the significance of the ConnectionProvider in Hibernate?
1274	Spring Boot	Hibernate	Explain the role of the dialect in Hibernate.
1275	Spring Boot	Hibernate	How does Hibernate manage JDBC connections internally?
1276	Spring Boot	Hibernate	What are interceptors and event listeners in Hibernate?
1277	Spring Boot	Hibernate	Explain the role of SessionFactory in Hibernate architecture.
1278	Spring Boot	Hibernate	What is a Session in Hibernate and how does it interact with the database?
1279	Spring Boot	Spring Boot	What is NoSuchBeanDefinitionException and when does it occur?
1280	Spring Boot	Spring Boot	What causes BeanCreationException in Spring Boot?
1281	Spring Boot	Spring Boot	Explain UnsatisfiedDependencyException and how to resolve it.
1282	Spring Boot	Spring Boot	What is BeanCurrentlyInCreationException and what causes circular dependencies?
1283	Spring Boot	Spring Boot	How does Spring Boot handle MethodArgumentNotValidException?
1284	Spring Boot	Spring Boot	What is HttpMessageNotReadableException? When does it happen?
1285	Spring Boot	Spring Boot	What is MissingServletRequestParameterException?
1286	Spring Boot	Spring Boot	What causes ConversionFailedException in Spring Boot?
1287	Spring Boot	Spring Boot	Explain how Spring Boot handles exceptions in asynchronous requests.
1288	Spring Boot	Spring Boot	How does Spring Boot handle NoUniqueBeanDefinitionException?

1289	Spring Boot	Spring Boot	What causes HttpMediaTypeNotSupportedException in REST APIs?
1290	Spring Boot	Spring Boot	What is HttpRequestMethodNotSupportedException and when does it occur?
1291	Spring Boot	Spring Boot	What is the difference between ServletException and DispatcherServlet exceptions?
1292	Spring Boot	Spring MVC	What is the role of DispatcherServlet in Spring MVC?
1293	Spring Boot	Spring MVC	What is @ModelAttribute used for in Spring MVC?
1294	Spring Boot	Spring MVC	How does DispatcherServlet handle exceptions thrown from a controller in Spring Boot?
1295	Spring Boot	Spring MVC	What is the relationship between Servlet, DispatcherServlet, and Controller in Spring Boot?
1296	Spring Boot	Spring MVC	How does Spring Boot handle incoming HTTP requests using DispatcherServlet?
1297	Spring Boot	Spring Data JPA	Explain the role of Spring Data JPA in simplifying data access.
1298	Spring Boot	Spring Data JPA	Explain the @Inheritance annotation and its role in hierarchy mapping.
1299	Spring Boot	Spring Data JPA	How does pagination work in PagingAndSortingRepository?
1300	Spring Boot	Spring Data JPA	What is the use of Pageable and Sort objects?
1301	Spring Boot	Spring Data JPA	What is the return type of paginated queries in Spring Data JPA?
1302	Spring Boot	Spring Data JPA	What is the use of methods like flush(), saveAndFlush(), and deleteInBatch() in JpaRepository?
1303	Spring Boot	Spring Data JPA	Can you still use custom JPQL or native SQL queries with JpaRepository?
1304	Spring Boot	Spring Data JPA	Which methods are defined in CrudRepository?
1305	Spring Boot	Spring Data JPA	What functionality does CrudRepository provide?
1306	Java 8	Optional	Is Optional a collection?
1307	Java 8	Optional	What does filter() do on Optional?
1308	Java 8	Optional	Why is Optional called a value-based class?
1309	Java 8	Optional	Can Optional be used as a key in a Map?
1310	Java 8	Optional	Is Optional thread-safe?
1311	Java 8	Optional	What new Optional methods were added in Java 9?
1312	Java 8	Optional	What new Optional method was added in Java 11?
1313	Java 8	Optional	Can Optional be null itself?
1314	Spring Boot	Spring Data JPA	How is the PersistenceContext managed in the background?
1315	Spring Boot	Spring Data JPA	What is the role of EntityManager and how is it injected into repositories?

1316	Spring Boot	Spring Data JPA	What are derived query methods in Spring Data JPA?
1317	Spring Boot	Spring Data JPA	How does the SimpleJpaRepository class fit into the architecture?
1318	Spring Boot	Spring Data JPA	How does Spring Data generate queries from method names?
1319	Spring Boot	Spring Data JPA	What are the rules for creating valid method names for derived queries?
1320	Spring Boot	Spring Data JPA	How do you use AND, OR, and NOT conditions in derived query method names?
1321	Spring Boot	Spring Data JPA	What is a declared query in Spring Data JPA?
1322	Spring Boot	Spring Data JPA	How do you write a JPQL query using the @Query annotation?
1323	Spring Boot	Spring Data JPA	Can you use native SQL queries with the @Query annotation?
1324	Spring Boot	Spring Data JPA	What are the advantages of declared queries over derived queries?
1325	Spring Boot	Spring Data JPA	What is the purpose of the @Modifying annotation when used with @Query?
1326	Spring Boot	Spring Data JPA	When would you use a native query instead of JPQL in Spring Data JPA?
1327	Spring Boot	Spring Data JPA	What is the Difference between Declared Queries (@Query) and Derived Queries
1328	Spring Boot	Spring Data JPA	When should you use saveAndFlush() instead of save()?
1329	Spring Boot	Spring Data JPA	Explain the difference between findById() and getOne() and when to use each.
1330	Spring Boot	Spring Data JPA	What are the strategies available in @GeneratedValue?
1331	Spring Boot	Spring Data JPA	What is the difference between @Id and @GeneratedValue?
1332	Spring Boot	Spring Data JPA	What is the difference between GenerationType.IDENTITY and GenerationType.SEQUENCE?
1333	Spring Boot	Spring Data JPA	What is the difference between @Column(nullable=false) and @NotNull?
1334	Spring Boot	Spring Data JPA	What is the role of the @Column annotation?
1335	Spring Boot	Spring Data JPA	What is cascade in JPA? List types of cascade operations.
1336	Spring Boot	Spring Data JPA	How do you use CascadeType.ALL and what are its risks?
1337	Spring Boot	Spring Data JPA	What are the fetch types in JPA ?
1338	Spring Boot	Spring Data JPA	What is difference b/w FetchType.LAZY and FetchType.EAGER?
1339	Spring Boot	Spring Data JPA	What is the default fetch type for @OneToMany and @ManyToOne?
1340	Spring Boot	Spring Data JPA	Can you use pagination and sorting with derived query methods?
1341	Spring Boot	Spring Data JPA	When is the EntityManager opened and closed in a typical repository method call?
1342	Spring Boot	Spring Data JPA	What is the purpose of the @Embedded and @Embeddable annotations?
1343	Spring Boot	Spring Data JPA	What is the use of @PreUpdate and when is it triggered?

1344	Spring Boot	Spring Data JPA	**What is the difference between @EntityListeners and callback methods in the same entity?**
1345	Spring Boot	Spring Data JPA	**What is the use of the @NamedQuery and @NamedNativeQuery annotations?**
1346	Spring Boot	Spring Data JPA	**What is the purpose of the @NamedStoredProcedureQuery annotation?**
1347	Spring Boot	Spring Data JPA	**How do you invoke a stored procedure using Spring Data JPA's @Procedure annotation?**
1348	Spring Boot	Spring Data JPA	**What are the required elements inside @NamedStoredProcedureQuery?**
1349	Spring Boot	Spring Data JPA	**How do you define a stored procedure call with @NamedStoredProcedureQuery?**
1350	Spring Boot	Spring Data JPA	**Does JPA provide a direct annotation like @Function for calling stored functions?**
1351	Spring & Spring Boot	Spring Security	**What is Spring Security?**
1352	Spring & Spring Boot	Spring Security	**What is the difference between Authentication and Authorization?**
1353	Spring & Spring Boot	Spring Security	**How does Spring Security store passwords?**
1354	Spring & Spring Boot	Spring Security	**What is the purpose of @EnableWebSecurity in Spring Security.**
1355	Spring & Spring Boot	Spring Security	**Can Spring Security be used for REST APIs?**
1356	Spring & Spring Boot	Spring Security	**What is JWT in Spring Security?**
1357	Spring & Spring Boot	Spring Security	**Difference between hasRole() and hasAuthority()?**
1358	Spring & Spring Boot	Spring Security	**What is the default behavior of Spring Security?**
1359	Spring & Spring Boot	Beans	**What is the default bean scope?**
1360	Multi-Threading	Multi-Threading	**What is race condition?**
1361	Multi-Threading	Multi-Threading	**How to prevent race condition?**
1362	Multi-Threading	Multi-Threading	**What is Intrinsic Lock?**
1363	Multi-Threading	Multi-Threading	**What does yield() will do?**
1364	Multi-Threading	ThreadPool	**What are different types of ThreadPools**
1365	Data types	Data types	**Can we declare a variable without initialization in Java?**
1366	Collections	Queue	**What is Delay queue?**
1367	Collections	Queue	**What is Transfer Queue?**
1368	Java Fundamentals	Static import	**What is static import in Java?**
1369	Java Fundamentals	Static import	**Since which version static import is available?**
1370	Java Fundamentals	Static import	**What are the disadvantages of using sttaic import**
1371	Java Fundamentals	Static import	**Is static import a replacement for regular import**

1372	Java Fundamentals	Static import	Where is static import commonly used
1373	Java Fundamentals	Operators	What are different kinds of Operators in Java?
1374	Java Fundamentals	Operators	What is Operator Precedency?
1375	Java Fundamentals	Operators	What is operator Associativity?
1376	Java Fundamentals	Operators	What is short-circuit evaluation?
1377	Java Fundamentals	Operators	What is ternary operator?
1378	Java Fundamentals	Operators	What is unary opeartor?
1379	Java Fundamentals	Operators	Are operators in Java are overloaded?
1380	Java Fundamentals	Operators	Can we override the default precedency?
1381	Java Fundamentals	String	Where exactly string constant pool is located in the memory?
1382	Java Fundamentals	String	Why the strings are the most used objects as keys of HashMap in Java?
1383	Java Fundamentals	String	what are the interfaces implemented by String class?
1384	Java Fundamentals	String	Why String class is final in java?
1385	Java Fundamentals	String	Why do we override toString() in java?
1386	Java Fundamentals	String	What is String Buffer class?
1387	Java Fundamentals	String	What is difference between compareTo () and compareToIgnoreCase ()?
1388	Java Fundamentals	String	What is the superclass of string class in Java?
1389	Java Fundamentals	StringBuffer	Why StringBuffer objects in Java are mutable?
1390	Java Fundamentals	StringBuffer	What is the difference between length and capacity in Java StringBuffer?
1391	Java Fundamentals	String	What is a mutable class and mutable object in Java?
1392	Java Fundamentals	String	What is string hashing in java?
1393	Java Fundamentals	Typecasting	What is type casting in Java?
1394	Java Fundamentals	Typecasting	Why is type casting needed in Java?
1395	Java Fundamentals	Typecasting	Is type casting automatic or manual in Java?
1396	Java Fundamentals	Typecasting	What is the difference between type conversion and type casting?
1397	Java Fundamentals	Typecasting	Can type casting happen between incompatible types?
1398	Java Fundamentals	Typecasting	Is type casting possible between boolean and other types?
1399	Java Fundamentals	Typecasting	Which is safer: widening or narrowing? Why?
1400	Java Fundamentals	Typecasting	What is implicit type casting?
1401	Java Fundamentals	Typecasting	What is explicit type casting?

1402	Java Fundamentals	Typecasting	Can type casting cause data loss?
1403	Java Fundamentals	Typecasting	What are the two types of primitive casting in Java?
1404	Java Fundamentals	Typecasting	Explain widening type casting with an example.
1405	Java Fundamentals	Typecasting	Explain narrowing type casting with an example.
1406	Java Fundamentals	Typecasting	Which type of primitive casting happens automatically?
1407	Java Fundamentals	Typecasting	Why do we need explicit casting for narrowing conversions?
1408	Java Fundamentals	Typecasting	Can we cast a char to an int? What happens?
1409	Java Fundamentals	Typecasting	Can we cast a double to an int? What happens to the decimal part?
1410	Java Fundamentals	Typecasting	Explain data overflow in narrowing casting with an example.
1411	Java Fundamentals	Typecasting	What is precision loss during casting?
1412	Java Fundamentals	Typecasting	what is 2s compliment, and how does it affect casting?
1413	Java Fundamentals	Typecasting	what is the difference between truncation and overflow in casting?
1414	Java Fundamentals	Typecasting	can we type cast literals?
1415	Java Fundamentals	Typecasting	what is reference type casting
1416	Java Fundamentals	Typecasting	what is upcasting in java
1417	Java Fundamentals	Typecasting	what is downcasting in java
1418	Java Fundamentals	Typecasting	what is class cast Exception
1419	Java Fundamentals	Typecasting	How does type casting polymorphism
1420	Java Fundamentals	Typecasting	where do we use upcasting in java?
1421	Java Fundamentals	Typecasting	where do we use downcasting in java?
1422	Java Fundamentals	Typecasting	How does instanceof help in safe casting?
1423	Java Fundamentals	Typecasting	what is autoboxing?
1424	Java Fundamentals	Typecasting	What is unboxing in java?
1425	Java Fundamentals	Typecasting	can autoboxing cause Null pointer Exception?
1426	Java Fundamentals	Typecasting	can we cast between wrapper classes explicitly?
1427	Java Fundamentals	Typecasting	why was casting needed before generics in java
1428	Java Fundamentals	Typecasting	How do generics remove the neef of explicit casting?
1429	Java Fundamentals	Typecasting	can you cast a List<Object> to List<String>? why not?
1430	Java Fundamentals	Typecasting	why is type safety better with generics?
1431	Java Fundamentals	Typecasting	why does type erasure cause casting issues?

1432	Java Fundamentals	Typecasting	how fo wildcards(?) reduce casting
1433	Java Fundamentals	Typecasting	can arrays be typecasted in java?
1434	Java Fundamentals	Typecasting	What is ArrayStoreException and how is it related to casting?
1435	Java Fundamentals	Typecasting	Can you cast int[] to Object[]? Why not?
1436	Java Fundamentals	Typecasting	Is array casting compile-time or runtime checked?
1437	Java Fundamentals	Typecasting	Can method return values be typecast?
1438	Java Fundamentals	Typecasting	What happens if you cast the return of Math.random()?
1439	Java Fundamentals	Typecasting	Can method overloading use casting?
1440	Java Fundamentals	Typecasting	Why can't you cast String to Integer directly?
1441	Java Fundamentals	Typecasting	Can we cast null?
1442	Collections	Stack, Queue, DeQueue	What are the most commonly used methods in the Stack class?
1443	Collections	Stack, Queue, DeQueue	Which Queue implementation maintains insertion order?
1444	Collections	Stack, Queue, DeQueue	When would you use a PriorityQueue instead of a normal Queue?
1445	Collections	Stack, Queue, DeQueue	What is the difference between remove() and poll()?
1446	Collections	Stack, Queue, DeQueue	What is the difference between element() and peek()?
1447	Collections	Stack, Queue, DeQueue	What is the difference between push(), pop(), and peek() in Stack?
1448	Collections	Stack, Queue, DeQueue	What happens if you call pop() on an empty stack?
1449	Collections	Stack, Queue, DeQueue	What happens if you call removeFirst() on an empty Deque?
1450	Collections	Stack, Queue, DeQueue	Which Deque implementation is backed by a resizable array?
1451	Collections	Stack, Queue, DeQueue	Which Deque implementation is backed by a doubly-linked list?
1452	Collections	Stack, Queue, DeQueue	What is the time complexity of insertion/removal in Deque?
1453	Collections	Stack, Queue, DeQueue	Can a Deque be used to implement both Stack and Queue?
1454	Data types	Data types	Why is boolean not numeric in Java?
1455	Data types	Data types	Can we assign null to a primitive type?
1456	Data types	Data types	What happens if you assign a larger type to a smaller type without casting?
1457	Data types	Data types	Why is float not precise for currency calculations?
1458	Data types	Data types	What is the difference between primitive data types and wrapper classes?
1459	Data types	Data types	Why does byte + byte result in int?
1460	Data types	Data types	What is the difference between NaN == NaN and Float.isNaN()?
1461	Data types	Data types	Can char hold negative values?

1462	Data types	Data types	What happens if you divide a floating-point number by 0?
1463	Java Fundamentals	Varargs Basics	What are varargs in Java?
1464	Java Fundamentals	Varargs Basics	What is the syntax of varargs?
1465	Java Fundamentals	Varargs Basics	How many varargs parameters can a method have?
1466	Java Fundamentals	Varargs Basics	What is the underlying type of varargs?
1467	Java Fundamentals	Varargs Basics	Difference between int[] and int...?
1468	Java Fundamentals	Varargs Basics	What happens if no arguments are passed to a varargs method?
1469	Java Fundamentals	Varargs Basics	Can we pass null to a varargs method?
1470	Java Fundamentals	Varargs Basics	Can varargs accept objects instead of primitives?
1471	Java Fundamentals	Varargs Basics	Can varargs work with Object... to accept any type?
1472	Java Fundamentals	Varargs Basics	What is the difference between calling sum() vs sum(null)?
1473	Java Fundamentals	Varargs Basics	Can constructors use varargs?
1474	Java Fundamentals	Varargs Basics	Can varargs be multi-dimensional?
1475	Java Fundamentals	Varargs Basics	Is void m(int... a) same as void m(int[] a)?
1476	Java Fundamentals	Varargs Basics	Can enums be used with varargs
1477	OOPs	Polymorphism	What is the difference between compile-time and runtime polymorphism?
1478	OOPs	Polymorphism	Can you overload a method by just changing its return type?
1479	OOPs	Encapsulation	What is encapsulation in Java and why is it important?
1480	OOPs	Encapsulation	How do access modifiers support encapsulation
1481	OOPs	Encapsulation	Why are fields typically declared private in encapsulated classes?
1482	OOPs	Encapsulation	Can encapsulation lead to immutability? How?
1483	Java 8	Optional	What is the behavior of Optional.or() and when might it be useful?
1484	Java 8	Optional	How does Optional::or differ from orElse / orElseGet?
1485	Java 8	Optional	How does flatMap() behave when the mapping function returns an empty Optional?
1486	Java 8	Optional	How do equals() and hashCode() behave for Optionals?
1487	Threads	Multithreading & Concurrency	What is the difference between synchronized block and ReentrantLock, and when would you use one over the other?
1488	Threads	Multithreading & Concurrency	How does the Java Memory Model (JMM) ensure visibility and ordering guarantees across threads?

1489	Threads	Multithreading & Concurrency	Explain the role of volatile keyword in Java concurrency. Can it guarantee atomicity?
1490	Threads	Multithreading & Concurrency	How does the Fork/Join framework work in Java, and how is it different from the traditional executor service?
1491	Threads	Multithreading & Concurrency	What are the problems with using ThreadLocal, and how can it lead to memory leaks?
1492	Java 8	Stream	What are takeWhile and dropWhile methods in Stream, and how do they work?
1493	Java 8	Stream API	What is the improvement in Collectors added in Java 12 (or later) named teeing?
1494	Java 8	Stream API	What is the use of Collectors.groupingBy()
1495	Java 8	Stream API	How is Collectors.partitioningBy() different from groupingBy()
1496	Java 8	Stream API	What is Collectors.reducing() and how is it different from Stream.reduce()
1497	Java 8	Stream API	What are summarizingInt(), summarizingDouble(), and summarizingLong()
1498	Java 8	Stream API	Can I create a custom collector? How?
1499	Exception Handling	Core Concepts	What is an exception in Java?
1500	Exception Handling	Core Concepts	What is the difference between checked and unchecked exceptions?
1501	Exception Handling	Core Concepts	Can we have multiple finally blocks in Java?
1502	Exception Handling	Core Concepts	What happens if an exception is not caught in Java?
1503	Exception Handling	Core Concepts	Can a finally block exist without a catch block?
1504	Exception Handling	Core Concepts	What happens if both catch and finally blocks have a return statement?
1505	Exception Handling	Core Concepts	Can we throw an exception from a finally block?
1506	Exception Handling	Core Concepts	What is the difference between throw and throws in Java?
1507	Exception Handling	Core Concepts	Can we have multiple finally blocks in Java?
1508	Exception Handling	Core Concepts	Can we write a try block without a catch but with finally?
1509	Exception Handling	Core Concepts	What happens if an exception occurs inside a catch block?
1510	Exception Handling	Core Concepts	What is the parent class of all exceptions in Java?
1511	Exception Handling	Core Concepts	How does Java differentiate between checked and unchecked exceptions at compile time?
1512	Exception Handling	Core Concepts	Can we create custom exceptions in Java?
1513	Exception Handling	Core Concepts	What is the difference between Error and Exception in Java?
1514	Exception Handling	Core Concepts	Can we catch multiple exceptions in a single catch block?

1515	Exception Handling	Core Concepts	What is the purpose of the Throwable class in Java?
1516	Exception Handling	Core Concepts	Can we rethrow an exception in Java?
1517	Exception Handling	Core Concepts	What is the difference between final, finally, and finalize in Java?
1518	Exception Handling	Core Concepts	What happens if System.exit() is called in a try block?
1519	Exception Handling	Core Concepts	What is exception chaining in Java?
1520	Exception Handling	Core Concepts	Can we use try-with-resources without catch or finally?
1521	Exception Handling	Core Concepts	What is the advantage of try-with-resources over traditional try-catch-finally?
1522	Exception Handling	Core Concepts	Can we catch a superclass exception before subclass exceptions?
1523	Exception Handling	Core Concepts	What is the difference between runtime exception and compile-time exception?
1524	Exception Handling	Core Concepts	Can we use multiple resources in try-with-resources?
1525	Exception Handling	Core Concepts	What happens if a resource in try-with-resources fails to close?
1526	Exception Handling	Core Concepts	Can we declare throws for unchecked exceptions?
1527	Exception Handling	Core Concepts	What happens if an exception is thrown in the constructor?
1528	Exception Handling	Core Concepts	How do suppressed exceptions work in Java?
1529	Collections	Stack, Queue, DeQueue	Why is java.util.Stack considered legacy, &what is the modern replacement in Java for LIFO?
1530	Collections	Stack, Queue, DeQueue	Java Queue/Deque allow null elements? Why or why not?
1531	Collections	Stack, Queue, DeQueue	What do we mean by head of a queue and which methods expose it non destructively?
1532	Collections	Stack, Queue, DeQueue	What is returned if we call peekFirst()/peekLast() methods on an empty Deque?
1533	Collections	Stack, Queue, DeQueue	Which one is faster ArrayDeque or LinkedList for queue/deque end operations & why?
1534	Collections	Stack, Queue, DeQueue	What happens to the iteration order of a PriorityQueue? Is it sorted?
1535	Collections	Stack, Queue, DeQueue	How does PriorityQueue determine priority by default, and how do you change it?
1536	Collections	Stack, Queue, DeQueue	Can PriorityQueue contain duplicate values or can it contain null vaues?
1537	Collections	Stack, Queue, DeQueue	What is a BlockingQueue and when it should be used?
1538	Collections	Stack, Queue, DeQueue	Diff between ArrayBlockingQueue vs LinkedBlockingQueue
1539	Collections	Stack, Queue, DeQueue	How does SynchronousQueue work and when would you use it?
1540	Collections	Stack, Queue, DeQueue	What is a DelayQueue and a reasonable use case?
1541	Collections	Stack, Queue, DeQueue	ConcurrentLinkedQueue vs ArrayBlockingQueue
1542	Collections	Stack, Queue, DeQueue	How queue work internally?

1543	Collections	Stack, Queue, DeQueue	How do you implement a queue using linked lists?
1544	Threads	Multithreading	What is the difference between invokeAll() and invokeAny() in ExecutorService?
1545	Threads	Multithreading	How does StampedLock differ from ReadWriteLock?
1546	Threads	Multithreading	What is the use of ForkJoinPool.ManagedBlocker interface?
1547	Threads	Multithreading	What is the difference between CountDownLatch and CyclicBarrier?
1548	Threads	Multithreading	What is a CompletionStage and how is it related to CompletableFuture?
1549	Threads	Multithreading	What are structured concurrency and virtual threads (Project Loom)?
1550	Threads	Multithreading	What's the difference between parallelStream() and CompletableFuture.supplyAsync()?
1551	Threads	Multithreading	How does lock coarsening and lock elimination improve performance in JVM?
1552	Threads	Multithreading	What is livelock and how is it different from deadlock?
1553	Threads	Multithreading	What's the difference between ExecutorService.shutdown() and shutdownNow()?
1554	Threads	Multithreading	How can Phaser be used to solve complex synchronization problems better than CountDownLatch or CyclicBarrier?
1555	Threads	Multithreading	What are atomic variables in Java and when should they be used?
1556	Threads	Multithreading	How does Java's Fork/Join framework handle task stealing?
1557	Threads	Multithreading	How do you prevent thread starvation in a thread pool?
1558	Threads	Synchronization & Locks	What is lock downgrading in Java? How can it be done?
1559	Threads	Synchronization & Locks	What is the ABA problem in concurrent programming? How can it be avoided?
1560	Threads	Synchronization & Locks	When should you use ReadWriteLock over synchronized? Give a real-world use case.
1561	Threads	Synchronization & Locks	Explain optimistic vs pessimistic locking. How is this implemented in Java concurrency?
1562	Threads	Synchronization & Locks	What are some pitfalls of using volatile in place of full synchronization?
1563	Threads	Thread Pools & Executors	What happens if you submit a task to a shutdown ExecutorService?
1564	Threads	Thread Pools & Executors	What's the purpose of a ThreadFactory? When should you use one?
1565	Threads	Thread Pools & Executors	How do you implement a custom thread pool executor with bounded queue and rejection policy?
1566	Threads	Thread Pools & Executors	How does ThreadPoolExecutor internally manage core threads vs maximum threads?

1567	Threads	Thread Pools & Executors	What's the default thread pool used in parallelStream() and CompletableFuture? Can it be changed?
1568	Threads	Thread Pools & Executors	What are takeWhile and dropWhile methods in Stream, and how do they work?
1569	Collections	ArrayList,Arrays	Is ArrayList thread-safe?
1570	Collections	ArrayList,Arrays	How can you make an ArrayList thread-safe?
1571	Collections	ArrayList,Arrays	Difference between ArrayList and Linked List and vector?
1572	Collections	ArrayList,Arrays	How do you create an unmodifiable List in Java?
1573	Collections	ArrayList,Arrays	What is CopyOnWriteArrayList and how is it different from ArrayList?
1574	Collections	ArrayList,Arrays	How do you synchronize a List in Java?
1575	Collections	ArrayList,Arrays	How does List.of() differ from Arrays.asList()?
1576	Collections	ArrayList,Arrays	What is the difference between Collections.unmodifiableList() and List.copyOf()?
1577	Collections	ArrayList,Arrays	How does removeIf() work for Lists?
1578	Collections	ArrayList,Arrays	Difference between trimtosize() and ensure capacity?
1579	Collections	ArrayList,Arrays	What happens if you use Collections.sort() on a List with null values?
1580	Collections	ArrayList,Arrays	What happens if you modify a List returned by List.of() ?
1581	Collections	ArrayList,Arrays	Can two different List implementations (e.g., ArrayList and LinkedList) be equal?
1582	Collections	ArrayList,Arrays	Can two lists with the same elements in a different order be considered equal
1583	Collections	ArrayList,Arrays	How do you create a fixed-size List in Java without using Arrays.asList()?
1584	Collections	ArrayList,Arrays	What are primitive and reference type arrays? How do they differ?
1585	Collections	ArrayList,Arrays	What is the difference between System.arraycopy() and Arrays.copyOf()?
1586	Collections	ArrayList,Arrays	what is a custom List in Java?
1587	Collections	ArrayList,Arrays	What is the difference between Iterator and ListIterator?
1588	Collections	ArrayList,Arrays	What is System.arraycopy()?
1589	Java Fundamentals	Control Flow Statements	Explain the difference between a conditional statement and a looping statement in Java
1590	Java Fundamentals	Control Flow Statements	What are the possible types that can be used in a switch statement in Java?
1591	Java Fundamentals	Control Flow Statements	What is the purpose of the default case in a switch statement?
1592	Java Fundamentals	Control Flow Statements	Can you have multiple case labels for the same block of code in a switch statement?
1593	Java Fundamentals	Control Flow Statements	What happens if no case matches in a switch statement?
1594	Java Fundamentals	Control Flow Statements	How does the fall-through behavior work in switch statements?

1595	Java Fundamentals	Control Flow Statements	Can you use a break statement in a switch statement in Java?
1596	Java Fundamentals	Control Flow Statements	Can you use a return statement inside a switch case?
1597	Java Fundamentals	Control Flow Statements	What happens if you forget the break statement in a switch case in Java?
1598	Java Fundamentals	Control Flow Statements	What is the difference between a for loop and a while loop?
1599	Java Fundamentals	Control Flow Statements	How does the do-while loop differ from a while loop?
1600	Java Fundamentals	Control Flow Statements	How do nested for loops work in Java?
1601	Java Fundamentals	Control Flow Statements	How do you avoid infinite loops in Java?
1602	Java Fundamentals	Control Flow Statements	What is the impact of recursion on Java's call stack during control flow?
1603	Java Fundamentals	Control Flow Statements	How can continue and break be used in try-catch-finally blocks in Java?
1604	Java Fundamentals	Control Flow Statements	How does the yield statement work in a Java switch statement?
1605	Java Fundamentals	Control Flow Statements	What is tail recursion, and how does it affect control flow in Java?
1606	Java Fundamentals	Control Flow Statements	How do try-catch blocks affect control flow in Java?
1607	Java Fundamentals	Control Flow Statements	How does the finally block affect control flow?
1608	Java Fundamentals	Control Flow Statements	What happens if an exception is thrown after a break statement in a loop?
1609	Java Fundamentals	Control Flow Statements	How does Java handle logical operators (&&, ||, !) in control flow?
1610	Java Fundamentals	Control Flow Statements	How do you use a switch statement with an enum in Java?
1611	Java Fundamentals	Control Flow Statements	How do you handle null values in conditional statements in Java?
1612	Java Fundamentals	Control Flow Statements	How does Java handle control flow with instanceof operator in conditional statements?
1613	Java Fundamentals	Control Flow Statements	Can you implement nest switch statements in Java?
1614	Java Fundamentals	Control Flow Statements	How do switch and if handle comparison for floating-point numbers?
1615	Java Fundamentals	Control Flow Statements	How do you handle non-primitive data types in a switch statement in Java?
1616	Java 10	Enhancements	When should we use Collectors.toUnmodifiableList() vs List.copyOf()?
1617	Java 10	Enhancements	What happens with duplicates in Collectors.toUnmodifiableSet() and Collectors.toUnmodifiableMap()?
1618	Java Fundamentals	Control Flow Statements	What is the difference between using multiple if statements and using a switch statement in terms of performance and readability?
1619	Java Fundamentals	Control Flow Statements	Can we use switch statements to compare strings in Java? If yes, since which version of Java?
1620	Java Fundamentals	Control Flow Statements	How does Java handle the comparison of String values in switch internally?
1621	Java Fundamentals	Control Flow Statements	Is it possible to use a switch statement inside an if block? What are the implications?

1622	Java Fundamentals	Control Flow Statements	What happens if a switch statement evaluates to null?
1623	Java Fundamentals	Control Flow Statements	Can a switch expression in Java (Java 12+) return a value? How does that differ from a traditional switch statement?
1624	Java Fundamentals	Control Flow Statements	What is the difference between a traditional switch and a switch expression introduced in Java 12?
1625	Java Fundamentals	Control Flow Statements	How can you prevent fall-through behavior in a switch statement if multiple cases should share the same logic?
1626	Java Fundamentals	Control Flow Statements	What is the difference between a count-controlled loop and an event-controlled loop?
1627	Java Fundamentals	Control Flow Statements	How does the enhanced for loop (for-each) work internally in Java?
1628	Java Fundamentals	Control Flow Statements	Can you modify a collection (like an ArrayList) while using an enhanced for loop?
1629	Java Fundamentals	Control Flow Statements	What are infinite loops, and what are some real-world scenarios where they are intentionally used?
1630	Java Fundamentals	Control Flow Statements	What are loop invariants, and how are they used in debugging and optimization?
1631	Java Fundamentals	Control Flow Statements	Can you use a labeled break or continue in nested loops? How do labeled loops work?
1632	Java Fundamentals	Control Flow Statements	Can you use a loop without any condition or initialization statement?
1633	Java Fundamentals	Control Flow Statements	How does the for-each loop handle null collections or arrays?
1634	Java Fundamentals	Control Flow Statements	What happens if you use break or continue in a try-finally block inside a loop?
1635	Java Fundamentals	Control Flow Statements	How do you handle control flow when switching between threads in multithreading programs?
1636	Java Fundamentals	Control Flow Statements	What happens if you place a return inside a for or while loop?
1637	Java Fundamentals	Control Flow Statements	How does continue behave differently in for and while loops?
1638	Java Fundamentals	Control Flow Statements	Can you use break and continue inside a lambda expression or stream? Why or why not?
1639	Java Fundamentals	Control Flow Statements	Can a do-while loop execute zero times? Why or why not?
1640	Java Fundamentals	Control Flow Statements	What's the control flow difference between switch with enum and switch with String?
1641	Java Fundamentals	Control Flow Statements	How do try, catch, and finally blocks interact with return values when used in loops?
1642	Java Fundamentals	Control Flow Statements	How can you simulate an early return from nested loops without using multiple break statements?
1643	Java Fundamentals	Control Flow Statements	What happens when break or continue are used inside a lambda in Java Streams (e.g., in forEach)?
1644	Java Fundamentals	Control Flow Statements	What is a guard clause, and how does it simplify control flow in Java methods?