

ENRICH YOUR JAVA SKILLS TO STAY RELEVANT IN **2020**

Serverless, Reactive, Microservices, Android, Kotlin, Important java challenges, AI, IOT
AWS, Key tools & Tech, Key terms to know, Swagger, Blockchain, Hacking, Security
JHipster, Web Development, Apache Spark, Patterns-Anti Patterns, Neo4j, GraphQL
Spring Boot, Quantum Computing, Docker, Kubernetes, Azure Functions & Many more...

MODERN JAVA DEVELOPER

1000+ *Unique & Practical*
REAL LIFE CHALLENGES
INTERVIEW QUESTIONS

2020 Edition

300+ PAGES

64+

MORE THAN
TOOLS & TECHNOLOGIES
COVERED

MOST OF THE LATEST TECHNOLOGIES COVERED
THESE CHALLENGES ARE NOT A COLLECTION OF REGULAR INTERVIEW QUESTIONS
SCRAPPED FROM WEB

ABOUT THE BOOK

Have shortlisted 1100+ Challenges and Interview Questions that are relevant, practical & Modern in 2020.

The tools and Technologies listed are famous & are being used in many Key Projects and Architectures

For Queries, please mail to 100100gk@gmail.com

Kindly use a Purchased copy of this book as it took more than 5 months to prepare the Challenges.

Two Key things about this Book

- 1) 60+ topics & Technologies are covered. Please check the list in the Technologies Covered List
- 2) The Book has only Challenges and Interview Questions.
NO ANSWERS, as most of them are just a Google search Away.

Great! Hope will update this Edition Thrice before the next release of Red Dead Redemption or The Witcher (The game -Not the Movie/Series)...
Thanks from GK

TECHNOLOGIES COVERED

1. BlockChain
2. Microservices
3. Docker
4. Kubernetes
5. Reactive
6. Spring Boot
7. Apachespark
8. AI-ML-DL

9. JHipster
10. Advanced JDBC
11. Mysql
12. JShell
13. Appium
14. Elastic search
15. Mockito
16. PowerMock

17. Regex
18. MongoDB
19. SQL
20. Redis
21. Generic
22. JDK
23. Scrum – Agile
24. Quantum

25. Serverless
26. Security
27. Android
28. Selenium
29. JWT
30. Hacking
31. Capacity Planning

32. Postman
33. Progressive
34. BDD
35. Swagger
36. Jmeter
37. Logging
38. Concurrency

39. Linux
40. RaspberryPI
41. Arduino
42. Terms
43. Charts
44. Tomcat
45. Kotlin

46. Architectures
47. Hibernate
48. GIT
49. Web Development
50. Softwares and Libraries
51. AWS
52. AZURE Functions

53. Maven
54. HyperLedger
55. HTTP/2
56. WireShark
57. IOT
58. ELK
59. Graffana
60. Wildfly

61. Software Design
62. Jenkins
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PATTERNS & ARCHITECTURE

1. Software Design

A project requirement is to create an ETL like Integration tool with a Visual GUI, Parallel Processing capability, in memory processing, multi-datasource support, multiple protocol and file format support, Monitoring support, Workflow and Data Manipulators.

Suggest the list of Software components/libraries and related EAP that you will be using for building this Software

Some recommended tools are below

Apache Commons, Guava, RabbitMQ, Javafx, Springboot, Jasper Reports

2. Microkernel

What is Microkernel Architecture?

List some Products/websites/apps using that or more suitable to use that.

How to integrate it with an existing Microservices Architecture?

3. Patterns

Explain about the following patterns.

Where they are best suited and list the Software components involved.

If possible, add a list of real life examples for each pattern

For eg) Chat Apps & RSS apps may use Broker pattern & Peer-Peer Pattern

- Pipe-filter pattern
- Broker pattern
- Peer-Peer Pattern
- Sensor-Controller-Actuator

4. Martin Fowler's

Martin Fowler's book *Patterns of Enterprise Application Architecture* organizes patterns into 10 categories based on their application layer. List them

5. List the Differences between the below Five Architectural Patterns and where are they well suited?

Also explain why Microservices is the best among the below.

- Layered Pattern
- Event Driven Pattern
- MicroKernel Pattern
- Microservices Pattern
- Space Driven Architecture Pattern

6. Which Pattern gives you the below facility

- Avoiding duplication of code
- Code should be more readable and easy to maintain
- Changes should be easy
- Easy to scale in future

7. In these three Architectural patterns - MicroServices, MicroKernel, Space-based Which one will you select for Scalability, Development, and Testability Easiness? Explain in detail with a real use case

8. Software Architecture

How Mediator Topology and Broker topology are related.

What are the three primary issues with Event-Driven Architecture like failure Recovery?

9. Software Architecture

Which pattern is suited for the below requirement

Detect failures and encapsulates the logic of preventing a failure from constantly recurring

10. Architectural Patterns

Explain the below Patterns with examples

- Separate Abstractions
- Implementation Factory
- Independent Deployment

11. What are the five pillars of well Architected frameworks?
Explain *the five things* that needs to be done in every pillar
For example, In Security Pillar - Token Authentication, Two-step Verification have to be implemented

12. Architecture

Explain in brief about Agile Architecting
What are the key guidelines for the Agile Architect?
Detail about Incremental Commitment Model

13. Architecture

What are the blocks in a 12factor app manifesto?
<https://12factor.net/>

Explain in detail about the 6th and 11th principles

14. Design Patterns Java API

Name the java core classes API associated with design patterns listed below
For eg) Java enumerable interface & collection framework --> Iterator pattern

- Singleton
- Chain of Responsibility,
- Abstract Factory
- Interpreter
- Comparator

15. Design Patterns Java API

Name the java core classes API associated with design patterns listed below
For eg) Singleton - Java.lang getRunTime

- Observer
- Mediator
- Memento
- Command
- Strategy

16. Design Patterns Java API

Name the java core classes API associated with design patterns listed below

For eg) Singleton - Java.lang getRunTime

- Facade
- Builder
- Prototype
- Composite
- Interpreter

17. Explain the below patterns with real life usecases and samples

- Repository
- Unit of Work
- Lazy Load
- Service Layer

18. Use umlet, a free tool to create *a Simple Data Flow diagram* for a money transfer - transaction between two parties in a Paypal like system

19. Use Umlet like free tool to create *a use case diagram and class design diagram* for a patreon like web Application

20. Explain the following and their importance

- Business Architecture
- Information Architecture
- Domain Driven Architecture
- Service Oriented Architecture
- Component Based Architecture
- Architecture Viewpoints

21. Explain the following and their importance

- MicroServices Architecture
- MicroKernel Architecture
- TOGAF
- FEAF
- DODAF
- Zachman

22. Demo how to use the Archi Tool, to create an application diagram for an online CRM or an ERP sales system

You can refer here for the Tutorial and samples

<https://online.visual-paradigm.com/tutorials/archimate-tutorial/>

[Archimate examples section]

<https://www.togaf-modeling.org/models/application-architecture.html>

ANTIPATTERNS

23. Explain the Below Antipatterns with ways to avoid them

- Gold plating
- Cargo cult
- Inheritance Hell
- God Object
- PokemonExceptionHandling
- soft Code

24. Explain the Below Antipatterns with ways to avoid them

- Boat anchor
- Lava Flow
- Interface Bloat
- Database-as-IPC

25. Explain the Below Antipatterns with ways to avoid them

- Programming by Permutation
- if-driven development
- The Universe
- Shotgun surgery

Capacity Planning

26. Capacity Planning

What are the Key factors in a Hardware capacity planning for an Application?

Explain how will you plan your capacity for the below listed factors

CPU Utilization, Processor Sizing, end - end Response time , Transaction/sec, Workload, users, Concurrent users, memory low limit

27. Capacity Planning

Calculate how many Mbps connection is required for a web application for around 10k requests/hr with an average request size of around - 400 bytes for a request and 3000 bytes for a response.

Calculate the Minimum required Memory hardware for a web Application with 100 concurrent requests/sec for around 70% for Static Webpage and 30% for Dynamic webpage

A dynamic page delivery costs 2MB and static page takes around 1MB of system resources.

28. RAID

What are the types of RAID levels? When to use them?

For eg)

RAID 10 -Safest- suitable for DB

Read 6 -Capacity- Like reporting applications or analysis apps

Why using RAID for Hadoop like BigData Systems is not recommended?

Must to know Terms

29. Explain the following terms.Examples are required

- YAGNI
- Opinionated
- Syntactic Sugar
- Tuples
- Expression tree
- Dot prefix syntax
- PipeLine

30. Explain the following terms.Examples are required

- Headless
- ColumOriented
- InfraStructure as Code
- Pub/Sub
- DRAAAS

31. Explain the following terms.Examples are required

- A/B testing
- OOTB
- CTA
- Edge Network
- ITIL
- EDGE databases

32. Explain the following terms.Examples are required

- Advanced Federation Capability
- Canary
- Blue/green deployment
- Policy as code
- Digital Forensics

33. Explain the following terms.Examples are required

- Declarative Configuration
- Service Mesh
- ACL System
- CSRF or XSRF
- UI Smoke Tests
- DevSecops

34. Explain the following terms.Examples are required

- Lazy Computations
- Automatic Currying
- Destructuring
- Pipeline
- Type Inference
- Templating
- ETL

35. Explain the following terms.Examples are required

- Call stack
- Preemptive Multitasking
- Cooperative Multitasking
- Quasar Fibers
- Green Threads
- Tail calls
- Fiber based Actor system

36. Explain the following terms. Examples are required

- Time Series databases
- Flux Language
- Eager execution
- transfer learning
- shift-left testing
- Turing complete language

Microservices

37. MicroServices Anti Pattern

Explain the below MicroServices Anti Patterns

- 'Bulkheads' pattern --- Resources-per-client
- "I Was Taught to Share" Anti-Pattern
- Reach-in Reporting Anti-Pattern

38. Microservices

Explain how logging, Transaction Tracing and Root cause analytics can be handled in a distributed Microservices environment.

39. Microservices

Evaluate the Microservices framework <https://micronaut.io/>

40. Microservices

Explore about <https://helidon.io/#/>

How is it different from other well-known frameworks like spring boot, Sparkjava?

41. Microservices

How will you implement UI in Microservices? What are the general approaches for that?

Among these two, which is a better, approach for UI

- Separate web apps with different functionalities [not widely used in Enterprise websites]
- A mash-ups that aggregate several UIs into a Single page *[For Eg Amazon.com, ebay or any news website with other panels in the same page like ads, Slide shows, Videos]*

42. Microservices

Compare between these Service discovery tools

- Netflix Eureka
- SmartStack
- Zookeeper
- Etcd
- Consul

43. Microservices

Demo how to use Netflix Eureka and Spring Cloud Config for a Simple Microservices Application

44. Microservices

Demo how to use the spring boot Actuator for a Microservice, which will use <http://worldclockapi.com/>

45. Microservices

Demo how to use circuit breaker and fallback implementation using Hystrix for a Microservice for Fault tolerance or will you suggest using Kubernetes for this

46. Microservices

Demo how to use Zuul as a proxy for backend service calls.

What is the importance of Eclipse MicroProfile Project?

What are the 10+ key functional components of Microprofile and the Related base libraries

Also, Check who is involved in this development

<https://projects.eclipse.org/projects/technology.microprofile/who>

47. MicroServices

How Fault isolation is handled in a Microservices environment? Detail with an Architectural diagram

48. Microservices-Pact

With Microservices and number of APIs climbing up, *Pact* is a wonderful Contract testing tool used by top companies like soundcloud, IBM, redhat which helps to mock consumer Contracts.

Create a simple api - Server and client for a TV catalog service and test using @PactVerification

<https://the-creative-tester.github.io/Java-Consumer-Driven-Contract-Testing/>

Also, check the *Best Practices* section

https://docs.pact.io/best_practices/consumer/contract_tests_not_functional_tests

49. Microservices

Demo how to use OAuth with Spring Boot?

50. Microservices

Demo how to create a Reactive Microservice with Spring WebFlux

51. Microservices

What are the key components of Spring Cloud Netflix

Explain about

- Archaius
- Hystrix-contract
- Ribbon
- Turbine
- Zuul

52. Microservices

What is the use of JavaMelody?

Demo how to use it to measure the, Microservices Performance especially about the – *user count, Sessions, memory and mean Execution times*

53. Microservices

- Will you recommend using CQRS along with Microservices?
- Will you recommend using NATS2.0 in a Microservices Environment? If yes Why?
- Also List the best 3 alternatives other than Apache Kafa
- Is there is a relation between ESB like Mule and Microsevicees?

54. Microservices

Detail how the new java module system will help in a Microservices Environment

55. Microservices

Not in the Microservices way - Demo how to build a Restful webservice in a traditional way with Jersey and Tomcat

56. Microservices

- What is mean by *light weight Architecture Decision Records*
- What are *consumer Driven contracts* in Microservices

57. Microservices

Evaluate how **<https://tyk.io/>** works

- What are the Authentication mechanisms supported?
- Check its BenchMark results
- What are the Plugins Available?
- Finally check about the casestudy of Yellow Pages

58. Microservices

- What is the advantage of starting API testing before starting the actual coding process?
- Explain how would you implement API-Design First Methodology
- Detail how to do an API-DesignFirst Methodology for a Project like '*Trello*' lists and what are the tools that can be used for this

59. Microservices

- Evaluate how <https://apifortress.com/> helps in Microservices and Other Endpoints testing for a Project.
- Check how the API mocking feature can be used.
Also explore the below Intesresting features
APIF Forge, Building from Swagger spec, Project Hook, Jenkins – using APIF Auto, Disable SSL Validation, GraphQL Testing, on premises Local Agent Testing

60. Microservices

- Detail about Azure Service Fabric. What is its application model?
- Demo how to deploy a reliable services java application using Azure Service Fabric
- Detail about Guest executables and Reliable actors

Famous & Useful Software

61. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Talend
- Apache Solr
- SlamData

62. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Apache Flink
- Flatpak
- Varnish Cache
- Okta

63. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Lumify
- KNIME
- Realm

64. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- D3.js
- diff-so-fancy
- Common Voice
- Restlet studio

65. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Apache Beam
- Rapid Miner
- Lucene

66. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- TerracottaDB
- SendGrid
- Apache Thrift
- Notifiers

67. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Zapier/IFFFT
- HockeyApp
- Perfect Audience

68. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Apache Yarn
- Testflight
- Code Climate
- Sauce Labs

69. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Detect-secrets
- TeamCity/Jira
- Hystrix

70. Famous & Useful

Below listed are some famous and free softwares

Brief about - How can they be used in an Organization or project

- HAProxy
- Respondly
- PagerDuty
- memcached/MemCachier

71. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Hound
- New relic
- Pusher

72. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Ustesting
- Prometheus
- MailGun
- DataDog

73. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- RollBar
- Sidekiq
- CrowdFlower

74. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Kibana
- Vault
- TerraForm
- HelloSign

75. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Test Kitchen
- Hubot
- Crashlytics

76. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Consul
- Chef/Ansible/Puppet
- Redux.js - React Native
- Transloadit

77. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Sift Science
- Nutanix Acropolis
- Kissflow
- Terraform

78. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Nuclide
- Twilio
- Quip

79. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Onelogin
- FullStory
- Parse Server

80. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Postal
- Beehive
- WebPack
- HavenApp

81. Famous & Useful

Below listed are some famous and free softwares.

Brief about - How can they be used in an Organization or project

- Algolia
- Kite
- HashiCorp Consul
- Apache Commons Text

82. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Apache Cocoon
- Apache OpenNLP
- SpageBI

83. Famous & Useful

Provide information about these tools-projects and how can they be used in a organization/Project

- Struts Honey Pot
- Security Bot
- Certbot

84. Famous & Useful

Provide information about these tools-projects and how can they be used in a organization/Project

- Elastic Stack
- RethinkDB
- WireShark/Alteratives

85. Famous & Useful

Provide information about these tools-projects and how can they be used in a organization/Project

- Struts Honey Pot
- Security Bot
- Certbot

86. Famous & Useful

Below are famous softwares

Brief about - How can they be used in an Organization or project

- ApolloServer
- Windows SubSystem For Linux
- MetaSpoilt
- Graphite

87. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Mattermost
- Radius Server
- HIVEMQ

88. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Sharepoint Foundation Server
- Oodoo
- Alfresco DCM
- Camuda BPM

89. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- AppDynamics
- MiddleMan
- phabricator

90. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Transifex
- Pandas - Numpy
- Loggly/LogStash
- Steemit

91. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Pivotal Tracker
- Embedly
- Unicorn

92. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Hubot
- Kitematic
- MobX
- Cloudinary

93. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- imgix
- KOA
- Tower

94. Famous & Useful

Below listed are some famous and free software.

Brief about - How can they be used in an Organization or project

- Sintara
- CodeShip
- Confluence
- Olark

95. Famous & Useful

Below listed are some famous and free software

Brief about - How can they be used in an Organization or project

- Papertrail
- Everhour
- Periscope

Serverless & FAAS

96. Knative

- What is the importance of knative in a serverless Environment?
- Why Knative is adopted by openshift?
- Explain about Knative Build Serving and Knative Eventing
- List the Serving and Eventing Resources

97. Serverless

Explain the below 4 features in detail and how they are achieved in cluster builds

- 0-N autoscaling
- Revisions
- HTTP routing

98. Detail about OpenFaaS, its relation to kubernetes and Docker How OpenFaaS differs from Knative from google & Kubeless from Bitnami

99. Serverless

What are OpenFaaS templates? What are they composed of?

Detail about OpenFaaS store

Check the Video Available FaaS and Furious - 0 to Serverless in 60 Seconds,
Anywhere - Alex Ellis, ADP

@ <https://www.youtube.com/watch?v=XgsxgHQvMnM>

100. OpenFaas

What is an OpenFaaS of-watchdog?

What is faas-cli secret

faas-cli up command is a single command replacement for 3 commands . What are they?

101. OpenFaas

How OpenFaas is related to IngressController, Prometheus, NATS, CRD, and Yaml?

How to migrate AWS Lambda to an Openfaas platform

Demo how to use a Springboot template in an OpenFaas platform

102. OpenFaas

Explain the below commands

faas-cli new

faas-cli template pull

Is openFaas usable in AWS, GCP, and Azure?

In AWS what is the relation between OpenFaas and AWS EKS

103. OpenFaas

<https://serverless.com/>

How serverless promotes multicloud approach. Check the plugins available

What is the difference between opensource and serverless edition?

Explain the below command

serverless invoke --function demodataDisplay --log

What are event Gateways

104. AWS Lambda

Detail about AWS Lambda Function Scaling

What is the Initial Concurrency Burst Limits for Asia Pacific Region?

105. AWS Lambda

What *keeping the Function warm* means?

What *Function cold start* means?

106. AWS Lambda

Detail about AWS Lambda Function Errors in Java and how to create a Custom handler linked with SNS in Java

What are the two approaches for creating a handler in java?

When to use Stream for Handler Input/Output?

What is the role of AWS X-Ray SDK for Java?

Explain the below command

```
aws lambda invoke --function-name my-function out --log-type Tail \  
--query 'LogResult' --output text | base64 -d
```

List some key methods available in the Lambda Context Object in Java like getClientContext (), getLogger ()

107. Serverless

Explain about Serverless containers

Explain about Serverless Networking

Explain about serverless web sockets

108. Serverless

What is AWS Step Function?

How is it related to Serverless?

What is Amazon States Language (ASL)?

Create a Demo for a simple form based application [*a Simple loan Approval application*] using Lambda functions and AWS Step Functions

109. Serverless

Create a Simple TODO application using AWS Lambda or any other Serverless or FAAS Service provider, with a DB like Postgress

110. Serverless

Even though, Discontinued Apex is a Great Tool for AWS Lambda.

Check it features

<https://github.com/apex/apex>

What are the pro features of <https://apex.sh/up/>

111. Serverless

Explore about <https://knative.dev>

Explore about serving component and Eventing services component

Detail about Service, Route, Configuration, revision

Also, detail about Debugging applications

112. Serverless

Explore about Tekton Pipelines

Why is it called as Typed, Decoupled, and Cloud Native?

Also Explore about TaskRuns and PipelineRuns

<https://github.com/tektoncd/pipeline>

113. Serverless

Evaluate <https://www.envoyproxy.io/> and how is it related to Microservices management?

Explain its architecture

In addition to Proxy what are its other Usecase(s) for this product - for eg)An API gateway

What are the load balancing features it supports?

What is L7 traffic and how Observability works in Envoy?

What are the well-known companies using it?

114. Serverless

What is the difference between FaaS and serverless

From the below four services which one supports java?

AWS Lambda, Azure Functions, GCP Functions, Apache OpenWhisk

115. Serverless

Evaluate Kubeless - The Kubernetes Native Serverless Framework

How it differs from GCP functions or AWS lambda

Does it supports java?

116. Kubeless

What is a Kubeless Controller?

Explain about the below commands

kubeless function

kubeless topic

117. Serverless

Evaluate <https://cloud.triggermesh.io/>

Check about its Build Templates, Tasks, Services, Push events

Detail about AWS Lambda Compatible Functions,

118. Serverless

Demo a Simple Serverless application using <https://fnproject.io/> Or Openwhisk or Lambda or openFaas that will convert a given webpage to PDF

119. FnProject

How to convert javafunctions to native executables? – List the Softwares that can do this

What is the relation between fnproject and docker?

What is the advantage of Flows?

120. Fnproject

Demo how to create a javafunction for a simple async stock Quote application using fn and a Http trigger

121. Fnproject

How to check logs in

How to publish Lambda functions using cli

How to build a Custom Fn Server

122. OpenWhisk

Detail about Apache OpenWhisk

What are Packages, actions, rule, Triggers and Feeds.

What is the difference between messages and triggers?

123. OpenWhisk

Detail about Apache OpenWhisk

What are Packages, actions, rule, Triggers and Feeds.

What is the difference between messages and triggers?

124. OpenWhisk

Create a Simple twitter or Weather bot using OpenWhisk

List some packages available

List few **wsk** commands under action, Trigger, rule category like **wsk** action update

What is the relation between IBM Cloud functions and Openwhisk Platform?

125. Apache Dubbo

Detail about Apache Dubbo Project. List few Usecase(s) of this project

What are the key layers in its architecture?

How does Async Call works?

126. Apache Dubbo

- What is the difference between Echo service and Generic Service?
- When to use delay publish Service and when to use sticky connections?
- Detail about its capacity plan -as it is claimed as a Powerful RPC framework from Alibaba.
- What are the two types of Service Publishing?

127. Serverless

What is the relation between Serverless - Backend as a Service like Firebase and Cloud functions/Lambda?

128. fn

Use <https://fnproject.io/> to create a serverless java application with a function that gets the Alexa ranking

Use <http://data.alexa.com/data?cli=10&url=www.yourwebsite.com> and parse the xml output
More details from here

<https://github.com/fnproject/tutorials/blob/master/JavaFDKIntroduction/README.md>

129. FAAS

What is mean by FAAS?

List at least five products and service providers

130. Spring Cloud Stream

What is spring cloud stream? Explain about its key Components.

Explain about the below annotations

EnableBinding, StreamListener, sendTo

Create a Simple application using Cloud Stream and RabbitMQ with reactive functions support using Reactor

131. JAM Stack

Evaluate the one of the most interesting product JAMStack.

Examples here

<https://jamstack.org/examples/>

132. Spring Cloud Stream

How to handle DLQs

How to handle Multiplex Consumer.

Explain how to configure Lazy Queues and their Importance

What is the default batchsize & bufferlimit?

133. Spring Cloud function

Explain about spring cloud function and its major advantage.

Demo how to create a Simple JSON validator Application using spring cloud function and deploy it with an API gateway in AWS Lambda using SpringBootRequestHandler

Reactive

134. Reactive

How to add reactive streams support to JDK1.8
Is reactive Stream is a part of Reactive Programming

135. Reactive

Explain about different Asynchronous styles like Rx-style, callback style, promises

What is Single Event loop Model? What are its cons?

136. Reactive

Evaluate RxRedux and its best usecase

137. RxJava

Demo how to avoid multiple nested callbacks using RxStyle programming using RxJava
Compare RxJava to Kotlin Coroutines

138. RxJava

Explain about the below components
ObservablesObservers and Subscribers, Operators

139. RxJava

Detail about below Operators

- Amb
- bufferWithTimeOrCount
- using

140. RxJava

Explain about below functions

Observable.from()

Observable.just()

Observable.range()

Observable.interval()

Observable.timer()

Observable.defer()

141. RxJava

Detail about below Operators

- scan
- Materialize
- subscribeon
- select

142. RxJava

When to use Subjects? How they act as both an Observer and an Observable.

Which category does Subjects belong to - Hot or Cold Observables?

143. RxJava

What is mean by hot and cold streams, Synchronous emissions and Asynchronous Emissions

What is the difference between Flowable, Single, Maybe, Observable and Completable

144. RxJava

When to use DisposableSingleObserver

When to use PublishSubject, ReplaySubject

145. RxJava

What is the role of processors?

Explain with usecase for the below processors

- AsyncProcessor
- BehaviorProcessor
- FlowableProcessor
- MulticastProcessor

146. RxJava

When to use

Observable.fromCallable()

Observable.fromFuture()

147. RxJava

List the life cycle methods in an Observer

What happens if unsubscribe is not called

148. RxJava

When to use BlockingObservable & GroupedObservable

149. RxJava

Demo how to write a Simple WebSpider using RxJava

150. RxJava

When to use Subjects? How they act as both an Observer and an Observable.

Which category Subjects belong to - Hot or Cold Observables?

151. RxJava

Explain about the below subjects

- BehaviorSubject
- PublishSubject
- ReplaySubject
- AsyncSubject
- UnicastSubject

152. Reactive

Demo how Chaining API for parallel requests works with Retrofit & Rxjava

153. Reactive

Explain about Reator and Multi-Reactor patterns

Also explain this - "Each Vertx instance maintains several event loops"

154. Reactive

Explain about R2DBC (Reactive Relational Database Connectivity).

What are different types of Drivers available?

Demo how to use Spring WebFlux and R2DBC in Spring Boot with Postgres/Mysql

155. Reactive

How reactive programming can help in the below Scenario

A Query to DB where SMS Messages are stored from a Mobile based java client returns around 1 million SMS records

The Mobile based Java client cant process all recos.

How will you use reactive programming to address this.

156. Reactive

Classify Reactive Java libraries based on their generations - for eg) Akka Streams is a 3rd generation library

157. Reactive

Explain about the below subscribers and their uses

- ObservableSubscriber
- OperationSubscriber
- PrintSubscriber
- PrintDocumentSubscriber

158. Reactive

Explain the below operations

```
collection.insertOne(doc).subscribe(new OperationSubscriber<Success>());  
collection.find(eq("i", 71)).first().subscribe(new PrintDocumentSubscriber());  
collection.find().projection(excludeId()).subscribe(new PrintDocumentSubscriber());
```

159. Reactive

Explain about Reactor Netty and how is it related to spring boot 2.0

What are the libraries it is depend on?

Explain how to create a Http DisposableServer and consume data using a HttpClient.

What is the role of block method? Similarly explain how to set HTTP/2 protocol

160. Reactive

In Java Reactive streams

What is the role of SubmissionPublisher Class?

What does the parameter n represents void request (long n)

What is the role of ForkJoinPool.commonPool ()

161. Reactive

What are the two methods available under Subscription Interface

Is the current java reactive Streams implementation is TCK compatible?

Demo how to handle multiple subscribers for an email distribution platform

When to use Flow.Processor

162. Reactive

How RxJava handle Backpressure and how it differs from java 9 Flow API

163. Reactive

Compare Webflux and a Classic MVC for handling requests / sec and a response time, and prove webflux is superior. Ha Ha!

164. Reactive

Demo a Simple Parallel action [For eg a CSV File Processing] using ExecutorService, Future, Enhance & Improve the above demo using CompletableFuture supplyAsync.

What is the role of exceptionally ();

165. Reactive-Reactor

Explain about the two types

Flux<T> and Mono<T>

What is the relation between concatWith and Single Methods?

Explain about StepVerifier

166. Reactive

Explore about LMAX Disruptor library and check how it is best for a single producer And multiple consumers scenario

167. Reactive –Akka

Detail about Akka Actor System and how does it differs from Traditional Systems

Explain in detail about ActorRef

List some famous tools/Libraries using Akka

168. Reactive –Akka

What is the function of these below important methods?

getSelf() createReceive() actorOf()

tell(), ask(), forward() ,watch() ,spawn()

169. Reactive –Akka

What is the role of a Future?

Explain about the SupervisorStrategies

- OneForOneStrategy
- AllForOneStrategy

170. Reactive -Akka

Demo a Simple Akka System with a Parent & Child Actors --> One to get the News, other to get the world time and the final one to Temperature

171. Reactive –Akka

What is Akka gRPC and explain how to implement Bidirectional Streaming

172. Reactive

Evaluate lagom microservices framework

<https://www.lagomframework.com/get-started.html>

Explain the following and their roles

- Service
- persistentEntityRegistry

173. Reactive

Does Lagom supports Kubernetes Deployment?

What is the role of cassandra in lagom

174. Reactive

What is the role of Akka Split Brain Resolver?

What is HOCON and what it is used for?

175. Reactive

Explore about Lightbend Platform components and the list of - Supported and Certified Technologies

Explore about Lightbend Pipelines

How its GUI works, visualize data flows, akka-spark-kafka integration and how is it integrated with Kubernetes.

176. Reactive

Explain the below Akka OSS Libraries and their roles

- Actor library
- Remoting
- Cluster Sharding
- Cluster Singleton

177. Reactive

Explain the below Akka OSS Libraries and their roles

- Cluster Publish-Subscribe
- Distributed Data
- Streams
- HTTP

178. Reactive

What are the key advantages of Jdbi 3

179. Reactive

Explain the features of a Reactive WebServer that are different from a regular webserver

180. Reactive

Explain the below Akka OSS Libraries and their role

- Actor library
- Remoting
- Cluster Sharding
- Cluster Singleton
- Cluster Publish-Subscribe
- Distributed Data
- Streams
- HTTP

181. Reactive

Demo how difficult it would be to build a reactive app using Netty without using Spring webflux like framework

182. Reactive

Evaluate Apples ServiceTalk A JVM network application framework

<https://apple.github.io/servicetalk/servicetalk/SNAPSHOT/>

What are its key Design Principles?

Demo how to create a Blocking Streaming Server & Client

Also Explore about Http2PriorKnowledgeServer and Client

183. Reactive

Explain the below Programming Paradigms with an example and detail how the flow works for a calling thread for the below three

Blocking, Asynchronous and Streaming, Asynchronous and Aggregated

184. Reactive

Servlet vs Reactive Stacks in Five Use Cases

<https://www.youtube.com/watch?v=Orluu4VhmY>

From the above Video

- Explain about the Reactive Stack used there
- What is Mono Void
- What is Reactor Flux's Role

185. Reactive

Servlet vs Reactive Stacks in Five Use Cases

<https://www.youtube.com/watch?v=Orluu4VhmY>

From the above Video

- What is the Spring Boot Apps use case and Which database is used to Save
- Why Spring Boot uses Netty by Default and not Tomcat

186. Reactive

Servlet vs Reactive Stacks in Five Use Cases

<https://www.youtube.com/watch?v=Orluu4VhmY>

From the above Video

- Why Media Type is used to decide between infinite streams and Finite collection
- What is Back Pressure
- How Non Blocking Write Backpressure to Socket works and why Servlet is found to be a Misfit in this

187. Reactive

Servlet vs Reactive Stacks in Five Use Cases

<https://www.youtube.com/watch?v=Orluu4VhmY>

From the above Video

- How a Random Think time is used in the Second Application
- What are the 3 Use Cases the Servlet Stack Summary supports and the Other two not supported
- Which is the Reactive Framework Selected [Q/A section] and Why it has been selected and not Rxjs

Interesting Java Challenges

188. Java

What is the current per processor price for the commercial support of oracle Java SE Subscription & Java SE Desktop Subscription?

189. Java

Detail about Java Record class with an example
How it differs from data class in kotlin?
Is it Mutable?
Is it possible to add custom methods and variables to it?

190. Java

How AZUL and Oracle supporting differs?
Explain about MTS Azul for its Zulu JDK

191. SDKMAN

Most of us might have used SDKman <https://sdkman.io> like npm / apt-get
A Simple Question -How to install Specific versions of Gradle , Maven & openjdk

192. BOT

Bots have become prominent and inseperable unit in Business Process
Demo how to create a Slack/Telegram/Facebook/Discord Bot using java
Also, check about the JBot Framework
Demo how to build a Bot using spring boot and Microsoft bot builder or AWS bot services

193. Java

Is it possible to launch the main class of a module?

Is it possible to launch a class declared in a Source File like below?

java GetRatesToday.java NYSE

What is the use of `nullReader`, `nullWriter`?

What is the role of `Collectors.teeing ()` in Stream API?

194. Java

What is web Scraping? List atleast four libraries for doing the same.
Compare Apache Nutch with Jsoup.

195. Java

Evaluate OpenWebStart. How it compares against Java Web Start
Also, check about IcedTea-Web

196. Manifold

Evaluate <http://manifold.systems/>

Try using the intellij idea plugin for a demo project. Does Kotlin also offers these features?

197. BIG-O

What is the performance of various Java collection implementations/algorithms? What is the Big 'O' notation for each of them?

198. Java

List 10 reasons to update from Java8 like textblocks, Switch expressions, Private interfaces, Modules, Jshell, teeing in collectors Etc

199. C#-Java

List top 5 features missing in java when compared to C# like Partial methods, optional method arguments, Preprocessors, pointers, structures and unions, late bound dynamic type, Lifted Operators etc

200. Java

What is language-server-protocol?
Explain about Eclipse LSP4J and its application

201. Java

Explore the Awesome Dropwizard framework
What are the default dropwizard libraries in core?
Explain about Dropwizard forms and views

202. Java

Demo how to use Pac4j for a Web Application of your choice?

Similarly Evaluate OpenPDF-
How to use OpenPDF to convert an existing HTML page into a PDF

203. Java –Google Guava

Detail about Google Guava.
Demo how to use Joiner, MapJoiner, MapSplitter, ImmutableBiMap, Preconditions

204. Java - Google Guava

Explain how to use Graphs in Guava
List directed and undirected Graphs
What are the different type of graph types based on the representation of edges?
What is the type of graph that has to be selected, if edge objects are unique?
Detail about common.graph

205. Java - Google Guava

How timed eviction of Guava works and demo it

What is the use of Cache.stats ()

206. Errorinfo

Check about <https://errorprone.info/> an interesting contribution from Google

Also check the important list of Bug Patterns <https://errorprone.info/bugpatterns>

We love these simple bug patterns

- ArrayToString
- ComparingThisWithNull
- DeadException
- DeadThread
- EqualsNaN
- MissingSuperCall
- NullTernary

207. Analyze Thread dumps

Demo how to analyze thread dumps using

- JVisualVM
- jcmd
- jstack
- kill -3

208. Simple 5 challenges

Check the Google Java Style Guide

Detail about section 5 - Naming & Section 6 - programming practices

<https://google.github.io/styleguide/javaguide.html>

A very simple Exercise - Demo how to use Nbvcxz - Password strength estimator

<https://github.com/GoSimpleLLC/nbvcxz#estimate-password-strength>

Check nudge4j

An interesting library for browser based control for Java Applications

Evaluate Glowroot <https://glowroot.org/> a free Java APM

209. Vibur-dbc

Check about vibur-dbc - JDBC connection pooling library

<https://www.vibur.org/>

It has the uses we always desire in a database like Detecting slow SQL query execution

Performance monitoring, Timeout logging

Also, check about its poolfair configuration, dynamic proxies, and object pools

210. ReflectionAPI

Is it true that reflection API is not type-safe

Demo how to use dynamic proxy class in java Reflection Package

211. Univocity-parsers

Evaluate univocity-parsers - Claimed to be one of the fastest in the market
Check about the annotations it supports
@Parsed @Nested @Linked
Explore about their Record API
Also, check about its HTML parser that claims to be 80% faster

Check the CSV parsers comparison available at
<https://github.com/univocity/csv-parsers-comparison>

Is the product is free?

212. Crashub

Evaluate <http://www.crashub.org/> - The shell for the Java Platform
Which helps in executing commands against the JVM using it.
Famous products like spring boot, Vert.x, Play framework have embedded it.
Check the INFOQ's detailed article to get more details about it
<https://www.infoq.com/news/2012/06/crash-shell-1/>

Also, check about its Standalone mode, embedded mode and Attach mode

213. Vert.x

Demo how to use vert.x Web Client and also prove it is advantageous than the classic Java based one

214. Vert.x

Using io.vertx.ext.sql & io.vertx.ext.jdbc demo how to do a simple Database
CRUD using vertx

215. Vert.x

What is AbstractVerticle?

What are Fibers and Vertx-sync?

Explain its Usecase with a Real life scenario like an IOT application

216. Vert.x

Demo how to use Vert.x Circuit Breaker.

How is it related to Netflix Hystrix

Explain about The half-open state

217. Vert.x

What is the primary difference between DNS resolution and Java DNS Resolution?

Explain about the below

- point to point:
- publish / subscribe
- request / reply

218. Vert.x

Demo how to a full duplex connection between the browser and the server side

219. Vert.x

Demo how CookieHandler, SessionHandler works in Vert.x

220. Blocking Queue

What is java.util.concurrent.BlockingQueue? How can it be used?

What are the other ways to achieve the same functionality without using blockingqueue?

221. Vert.x

Explain about the below

- Multi reactor
- Single Event Loop
- Multi-threaded worker verticles
- Concurrent composition & Sequential composition

222. Blocking Queue

Explain about DelayQueue, PriorityBlockingQueue
Which Queue is both bounded and unbounded?

223. Blocking Queue

For a parking allocation system Application, Create a simple Publisher and Consumer example with bounded buffer using ArrayBlockingQueue

224. Java

Demo how to use Parallelize IO Tasks with Executor Service using AsyncResponse, CompletableFuture

225. Quarkus

What is Quarkus and why is it important?

What are its primary advantages?

Demo how to use

<https://code.quarkus.io/>

226. Java

What does ARCHUNIT Java Library does? Check how to use in your environment
Does it supports inheritance checks?

227. Java

Evaluate the below Interesting projects from Redhat-Jboss

- ByteMan
- JGroups
- Optaplanner
- RESTEasy

228. Java

What happened to web start, Applets, JavaFX CORBA Modules in java 11?

What are Nestmates & condy in Java 11?

229. Java

What are Flyweight Instances and their Significance?

What is their role and how is it used in an Architecture

230. Java

What is the relation between Knative and kubernetes?

What are its advantages explain with Usecase(s)?

231. Java

What is imperative programming model?

Explain with an example

232. General

Explain about Service virtualization .What are its alternatives.

List some related software

233. Java

How to convert a Javafx desktop application to an Android /IOS based mobile application?

What are the options?

Evaluate the jfxmobile-plugin plugin <https://docs.gluonhq.com/javafxports/>

234. General

What is API stimulation and how it differs from Service Virtualization

Evaluate Hoverfly Cloud for API Stimulation

What is the difference between Services, Scenarios and Behaviours?

235. Explain about the below predefined behaviors

- Random status code
- Find and replace
- Compress response
- Set response headers
- Simulate latencies

236. Java

Explain what is mean by *Full support for Linux containers in java*
From which java version this feature implemented.

237. Java

Explain about Free Application Class-Data Sharing feature

238. Java

A simple Question- What is Full-Screen Exclusive Mode and how painting differs in it

239. Java

Explain how reflection works with arrays

240. Software Errors

List the CWE/SANS top most Dangerous 25 Software Errors

<https://www.sans.org/top25-software-errors/>
<http://cwe.mitre.org/top25/>

241. Encryption

We all know about the fast symmetric key encryption AES and the heavy public key encryption - RSA.

Write a Program to do AES Encryption and AES Decryption

In the next Stage do an AES encryption using any other programming language like Swift or python or JS and Decrypt it using Java

242. Security

List the OWASP Top 10 Most Critical Web Application Security Risks.

Especially list the 3 new ones added

https://www.owasp.org/images/7/72/OWASP_Top_10-2017_%28en%29.pdf.pdf

243. Java

What is the Java Version supported in GraalVM

Demo how to run a Application (Desktop or web app) on Graalvm

244. System

Demo a simple program to check, whether a process is running or not and if running it has to be killed. The program has to work on both Windows & in Linux operating system

Hint

Windows: tasklist

RuntimeMXBean in java.lang.management

245. System

Demo how to use java.lang.management to get the number of available processors, System load, Heap Memory Usage, class path details

246. System

Demo how to add a Shutdown hook to a java application and how to create a Log file with System traces using java.lang.management package

247. openjdk

What are the types of JIT Compilers available in openJDK and when and how to use them?
Give Details about Truffle, Graal, SubstrateVM

248. Java

Evaluate Jabel - Annotation processor

249. Java

Demo about JSON-B with an Example

250. Java

What is meant by transactions multiplexing in JTA?
Demo how to use Multiple Connection in a Single transaction and Single connection in transactions using JTA-JDBC

251. Java

Explain about the recently hyped QUARKUS [SuperSonic SubAtomic java]

252. Java

How to use Apache Tika from a java web Application?
What is a Tika Server and how it can be used?
If possible, demo how to use Tika and Tesseract for OCR
Also, explain how GeoTopic Parser works

253. Java

Explain the below command and what are the key features that will be activated
java --source 12 --enable-preview DemoSwitch.java

254. Java

Explain about {@summary} javadoc tag

Explain with examples - Difference between Immutable and Unmodifiable collection

255. Java-Common Interview Questions 1

- How to do a Binary search Algorithm without recursion?
- How to create a LRU Cache?
- Demo how to implement an insertion sort algorithm?

256. Java -Common Interview Questions 2

- Demo how merge sort algorithm implemented
- Demo how a Vending Machine works
- Demo how to check if a given linked list is a palindrome

257. Java

What are the issues associated in using Singletons in an Architecture?

258. Java

Rewrite the below code using Optionals/@Nullable

```
Float pay = getLatestPay();  
if (pay != null ) {  
    pay.toString();  
}
```

259. Java

What is the purpose of Google's Maven repository?

260. Java

Explain the Below

- Convenience Factory Methods for Collections
- Collecting to unmodifiable collections

261. Java

Explain the Below

- Creating Immutable Collections from Streams
- Predicates

262. Demo how to create and check checksum-using java using MD5

263. Java

Explain - Why using Synchronized modifier on a method affects performance?

Explain the below

If a call to a constructor has been inlined, then the shared variable may be immediately updated, once the storage has been allocated but before the Inlined constructor initializes the object

264. Java

What are the contents of module-java.info file?

Explain the contents

- uses class.name
- provides class.name with class.name.impl
- opens pkg.name to module.name

265. Java

For image processing - Demo how to replace the green pixel with blue pixel in an image
For image processing, demo how to watermark an image using java?

266. Java

Explain the below command line options

- --module-path
- --add-reads src.module=target.module
- --add-exports src.module/pkg.name=target.module
- --add-opens src.module/pkg.name=target.module
- --illegal-access=permit|warn|deny
- --patch-module

267. Simple java exercises

Create ICO files using PNG/JPEG files

Demo how to use OpenCSV parser

268. Java

How can we make Hashmap synchronized without using ConcurrentHashMap?

269. Java

When to use JavaCPP and what is its primary advantage?

270. Java

Brief about Implementations - Data Objects used to Store collections

Explain about Synchronization Wrappers, Unmodifiable Wrappers and

Checked Interface Wrappers

271. Java

Detail about Convenience Implementations - Immutable Multiple-Copy List & Immutable Singleton Set

Explain AtomicStampedReference and AtomicReference with an example

272. Java

Explain about Double-checked locking
How to implement the same in Java8 using volatile, Synchronized

273. Java

Explain about the importance of VarHandle in Java9
Why they can't be subclassed?

274. Java

Explain OpenJDK license terms - GPLv2 with linking exception [(GPLv2+CPE)]

275. Java

How to develop a HTTP/HTTPS Traffic Recording application in Java?
What are the key libraries that you will use?
How will you handle Async operations?
Will you use a db like SQLite?
Is Rxjava is Suitable for this kind of application?

276. Java

List some openjdk vendors providing security updates, with commercial support and Long-term support

277. Java

List and compare three top ways to process very large files [2GB] in java

278. Java

If you are the decision maker to upgrade a system from jdk8 to JDK11 or JDK 12, which one will you choose based on LTS?

279. Java

Explain about upper bound wildcards and Lower bound wildcards in Java generics with an example

280. Java

Explain about the new Features & their importance with examples and Usecase(s)

- Convenience Factory Methods for Collections
- Collecting to unmodifiable collections
- Predicates

281. Java

Explain about the new Features & their importance with examples and use cases

- Optionals
- Functional Interface

282. Java

Explain about the new Features & their importance with examples and use cases

- Method References
- Default methods

283. Java

Explain about Circular dependency in constructors and dependency injection.

Also, detail the difference Constructor injection and setter injection

284. Java

Demo and explain how to work with Jigsaw for a Swing/javafx based Desktop app, which works as a simple browser with logging, network support.

Use Jlink&jdeps for the demo.

285. Java Simple 3 Challenges

Is it possible to call a method directly in an Interface by just using its name like
Interface.sayHello ()?

Demo how to use the static method in an interface without implementing the interface? If we implement the interface, is it possible to override a static method

What is the name of the class with only static methods?

286. Java Simple 3 challenges

Explain the below code

default boolean removeIf(Predicate<? super E> filter)

Can default methods be overridden?. If not why?

When to use private methods in interfaces?

287. Java

Explain the below code [What the below syntax means?]

static <T> boolean addAll(Collection<? super T> c, T... elements)

288. Java

Explain the below code [What the below syntax means?]

```
static <T,K,A,D> Collector<T,?,ConcurrentMap<K,D>> groupingByConcurrent  
(Function<? super T,? extends K> classifier, Collector<? super T,A,D> downstream)
```

```
static <T,K,A,D,M extends ConcurrentMap<K,D>> Collector<T,?,M> groupingByConcurrent  
(Function<? super T,? extends K> classifier, Supplier<M> mapFactory, Collector<? super  
T,A,D> downstream)
```

289. Java

What are the new features of JDK10, 11, 12 and what are the expected features in Java13 & 14

[Like var keyword, switch expressions, improved Garbage collection engine]

290. Java

How to enable or disable assertions in a Package

How to enable or disable assertions in a Class

291. Java

When to use ArrayDeque .Demo how to use it? What is the best alternative to it?

292. Java

Demo the Performance difference for a parallel stream and sequential stream processing on a collection

293. Java

What is the difference between ExecutorService created using newCachedThreadPool, newFixedThreadPool and newScheduledThreadPool

294. Java

Explain about Parallel Fork/Join Framework with examples and correct use cases. What are the other famous alternative frameworks in production environments?

295. Java

Detail when to use ForkJoinWorkerThread with an example

296. Java

What will happen if the variable declared outside a lambda block, is changed
Inside a lambda block

297. Java

Demo how to use lambda expression to replace an anonymous inner class
Implementing functional interface

298. Java

Can interfaces can have static or default methods?
If yes how to use them and from which version of java it is supported?

299. Java

What is OffsetDateTime and when to use it?

300. Java

Explain how IdentityHashMap is different from others

301. Java

Demo How to use flatmap, Stream API with a simple example
Explain in detail about java.util.function package.

Why do we need Functional Interface?

Also, detail about

- Predicate
- Supplier
- Consumer
- BinaryOperator
- Function interfaces

302. Java

Explain the difference between Soft, weak reference using code
Demo how WeakHashMap Works

303. Java

Demo How to use Secure Random using NativePRNGNonBlocking

What is the difference between SHA1PRNG & NativePRNG

304. Java

Demo the difference between StringJoiner and String.join

When to use SimpleDateFormat.setLenient ()

What is the advantage of :: operator? Is it recommended to use that?

305. Java

We know that Lambda expression can be used in place of an anonymous inner class.

What is the primary condition, that needs to be satisfied for this replacement?

306. Java

Is the below code is valid

```
class DemoEmployees<T,S>{}  
void print(List<? extends ListFinance >) {}
```

307. Java

Can synchronized methods can be *final*?

Can a method can have multiple *var-arg parameters* of different types?

In which position the var-args parameter needs to be present
[In the beginning or at the end]?

308. Java TemporalAdjusters to LocalDate

How to get the last date of Next Month and first Day of the Next Year

Try creating a custom TemporalAdjuster for your Birthday

309. Java - TemporalAdjusters to LocalDate

Use ZonedDateTime for now in your zone to Calculate timestamp at GMT+02:00 and Europe/Rome

Convert java.util.date to LocalDateTime

Get Local date time minus 30 minutes and similarly change date using withXXXX() methods

310. Java-Parallel Stream and Sequential Stream

Create a list with Random numbers [around 1000] and a Method to add replace every number with corresponding Alphabets in that Position

For eg) for a number 247813 2->b 4->d 7->g 8->h 1->a 3->c

Use SerialStream and then ParallelStream for the above and measure their performance difference in Nanoseconds

311. Java -Two simple Exercises

- Using Collectors split a Large ArrayList into Smaller ones and group them back using java8
- Shuffle a given list without creating a new one.

312. Java

Demo how to create an unmodifiable list and get a random member from that list

313. AOP ASPECTJ

With increasing security concerns and data analytics for logging, AOP - which is used for Compile time weaving, is going to be the part in future frameworks similar to in Spring.

In AspectJ, you might have well known with the join point model, pointcuts, advice, inter-type declarations and aspects.

Use aspectJ to achieve these two things

Apply before aspect to only public methods in a Particular package

Apply after aspect to all the methods with a Specific annotation

314. Mixins

What are Mixins and how java Support it

315. Other Language features

List at least 10 Language features missing in java when compared to other languages like Python/Go/JS/C#

Few are below -> Tuples, Yield, Partial Classes

316. File Handling

Demo how to process a Binary file like a 100MB+ video Clip using *Paths and readAllBytes* and also measure the Performance

Similarly use the traditional way of input streams with different buffer size and Measure the performance

Demo how to use Apache Commons IO to do the same and measure the Performance

Demo how to use Scanner and Streams to process the same and measure the Performance for comparison

317. CSV JSON BINARY

Demo how to convert a CSV File and JSON File to a Binary File
Note down the Size of the New Binary file generated.

Demo how to use a Pojo to convert a CSV file to JSON

Demo how to convert selected lines of a CSV file to a JSON file using Jackson Streaming

318. Apache POI PIVOT

Using Apache POI create a PIVOT table with the following data

Use Java Stream, Pojo to create a Pivot table with following data

<https://catalog.data.gov/dataset/consumer-complaint-database>

319. Java Stream

Demo how to use Java Stream Collectors, summarizingInt to calculate Min, Max, and Average Sum of an Integer List

Similarly, demo how to partition a list based on the condition using partitioningBy

Demo how to use *collectingAndThen* to create to an immutable list from the above list

320. Twilio

Create a simple SMS alert system [*SMS Client*] using javafx and Twilio API to send SMS in case a java process has crashed

321. Java

List the differences between Oracle JDK and Open JDK in terms of the below factors

- Advanced Management Console
- Java Mission Control
- Java Flight Recorder
- Production Deployment Fee
- License
- Support

322. Algorithms

What are approximate Algorithms? List some of their use cases
Explain about hyperloglog & Approximate Histograms

323. Algorithms

Explain about Priority Queue using Binary Heap and how to implement it in java?

324. A Simple Question -Linked List

Demo a simple doubly linked list and how to insert a node to the end of the doubly linked list

325. Adjacency Matrix

Using Adjacency Matrix demo Depth First search in Java

What is the difference between Depth First search, Breadth first search, Uniform cost search

Demo the above with examples

326. Java

Demo a practical example of using hashCode () and equals ()

Have you overridden them? Why?

Use Eclipse hashCode (), equals () generator for a child-parent classes and similarly explain, the hashCode () code generated by eclipse for a class with a ArrayList<HashMap> variable

Explain the steps to use Apache HashBuilder

327. Java

A Simple Challenge

Demo how to use java in the famous Jupyter notebooks

Also, check about IJava <https://github.com/SpencerPark/IJava>

328. Java

What is LINQ in Dot Net Platform?

What is the equivalent for LINQ in Java Platform?

329. Java

Check the 2020 Java Productivity report from JRebels blog

<https://www.jrebel.com/blog>

<https://www.jrebel.com/sites/rebel/files/pdfs/ebook-jrebel-java-productivity-report.pdf>

Few interesting things are

- Postgres is as used as Oracle
- Microservices is hot
- Gradle is widely used than Maven - May be because of Android

330. Java

Check about Quasar and Kilim, open-source libraries that implement green threads On JVM by modifying the Java bytecode produced by the Java compiler (Quasar also supports Kotlin and Clojure).

#Green_threads

https://en.wikipedia.org/wiki/Green_threads

Quasar

<https://docs.paralleluniverse.co/quasar/>

How Fibers are different from Green Threads and can they be used together?

Which applications are more suited for this? For eg) a Signal Processor, Database application

What are Strands, channels?

How Channel blocking happens

Also, detail about FiberScheduler

Kilim: Continuations, Fibers, Actors and message passing for the JVM

<https://github.com/kilim/kilim>

Key tools & Tech to Know

331. Evaluate Codota for Java - AI based code Completion

<https://www.codota.com>

332. Code Review Tools

Evaluate online on demand Code review websites

- Pullrequest
- Codacy
- RubberDuck

333. ByteMan

Byteman - A very interesting tool to monitor and to test the behaviour of a Java application using code injection at runtime

Demo how to load rules into a running program

What is an Agent and how it can be integrated into a running Application?

<https://byteman.jboss.org/>

334. Apache Druid

What is Apache Druid? How is it related to java?

Which well-known companies are using it in addition to Alibaba and Airbnb?

What are the other high-level uses of Druid like Digital Marketing & IOT?

What is mean by segment in Druid and how it differs from shards?

What is Column-oriented storage, Time-optimized partitioning

What is arbitrary slice and dice data exploration?

How it works with Apache Kafa?

335. Tools

Evaluate the most interesting Teachable Machine project from Google which claims as a
A fast, easy way to create machine-learning models – no coding required.

<https://experiments.withgoogle.com/teachable-machine>

336. Tools

Evaluate SourceTrail

SourceTrail is one of the most useful tool when analyzing a large legacy code Check its best
feature Visual Exploration of code and code flow

337. ClassGraph

Evaluate the useful project ClassGraph to create a GraphViz file for a package
Is ClassGraph -JDK Modules compatible?

338. NEWSQL

What is NEWSQL?

How it differs from traditional OLTP and NOSQL databases

Similarly list two NEWSQL products that will help in scaling-out existing OLTP

339. Tools

Evaluate Dash

Dash is a well-known Documentation Browser and code snippets Manage with more than 200+
API and 100+ Cheat Sheets

340. JQAssistant

Evaluate the cool tool jQAssistant

What are its usecases like cyclic dependencies?

Explore how to use it along with Spring boot

Also check about *spring-boot: Strict* - Pre defined rules

Also check how to enforce the use of an logging API

341. Oracle JET

List some possible usecases [Real life scenarios] for Oracle JET.

342. ByteBuddy

Evaluate Byte Buddy.

Demo how to create a Java agent using ByteBuddy

Demo how to create a new class and Change an existing one using ByteBuddy

Check how annotation defining works

Explain about the uses of Secured, TypeDescription, StackManipulation and MethodDelegation

What are its advantages over reflection API?

343. Apache Geode

Check about Apache Geode a Data managemnet platform for data intensive applications like Wall Street Trading systems

<https://geode.apache.org/>

How it differs from other BigData Systems ESP Apache Spark (as it is fast)?

Check how it works with spring Platform

There is an Interesting article

How Mastercard fights fraud with Apache Geode

<https://content.pivotal.io/blog/how-mastercard-fights-fraud-with-apache-geode>

Check About the below

- Replicated Region
- Partitioned Region
- Function Interface

344. Ksqldb

Explore ksqldb

Explore about sql based stream processing and materialized views.

What are the other related products to this?

345. Kong

Evaluate Kong gateway. What is the relation between Nginx, Openresty & Lua?

How to create a Service and Route?

What is a Kong dev Portal?

What are the features offered by Studio and how debugging works?

346. Tools

Check the Huge list of Available Software categories in <https://www.capterra.com/categories>

It gives a view on the breadth of Industries and software development solutions available

It is a Great Website to Short Reviews, Product rating.

Above all, it gives a list of huge number Software is available in the market.

347. Tools

What is the importance of <http://opentracing.io/>

Read the use cases section like tracing function, tracing server endpoints, tracing client calls

Also, list the supported libraries and tools

348. Bubble

Evaluate the famous bubble.io, which supports web application building and can service as an API interface.

Also, view its showcase

<https://bubble.io/showcase>

Check how to build plugins using javascript

349. Charles Proxy

Evaluate Charles Proxy.

In our Evaluation we found its better than fiddler in many ways.

Also, check this article for Mobile testing

<http://www.testeffective.com/better-mobile-app-testing-with-charles-proxy/>

350. Two useful tools

Evaluate the below 2 Android tools

Deguard @ <http://apk-deguard.com/>

ClassyShark @ <https://github.com/google/android-classyshark>

351. Zerogode

Evaluate Zerogode

Convert your web app to Native Android and iOS

<https://zerogode.com/native>

We love this demo

AirBNB clone built in 10 hours

Learn how to build startups and products without code

<https://lab.zerogode.com/>

352. Apache Thrift

This is an interesting Challenge

Use Apache thrift used by well-known companies and Software packages to demonstrate integration between C++, Java & Python. Use JSON/Binary Protocols.

Get the Process status & Machine Info using C++, Communicate the status to Python process [Create a CSV file entry for Devops monitoring] and from python to a java process connecting to a DB using jdbc. So C++ --> Python --> Java

353. Periodic Table

Periodic table for Devops is a Place to view the landscape of tools and technologies.

It's a well-Conceived List

<https://xebialabs.com/periodic-table-of-devops-tools/>

354. Tools

Evaluate PagerDuty, ngDesk, opsgenie, BigPanda

Prepare a table for feature comparison

Focus on Key features like

- Scheduling
- Alert Channels
- Workflows
- Escalation, Integrations offered [Slack, Jira, Salesforce Case]
- API offered

355. API Man

Evaluate ApiMan

<https://www.apiman.io/latest/>

What are the 3 pre configured Roles?

What are the Security Policies available? Does it has Time Based Access?

Detail about End security and API metrics

356. Fiddler

Have you use Telerik Fiddler ? Explain about its functionalities?

What are its alternatives?

357. GraalVM

What is the speciality of GraalVM

What is the relation between Graal compiler ,Java9 & Java 10. How to use it?

Why Graal compiler is written in java? Why twitter is using it now?

Finally check the below article top 10 things to do with GraalVM.

<https://medium.com/graalvm/graalvm-ten-things-12d9111f307d>

358. Sentry

Sentry is one of the top Error reporting Software

Evaluate sentry for Java with the default async connection for a Spring boot application or any web application.

On the sentry interface, check the error source, client details, Issue Management, User Feedback.

Try integrating with Slack or Jira

359. Pubnub

Evaluate pubnub the leading real time online polygot multipurpose Platform for Chat, publish/Subscribe, Tracking .

Check how Presence, Mobile Push Gateway works with java and Android.

Also, see its pubnub functions- a serverless environment, which can be used in many ways.

Finally don't miss the customer stories especially how Adobe, Logitech, wink, Hubspot, BusWhere, McDonalds, CocaCola uses it

<https://www.pubnub.com/customers/>

360. Jsonschema2pojo

However, a simple tool it is very useful for large JSON content. Kotlin support is missing
Evaluate it

361. Libraries

Read the list of 100 Most used java libraries

https://docs.google.com/spreadsheets/d/17x_jKkGquEFq7LBQhS9HGXiG7iII2AIXoPGfB6N5_bw/edit#gid=67121688

You can see **Jodatime** is still popular, though may it decline because of new Datetime improvements and as expected **Guava library** is maintaining its lead

362. Transpilers

What are the current Transpilers available for from and to conversion to Java

If possible, evaluate one.

Also, check how GWT works

363. JAVAX

One of the most interesting project we have come across is JavaX
<http://javax.botcompany.de/>

Really an incredible effort
The list of functions are available at
<http://javax.botcompany.de/1020398/raw/functions>

364. knative

Does google is controlling Knative - Istio or is it donated fully to cloud native Foundation?

How Logging works for knative Applications

365. knative

Explain about containerConcurrency configuration
How to get the host URL & IP address for a service after deployment

366. Nextjs

Nextjs though relatively new, has become a favorite among top firms.
Evaluate Next.js as it has a Promising future
<https://nextjs.org/showcase/>
Next.js is becoming a superhit among well known big companies for static and server- rendered applications.

367. Jekyll

Jekyll is famous and being used in different projects
<https://jekyllrb.com/showcase/>

Use Jekyll to create a Documentation website for a project.

You can also use the themes available here
<https://jekyllthemes.io/jekyll-documentation-themes>

368. knative

Describe about the below configuration parameters

```
autoscaling.knative.dev/minScale: "2"
autoscaling.knative.dev/maxScale: "10"
container-concurrency-target-default: 100
container-concurrency-target-percentage: 1.0
enable-scale-to-zero: true
enable-vertical-pod-autoscaling: false
max-scale-up-rate: 10
panic-window: 6s
scale-to-zero-grace-period: 30s
stable-window: 60s
tick-interval: 2s
```

369. AXURE

Evaluate Axure Prototyping tool.

What are their enterprise offerings and how does coauthoring works?

Evaluate Axure cloud offering also

What are the key features of case Editor?

How to use variables, expressions, functions and repeaters

How to create/add plugins and what is their use?

370. WireShark

Demo how to get the username/password of a telnet/ftp session using Wireshark

Demo how to Decrypt SSL/TLS traffic using Wireshark

371. WireShark

Explain about the export options available in Wireshark.

What is mean by TCP Reassembly?

372. Tools

Evaluate uptime Robot, Pingdom, statusok, statuscake, pingometer

Prepare a table for feature comparison

- Fees
- Monitoring locations
- Integration with Slack, SMS, EMAIL
- Dashboard
- Reporting
- Ports /Protocols support like DNS, HTTPS, SSH,, Ping, EMAIL(POP/IMAP), etc.
- Clients
- Website Performance Monitoring

373. Gremlin

Evaluate <https://www.gremlin.com/>

Check what Application Level Failure Injection (ALFI) is - halt Attacks?

What are Scenarios?

What are the type of attacks?

Explain about the categories - resource, state, and network

374. OpenJFX

Evaluate OpenJFX with Netbeans 11

Also list the top 5 key features if Netbeans 11

375. Fitnessse

Evaluate the tool FitNesse

<http://fitnessse.org>

How it helps teams?

Also, check the Two-minute example

<http://fitnessse.org/FitNesse.UserGuide.TwoMinuteExample>

376. Fitnessse

Check the Plugins <http://fitnessse.org/PlugIns>

- Jdbc Slim
- Maven Classpath Plugin
- Graphviz plugin
- OASIS plugin
- Fitnessse

377. Twistlock

What is Injection Vulnerability?

How does TwistLock's Service helps in fixing this?

378. Epsagon

Check about epsagon's cloud monitoring solution! esp for AWS Lambda.

Check how it can help in transaction Monitoring & Automated tracing for Microservices

Check the comparision information against AWS Cloudwatch, AWS Xray

<https://docs.epsagon.com/docs/comparisons>

Also, check the Privacy section

Check about its

- Issues Manager
- Architeture Visualization
- Dashboard Statistics
- Epsagon

379. OpenCypher

What is openCypher? How it compares with GraphQL

Evaluate how Cypher TO Sql Mapper (Cytosm) works?

Check Panama papers ICJ dataset using ne04j Sandbox

<https://sandbox.neo4j.com/>

380. Apache CouchDB

What is Apache CouchDB? How it differs from MongoDB?
How they handle Queries, Replication and Size support?
Also, Explore about Couch replication protocol ['Offline First']

381. Apache Cloudstack

What is Apache cloudstack? Is it inferior when compared to Openstack?

382. Apache OFBZ

Apache OFBZ is creating Buzz. Explain about it. Its built on which framework?
Evaluate and demo how to use it

383. Diffblue

Evaluate Diffblue Code Coverage
What is Special about it?
For this evaluation, please use the Playground available @
<https://playground.diffblue.com/onboard/1>

384. Eclipse Theia

Evaluate
<https://eclipsesource.com/technology/eclipse-theia/>

Check how to build Domain Specific tools like Workflow tools using Eclipse Theia
It is going to be very important for any tools company or any automation company
How it differs from Eclipse Che IDE

385. emfcloud

Evaluate emfcloud from <https://www.eclipse.org/emfcloud/>

Demo how to use it for a Simple API gateway generation
Check <https://github.com/eclipsesource/coffee-editor>

386. Tools

Compare between features of Cloud9, CodeAnyWhere and EclipseChe Online IDE

Below are the Key features to be compared

- Enterprise Support
- Terminal - Linux Support
- Containers Support
- Apps for Mobile

387. Check about beego - Golangs Framework

Compare Golangs <https://beego.me/> with a Java Framework of your Choice.

388. BOTS

Check about the Conversational intelligence products

Flow XO, Chatfuel, Wit.ai, Api.ai, Dexter

Check about the below BOT products

Conversational banking has never been so simple.

<https://www.abe.ai/>

Dominos-Chatbot Service

<https://www.dominos.com/chat-pizza-order/>

National Geographics Genius Chatbot

<https://www.messenger.com/t/natgeogenius/>

389. Microsoft Application Inspector

Evaluate the useful cool free tool from Microsoft

<https://www.microsoft.com/security/blog/2020/01/16/introducing-microsoft-application-inspector/>

Check how it differs from Traditional Static code Analyzers

390. Voiceflow

Check about the interesting product Voiceflow -

Collaboratively design, prototype and build Alexa Skills and Google Actions - without coding.

<https://www.voiceflow.com/>

Check how to use variables, blockport

Demo how to build a Sample Alexa skill

391. Talletale

Though there are many similar tools in the market, this is a comprehensive free solution

talletale is an Interesting tool to find missing jars, dependencies , Unused jar files and many more

<https://tattletale.jboss.org/>

Check the Reports Fields - has a good detailed list

392. Flywaydb

Check about the below database versioning & migration tool

<https://flywaydb.org/getstarted/how>

393. Fast.co

Check about the interesting product

<https://www.fast.co/>

How it can help to Login without passwords across the web

394. Quartz Scheduler

- What is the logging framework does Quartz Scheduler uses by default
- Demo how to use a simpleSchedule and CalendarIntervalSchedule that will fire on 5th of each month
- Demo how to Prioritize Triggers
- What is the difference between StdSchedulerFactory and DirectSchedulerFactory

395. Quartz Scheduler

- What are the key methods in JobListener?
- How to send email alerts when a Job is not executed?
- Is it possible to rename an existing job without deleting it?
- Demo how to list the triggers associated with a job.
- What are the advantages of RAMJobStore and JDBC-JobStoreTX?

396. Quartz Scheduler

- What is the role of JobStoreTX & JobStoreCMT?
- How high availability works for Quartz. How to configure for retrying when a Job fails?
- What are the Misfire Instruction Constants for CronTrigger and simpleTrigger
- Though its a suggested practice to use CronTrigger , what are the key advantages of using a SimpleTrigger

397. Quartz Scheduler

- List few 'Factory-Shipped' Jobs like NativeJob,EJBInvokerJob
- Demo how to intergrate Quartz with Spring boot using SpringBeanJobFactory , a database of your choice as a JobStore
- Mention the steps to use Quartz Scheduler with spring vs Springs Scheduler.What are the pros and cons with each approach

398. Quartz Scheduler

Explain the below code snippets

```
trigger = newTrigger()
    .withIdentity("mailTrigger", "AdminemailGroup")
    .withSchedule(simpleSchedule()
        .withIntervalInMinutes(30)
        .repeatForever())
    .endAt(dateOf(1, 0, 0))
    .build();
```

```
trigger = newTrigger()
    .withIdentity("mailTrigger", "AdminemailGroup")
        .startNow()
    .withSchedule(simpleSchedule()
        .withIntervalInMinutes(30)
        .repeatForever()
        .withMisfireHandlingInstructionNextWithExistingCount())
    .build();
```

```
job = newJob(DemoMail.class)
    .withIdentity("DemoMail", "Alerts")
    .build();
```

399. SimpleScraper

Evaluate <https://simplescraper.io/>

Few interesting features are

1. Creating API
2. Saving results to google sheets

400. JBPM

Though JBPM is not a Strong when compared to Sharepoint workflow or K2, its also widely used for Workflow Process management

Check the list of Business Application Samples

<https://github.com/business-applications>

We love these -

JBPM with Thymeleaf, Kalfa, elastic Search, ifttt

Detail about BPMN - Events, Activities, Gateways

What is the role of KieServices

Explain about Human Task Management

Check the Data model of task service

Evaluate its Designer, Form Modeler and Eclipse BPMN 2.0 Modeler

What is the role of KIE execution Server?

Using jBPM WorkFlow demo how to create a Leave Approval Application

Use <https://start.jbpm.org> to create a Business Application

What is the role of TaskService, KieSession ,ProcessInstance ,KnowledgeBase ,StatefulKnowledgeSession

401. Drools Rules engine

Evaluate about the decade old Drools Rules Engine

Detail about

- Rules
- Facts
- Agenda
- Activations

What are the practical examples for Stateless Knowledge Session, Stateful Knowledge Session

What is the use of Saliency, Dialect?

Write a Simple DRL file to initiate a Alert (External Java based Static Function) when the purchase amount is greater than 100000\$ or when a user purchases more than 50 items, in a shopping website

402. Low code Platforms

Low code platforms is going to expand further in other 5 years.

We have used outsystems, K2, Mendix, Microsoft Flow

According to Gartner, "By 2024, low-code application development will be responsible for more than 65% of application development activity."

Check the Appians Robotic Workforce Manager

We personally prefer Mendix as we feel it is feature rich. But K2 is simple and its sharepoint integration is a pure bliss

Check the Gallery <https://gallery.mendix.com/>

[IOT tracking with Blockchain integration is good]

Check the available app templates

Check the Gartner report about the market players

<https://www.gartner.com/doc/reprints?id=1-1FKNU1TK&ct=190711>

Quantum Computing

403. Quantum Computing

Evaluate the Java quantum computer simulator
<https://github.com/gluonhq/strange>

404. Quantum Computing

A Simple Question - Explain about Schrödinger's cat

405. Quauntum Computing

What is Superdense coding and how it differs Quantum teleportation
Is it true that Quantum Logic Gates are Reversible?
What is the uniqueness of tofolli gate
What are ancilla qubits

406. Quantum Computing

Evalaute Qiskit
Demo how to create a simple Quantum circuit using Qiskit
What is QuantumRegister and ClassicalRegister?

407. Quantum Computing

Explain the roles of the below Hardware components in Quantum Computing
Cryoperm Shield
Qubit Signal Amplifier

How many Qbits are there in a Google's Sycamore Processor?

408. Quantum Computing

A simple Question - Explain in detail how two qubits can store 4 bits of information, Also Explain in detail about 2^N -Where N represents classical Bits

Can a Superposition state measured

Will a Quantum computer can make every operation faster or it is currently suitable for certain operations (Parallelism).

Explore about the idea of having a Quantum chip in a Classical Computer like a GPU

409. Quantum computing

Explore about Azure Quantum Stack. Is it available now?

Check How Ford, Duabi DEWA & Willis Towers Watson is using Azure Quantum Cloud

410. Quantum Computing

Explain in detail about the below basics

- Electron Spin
- Photon Polarization
- WaveFunction
- Doppler cooling

411. Quantum computing

How Quantum computers emits results? In bits or in Qbits

Which companies are offering Quantum processors for Business use and how many Qbits are present in their processor

412. Quantum computing

What are the well-known types of Qubit platforms like Quantum Dots

What is the need for QRAM

What is mean by fully connected Qubits?

How a Qubit is created and what is the use of Josephson junction

What is the importance of Isotopically purified Silicon 28?

413. Quantum computing

What is Bra-ket notation?

What is a Hadamard gate?

What is entanglement?

What is the importance of Shor's algorithm?

When to use Bernstein-Vazirani algorithm?

General & Necessary

414. General

Mention the differences between the below

- GitOps
- DockerOps
- ManualOps

415. General

Evaluate <https://openapm.io/>

List few Collectors, Storage, Visualization options available

416. What is Chaos Engineering? Explain with a detailed example

417. Which will you recommend Serverless or Container based or Both Explain in detail

418. How to Calculate the Optimum Number of Threads based on CPU core for CPU and IO Tasks?

419. Articles

Check the Highly interesting Articles

Is Object-Oriented Programming a Trillion Dollar Disaster?

<https://developers.slashdot.org/story/19/07/22/0426201/is-object-oriented-programming-a-trillion-dollar-disaster?sdsrc=popbyskid>

MIT's Tool predicts how fast code will run on a chip

<http://news.mit.edu/2020/tool-how-fast-code-run-chip-0106>

The most copied StackOverflow Java code snippet contains a bug

<https://www.zdnet.com/article/the-most-copied-stackoverflow-java-code-snippet-contains-a-bug/>

420. What are the advantages and disadvantages of Lazy Loading

421. Sourcetrail

Evaluate Sourcetrail to examine any open source repo code of your choice

422. Jupyter - Polynote

You might have worked with Jupyter notebook

How it compares with the new polynote from Netflix

423. Mantis - Kubernetes

How the Mantis platform of Netflix differs from Kubernetes

424. Mulesoft Anypoint Service Mesh

What is a Service Mesh?

Check how Mulesoft Anypoint Service Mesh helps in Microservices Management

425. General

What are the Gartner's top 10 strategic technology trends for 2020

What is mentioned under BYOE, Streaming of Business applications, Internet of Behaviour and the prediction about cryptocurrency?

426. General

Compare node.js with java environment for an Enterprise level application for a web application with SQL based & REST based backend interface based on GraphQL and a frontend based on React/Angular.

Prove that java is superior in terms of CI/CD, LTS, Unit testing, management and best to run on Docker - Kubernetes based production environment

427. General

What is mean by the below language features

- Light weight green threading
- Multimethods or Multiple dispatch

428. LocalStack -AWS

LocalStack a mocking framework is very useful in AWS environments and helps in offline testing of apps

Check how it works <https://localstack.cloud/>

429. General

List Few tools for AI based Code review

430. General

Why GPDR is important?

What are the steps that needs to be done, for a Website or mobile app service to make it GPDR compatible?

431. General

What is fail-fast property & fail-safe Property?
Brief with an example.

432. BDD Gherkin

Explain when these keywords are used in Gherkin

- Feature
- Background
- Examples
- Scenario
- Given
- When
- Then
- Scenario Outline

433. General

Detail about Server-Side Request Forgery and what are the Techniques used to do the same.
Also, Explain about “Island hopping” - watering hole attacks

434. General

Explain about Fuzzing or Fuzz testing?

Is it a recommended way of testing for Java Desktop Application and Server side Applications?

What is ClusterFuzz?

435. General

Check the List of Opensource projects from Google available @ this link
<https://opensource.google/projects/list/developer-tools>

Detail about 5 Projects you like? Some Projects we like are *ClassyShark*, *callbuilder*, *Error Prone*, *Bazel* and of course *Blockily*

436. SSH VPN SSH tunneling

Use putty and Forward the port on the remote linux server to a different port on a local machine.

This will be useful to connect to a remote DB where database port is blocked for remote connections and only SSH port is allowed

Though a basic exercise, try to generate SSH Key-using Puttygen with a Passphrase and use it in a server for passwordless login

Similarly, Can you demo creating a VPN client in java?

437. Barcode

Create a Barcode creator and Reader using java in ITF for Packaging industry ,UPC Code used in Retail and the famous 2d QRCode format

Create an application to convert web URLS into Barcode

Similarly hide a encrypted text as AZTEC QR code [for instance inside an airline Ticket]

438. Chatbot

RASA is an Open Source chatbot.

Explore the possibility of how it benefits for a Project of your choice

439. Databases

What are the characteristics of a Cloud Native database

List few products like voltdb and their uniqueness

What is the role of EDGE native databases?

Also check about the related -**AWS IoT greengrass**

440. License Management

Check whitesourcesoftware

<https://www.whitesourcesoftware.com/> and get to know why it may be very important for a project

441. KNOW HOW

Until what date JDK 8 from Oracle will receive public Updates.

Explain about the six-month release cycle

List the top well known Vendors providing support for JDK

442. DUKES AWARD

Check the Winners of Dukes' Choice Awards 2015, 2016, 2017

Check about the below and how they can be used

- Controlfx
- Roboj
- Java Terminal Project
- jpro
- heapstats
- AsciiDocFX

443. KNOW HOW

Describe about Oracle's new Support pricing Structure for Java

What is the State of JDK12 now?

What are new in switch Expressions?

444. Simple Questions

What is the difference between scaling out and scaling up?

Explain about Sharding and replication.

What are the different methods used for Sharding and replication.

Is it possible to use sharding and replication together?

445. Simple Questions

How SSL/TLS termination works to reduce the load on a webserver

How will you find max connections/sec, failed timeout, failed attempts in a webserver?

446. CaseStudy

Check the Case Studies under

<https://prodperfect.com/case-studies/>

447. CaseStudy

Check the case-studies/under

<https://rollout.io/use-cases/>

What are the offer for Engineering Teams for Product Teams?

GRAPHQL

448. GraphQL

What is N+1 problem in GraphQL and how to guard it?

What is Shopify's GraphQL batch solution?

449. REST – GRAPHQL

How to migrate from REST to GraphQL by wrapping REST calls in GraphQL for a Movie Reservation System endpoints. Specify at least 3 types and 2 Mutations

Also for the above example, check <https://www.apollographql.com/server>

450. REST – GRAPHQL

Check the Users for GraphQL @ <https://graphql.org/users/>

<https://graphql.org/community/>

Brief about Query, Resolver, Mutation, graphql-java-annotations, Interface, schema stitching

451. GraphQL

Create GraphQL Based Spring Boot system to operate with a service similar to Goodreads.

452. GraphQL

Explain how JWT and GraphQL Client Works together?

Explore how GraphQL Content API works in a Headless CMS in <https://graphcms.com/>

453. GraphQL

Evaluate how code generation works
<https://graphql-code-generator.com/>

Check a java alternative for this.

454. GraphQL

Evaluate GraphQLEditor
<https://graphqleditor.com/>

Try creating a Schema that can be used for a web application like Yelp

455. GraphQL

Evaluate the Below Interesting tools

- ProtographQL
- GraphQLZero

Also, Check 8base.com – Developer Acceleration Platform and Bolt product

456. GraphQL

Evaluate <https://subzero.cloud/>
Check how it works, Pricing, Architecture and about OpenResty, PostgREST

457. GraphQL

Evaluate the framework <https://www.graph.cool/>
How GraphQL database mapping works

458. GraphQL

Evaluate <https://hasura.io/>

Check how it generates relationship between tables to GraphQL,

Explain about Event triggers, Remote Schemas.

Also, explain about

- Multiple Queries in a Request
- Using Fragments
- Nested object Queries

459. GraphQL

Evaluate <https://dgraph.io/>

Check about GraphQL+- features.

Check how Dgraph Search Works

Does Geo Queries future is Supported

You can use <https://tour.dgraph.io/> to check the Features

460. GraphQL

Evaluate the below useful tools

<https://github.com/graphql-java-generator/graphql-maven-plugin-project>

<https://github.com/ebridges/rdbms-to-graphql>

<https://github.com/leangen/GraphQL-SPQR>

<https://github.com/nfl/graphql-rxjava>

Software Testing

461. Selenium CI Integration

Demo how to create a simple test cases selenium -An automated facebook login script using CSV

Demo how to integrate with Jenkins, Maven & GitHub

462. How to handle CAPTCHA in a Selenium Environment? What is your Suggestion?

463. Selenium

Demo how to test IFRAMES

464. Selenium

How to integrate selenium with Jenkins and Maven for Continuous integration?
Selenium

465. Selenium

Create simple test cases with selenium.
For instance an automated facebook login script using CSV
Also, demo how to integrate with Jenkins, Maven & GitHub

466. Selenium

What is the difference between

- ImplicitlyWait
- WebDriverWait
- FluentWait

467. Explain about the below Key ones

- LoadableComponent
- PageFactory
- Selenium

468. Selenium

A Simple Exercise

Demo How to do a Page driven Test using Excel, Apache POI and Selenium

Have you used Autoit/Autohotkey with Selenium for Desktop app testing?

If you havent used, demo how to use RDP.

If you have used demo how to do a Gmail Automation.

469. Evaluate lambdatest

<https://www.lambdatest.com/selenium-automation>

470. Evaluate apigee from Google

<https://cloud.google.com/apigee>

471. Selenium & Cucumber

Using Selenium & Cucumber with Gherkin, create test cases for playing this video you are watching or for a online video

472. Katalan Studio Selenium

Katalan Studio Excels Selenium in Mobile testing.

List the other notable advantages of Katalan Studio over Selenium

473. Recording

How to record a remote testing using Castro, ATUTestRecorder, or monte-repack.

Which is the best one to use

474. Selenium Patterns

Explain the below Design patterns in selenium Context

- Factory - Web Driver
- Page Objects
- Facade
- Singleton
- Strategy Pattern

475. endpoint.io

Evaluate endpoint.io

Endpoint.io is one of the famous Cloud Automated testing Product.

Focus on these features - Mobile testing, Notification, Screenshot comparison and integration with CI & pipelines of your choice

476. Appium

How will you set up xml suite for Sequential and parallel execution in Appium?

477. Appium

Create a simple test for the inbuilt Alarm in the clock using UIAutomatorviewer

Demonstrate How to Test and check image resolution with Mobile Resolution using Appium

478. Appium

How will you switch between web and native views in appium?

Using Appium Demonstrate how to take and publish the screenshots in your CI like Jenkin

479. Appium

Explain how to integrate appium with Gradle

How to Register an Appium node to a Selenium Grid

480. Carina

Carina a well-known java based Automation testing tool for testing Databases, Web, and Mobile applications.

Evaluate its features

<https://www.carina-core.io/>

Demo how to use the same for API testing

<http://qaprosoft.github.io/carina/automation/api/>

481. Android IOS Testing

Use a testing framework of your choice to write scripts for the below tests

- In the youtube application click on the magnifying glass icon to initiate a search;
- In the textbox enter 'MrWhosetheboss' in the search field;
- In the result click the channel
- Launch the video of your choice
- Watch the first 30 seconds of the video.
- Check the total views and likes for that video

482. IOS Automation Testing

Evaluate the features of the Google's EarlGrey for IOS Automation tetsing

<https://github.com/google/EarlGrey>

How it differs from XCUITest

What is EarlGrey2?

Detail about GREYmachers, GREYScreenshotUtil, GREYBaseAction

How it compares with Espresso android UI Testing

483. Robotium

Compare Robotium features against Espresso and Appium.

Write a Testcase to navigate to reports page on clicking a menu item named 'Reports'.
Select the from-date and to-date using the two date pickers; click the button 'Generate'
Finally confirm that the results table is appearing within 10 seconds in the webview.

Is it possible to test notifications using Robotium?

What are the advantages of Robotium when compared to other Android Frameworks?

Docker

484. Create a docker image with openJDK and On running the image ,it must run a
javafx program that will display a webpage in it ,in the host machine

485. Docker

Mention 5 Docker Best Practices like single application per container
In the output of docker info command, the below is observed. How to fix this?
WARNING: No memory limit support

486. Docker

Explain how Tesla cloud hack happened and how it can be avoided and detected
Also Detail about crypto jacking and Docker images.
How to check the authenticity of an image in Docker hub.

487. Docker

Demo how to use Testcontainers for testing a webserver with SQL / NOSQL interaction

488. Docker

Why layers are important in Docker?
What are the commands that will create layers?
How to list the Docker layers of a Container?
Where layers can be physically located?

489. Docker

How will you see Docker events and filter Docker events for the last 1 hour?
When to use docker run command with `--memory-swap=0` option
How will you view and stop all the processes running in container?

490. Docker

List some Container breakout scenarios and the steps to avoid them?

Why the below command is special?
`docker run -it -v /var/run/docker.sock:/var/run/docker.sock notgood`

491. Docker

Assume there are 5 RUN commands in a Dockerfile.
How many image layers will be created on executing them?
How to list the id of layers created and how to access them?
What happens if one of the RUN fails? Does it generates a Container image?
How to access the image layer created by the Successful RUN command and retry executing the failed RUN commands?

492. Use docker compose to launch

java - mysql in separate containers
Java JDBC application must be able to connect to mysql
Use `depends_on`, volumes, tty

493. Docker

Do you know about CIS Docker benchmark?
Detail few under Container Runtimes, Host Configuration.
List tools that can help to check this in Docker environment
Share your Knowledge on Docker Bench for Security.
What are the alternatives and compare with Docker Security Scanning?

494. Docker

Below are real interview Questions we faced

What is the option to load local file system to Container?

What is the difference between `docker ps` and `docker ps -a`?

How will you stop all the processes running in container?

How do you see logs for last 1 hour?

What is the command to list all the ports used by a container?

495. Docker

When to use volumes and when to use Bind Mounts

How to remove unused volumes?

Can multiple containers, mount the same volume simultaneously?

What will happen if a container, which does not exist, is started by specifying the volume?

496. Docker Swarm

- What are Services?
- How Containers are related with Services?
- How does Swarm and Stack are related?
- What is the difference between Docker compose and Docker Stack?
- Is it possible to use compose file for Service creation and update?
- Is it true that, on setting a Node to Drain State, it will also remove containers from that node and the resources will be freed up?
- Explain the below command and the expected output
`docker node update --availability active web-worker1`
- Explain with a Diagram of how Routing Mesh works in Swarm

497. Docker Swarm

What happens when swarm loses the quorum of managers?

How it will affect the tasks in the worker nodes?

Explain the steps to Recover Swarm after losing the Quorum

In a swarm Quorum with 7 managers, what is the minimum number of manager nodes that has to be active and Operational.

How to check the status of the worker node to accept tasks

Kubernetes

498. Kubernetes

Compare Kubernetes with Swarm and Mesos for a FAAS - Function as a Service environment, which requires high auto scaling support, unpredictable loads, and Multi tenant cloud support

499. Kubernetes

Explain the architecture of Kubernetes - Explain in detail about etcd, Service Proxy, PODS, Service Discovery, Updates Rollout, Replication Controller, Namespaces, Volumes

500. Kubernetes

How to get the image name used to create the new pods?

How to get the node detail of a pod

How to check number and type of containers in a pod

How to check the container state in a pod

501. Kubernetes

How persistent storage is handled in Kubernetes. Explain in detail

How will you check whether the POD is in pending state?

Explain about persistent sessions, dynamic weights in load balancing

502. Kubernetes

What is mean by session affinity?

What is node port service? What is the default port range?

Are the Kubernetes pods are transient in Nature or they can persist data?

How to retain a Persistent volume even if a PVC is deleted

503. Kubernetes

A Simple Question. In Kubernetes ip address is assigned to a Pod or Containers?

What is svc/kubernetes service?

What is the default IP and ports?

There are 5 pods running but on running *kubectl get pods* command none is listed. Why?

How to list containers by pod?

504. Kubernetes

What is master -minion architecture, how it differs from Master Slave Architecture

What is the importance of etcd in Kubernetes?

What are the other alternative architectures that Kubernetes Support?

How to use kubectl to check the containers state

505. Kubernetes

What does the below command returns

```
kubectl get crds | grep 'istio.io|certmanager.k8s.io' | wc -l
```

```
kubectl get svc -n istio-system
```

506. Istio

What is Envoy sidecar?

What is the use of manual sidecar injection and automatic sidecar injection?

JMeter

507. JMeter

Demo How to create a Database TestPlan for *Duration Assertion* using JMeter for a Max number of Connections of 15, Max wait time around 100ms, Time between Runs around 3 minutes

Use a Select Query with and Without Joins for the same. Pass 2 Parameters dynamically and generate a Summary report

508. JMeter

What is the Importance of Precise Throughput Timer & Synchronizing Timer ?

509. JMeter

What is Pacing, Arrival Rate and Requests per Second?
What are the Plugins that can be used for measuring this?

510. JMeter

What is Blazemeter? What are the Plans currently provided?
Would you recommend that as an alternative to a local JMeter setup?

511. JMeter

Demo How to stimulate Mobile testing using JMeter along with a Android Mobile for Testing a Webpage [for eg) a Login screen]

512. JMeter

Demo how to use Console Status Logger to create a Live Alerts based on response time of a Webpage and create an alerts like pageduty

513. JMeter

List the top 10 JMeter Plugins based on Popularity

Explain the use of the below plugins with real life use cases

- Uniform Random Timer
- Active Threads Over Time
- Merge Results
- DbMon Sample Collector
- Throughput Shaping Timer

514. JMeter

What is the use of HTTP Cache Manager, Http Authorization manager?

Explain in details about their configuration

515. JMeter

Explain about the below controllers

Runtime Controller

Interleave Controller

516. JMeter

Using If controller to demo how to check if the webpages are of HTML5 format

517. JMeter

Demo how to create a Test fragment for a Login Page and how to use it across the different thread Groups

518. JMeter-A Simple Question

How many users/sec for the below load testing configuration
1000 target threads with 25 seconds ramp-up

519. JMeter

What is the difference between these below tests and is it possible to use JMeter for these?

- Peak test
- Linear Load Test
- Step Load Test

520. JMeter

What is the use of Throughput Controller in Website Testing?
What is the importance of the plugin - Concurrency Thread Group?

521. JMeter

What is the difference between these below tests and is it possible to use JMeter for these?

- Stability test
- Volume test
- Stress Test

522. JMeter

Demo How to use Curl to create a Testplan
Demo how to use user defined variables in a SQL Query for Database testing in Jmeter

523. JMeter

Demo how to use the below plugins

- Transactions per Second Listener
- PerfMon
- Dummy Sampler

524. Jmeter

What is the difference between the below timers?

- Constant Timer
- Gaussian Random Timer
- Uniform Random Timer

525. JMeter

What is the use of Below Plugins?

- Arrival Thread Groups Plugins
- Free form Arrival Thread Groups Plugins
- Throughput shaping Timer Plugin
- Concurrency Thread Group Plugin

IOT

526. IOT

Explain how to use IOT with Blockchain and BigData

Do you have knowlege about ambrosus, IOTA, IOTEX and their architectures?

527. IOT

What is MQTT? How it differes from HTTP? How RabbitMQ and EMQ support it?

528. IOT

Explore the balena platform and tools

Check about balenaOS [Docker containers on embedded devices] and about its Stateless and Read-Only rootFS

List of Supported boards are listed below

<https://www.balena.io/os/docs/supported-boards/>

Also, check its balenaFin: a board for fleet owners - for Raspberry Support

<https://www.balena.io/fin/>

529. IOT

Explore the IOT platform -Kosmos System

<https://www.temboo.com>

How will you Design a System like that using java Spring/Microservices/Rxjava?

How will you add API Server, Terminal Server?

530. IOT

STMicroelectronics is an electronics and semiconductor manufacturer

https://www.st.com/content/st_com/en.html

It has Shipped around 14 billion Sensors and 3 Billion Microcontrollers

https://www.st.com/content/st_com/en/browse/product-portfolio.html

Check about its STMicroelectronics Starter kits for Azure IoT

<https://www.youtube.com/watch?v=J5qs2hNavww>

531. IOT

One of the service backend for an IOT system is a messaging bus

What is the Difference between Kalfka and RabbitMQ? Mention the Best use of them based on the number of requests and License

532. IOT

What is Secure Remote Password protocol?

Explore about <https://connect2id.com/products/nimbus-srp>

533. IOT

If you are asked to build an IOT platform with the functionalities like Data processing & Collection, Asset Management, Reporting, Analysis, Alerts etc, what are the software? Components and libraries that you will use?

For Eg) Mule for Integration, Redis for data processing, Spark for BigData etc

534. IOT

Explain about the below protocols with their pros and cons with best suited use cases

- MQTT
- AMQP
- DDS
- ZigBee
- IOT

535. Explain about the below protocols with their pros and cons with best suited use cases

- CoAP
- WebSocket
- XMPP
- LoRaWAN
- Sigfox

536. IOT

Explain about EDGE computing?

Why it is advantageous for IOT platforms

How it differs from fog computing?

Explain its use case scenario for IOT for Farming and Geo fencing

537. IOT

Explain how to use AWS for IOT.

Explain about the role Lambda, S3, Redis, SNS, SQS, IOT Core, Kinesis, Elastic cache, BeanStalk, CloudWatch, CloudTrail for an IOT Environment

538. IOT - Arduino

Create a simple Humidity or temperature measuring device [DHT11] using Aduino & ESP8266 and post the results to a Grafanna server or to Google sheets using IFTTT

Demo how to do a switch on and off a Bulb using Object detection with Arduino, Tensorflow lite micro and Relay

539. IOT – Arduino

Demo how to use java to send messages to Arduino

Demo how to voice control using Android, Arduino, and HC 06

Demo how to use Arduino as a Webserver

540. IOT

What is the importance of PI4J project, Eclipse Paho, UniREST? Also, demo how to control GPIO with PI4J for RassperryPI

541. IOT

Have you worked with Grafana with graphite or influxdb? Also, explain about the cloud offerings of Grafana and influxdb
What is line data Protocol format?

542. IOT

Detail about sensors and the suggested Architecture & components for a Large-scale precision farming project

543. IOT

Check the huge list of devices – sensors available @
IOT devices - mydevices
https://store.mydevices.com/?_ga=2.137703284.578563113.1580806099-1035871907.1580806099

544. IOT

What is an OPC Server?
How can it be integrated with IOT platforms like AWS/AZURE
Check about Open Platform communications
https://en.wikipedia.org/wiki/Open_Platform_Communications

545. IOT

List 2 sensors for measuring CO2, Pressure Monitor, Particulate matter, Humidity

546. IOT

Check the list of Google Cloud IoT-ready hardware
<https://cloud.google.com/solutions/iot/kit/>

Wellknown & Interesting Toolkits are below

- Mongoose OS IoT starter kit with ESP32 board
- Arm-based IoT kit for Cloud IoT Core
- Banana Pi BPI-M64-R18
- PINE A64-LTS

547. IOT

What is the current version of Rasperry PI?

What is the default version of java shipped with the latest version Raspbian OS?

Suggest an IOT architecture with REST endpoints using spring, MQTT, ELK/Graffana, UniRest, Message Queuing software like Kalfa/Rabbitmq, Redis in memory sb.

Similarly suggest an architecture for a Client, which will interact with sensors and pushes it to the REST endpoint.

Also, consider using serverless in this architectu

Graph Database – Neo4J

548. Graph database – Neo4j

Explain how a Simple Product sales report - with 6 entities Manufacturer, seller, Product, Reviews, Price, Sales, can be represented in a graph datamodel

Also, explain how to migrate an existing relation DB system to a Graph datamodel

The migration details have to cover details about

Foreign keys, indexes, Technical primary keys, Business primary keys, joins, Duplicate Data

549. Graphdatabase

Explain with an Practical usecase, that how GraphDatabases addresses data relationships better than NOSQL & Relational SQL

Brief on these Querying Languages with a Simple usecase

- SPARQL
- Cypher
- GraphQL
- Gremlin
- Graphdatabase

550. Graphdatabase

List top three advantages of the Gremlin Graph Traversal Machine
What are TinkerPop-enabled systems?
List some Graph databases supporting it

551. Graphdatabase

Evaluate <http://sql2gremlin.com/>

552. Graphdatabase

Give a Short desc of the below

- GremlinPipeline
- Property Graph
- VertexProperty
- TraversalSource
- VertexProgram
- GraphTraversal

553. Graphdatabase

Explain the below simple Gremlin code segment

```
outE().where(inV().has(id, within(100,125)))  
addE("created").from("template").to("templatequotes").property("creationDate",  
"12/12/2020").  
store('a').cap('a')
```

554. Graphdatabase

Use Gremlin for the below simple example

- Get the vertex with the name "Employees" Traverse the Customers Chain ...until a customer with name 'Joe' is reached.
- Get name of the items bought by that customer and 'sold by' employee in the path traversed.

555. Neo4j

What is a Path and how to represent them using patterns
How to use patterns to describe a node that has multiple labels

556. Graphdatabase

Use Gremlin for the below Two simple examples

- Get all Movies vertices.
- Calculate their PageRank using knows-edges.
- Order the movies by their imdb score.
- Get the top 100 ranked movies.

557. Neo4j

What is the result of the below

- [1, 2, 3][1..null]
- {name: 'ariya'}[null]
- null IN [1, null, 3]
- null IN []
- null AND false
- true AND null

558. Neo4j

Explain about Pathexpanders, Order, and Evaluator in a Traversal Framework
How to make sure that only unique nodes are created?
Explain how deadlocks are handled

559. Neo4j-Java

Explain about pessimistic locking for node creation
Explain how Neo4j can be used as an embedded database in a Java Application

560. Neo4j-Java

Explain how to abort a Running transaction from other thread in java
Demo how to create multiple nodes with properties, execute a MATCH Cypher from a Java client

561. Neo4j-Java

Explain about the below Evaluator actions
Evaluation.INCLUDE_AND_CONTINUE
Evaluation.INCLUDE_AND_PRUNE
Evaluation.EXCLUDE_AND_CONTINUE
Evaluation.EXCLUDE_AND_PRUNE

562. Neo4j-java

Explain the uniqueness levels
NODE_GLOBAL uniqueness
RELATIONSHIP_GLOBAL uniqueness
NODE_PATH uniqueness
NODE_RECENT uniqueness

563. Neo4j - Java

Using Java demo how to use Dijkstra's algorithm to calculate cheapest path

564. Neo4j

Explain the below simple cypher snippets

```
MATCH (a:actor), (b:movie) WHERE a.name = "Surya" AND b.name = "Ayan"
CREATE (a)-[r: HERO_OF]->(b)
RETURN a,b
```

565. Neo4j

Explain the below simple cypher snippets

```
MATCH (a:actor), (b:movie) WHERE a.name = "Surya" AND b.name = "Ayan"
CREATE (a)-[r:HERO_OF {Movies:43, HitsRate:67.4}]->(b)
RETURN a,b
```

566. Neo4j

Explain the below simple cypher snippets

```
MERGE (MOVIE2015:ProductionHouse{name: "Studio Green"})
RETURN MOVIE2015, labels(MOVIE2015)
```

```
MERGE (Dhanush:actor {name: "Dhanush", Language: "Tamil"})
RETURN Dhanush
```

567. Neo4j

Explain the below simple cypher snippets

```
MERGE (Dhanush:actor {name: "Dhanush", Language: "Tamil"})
ON CREATE SET Dhanush.isCreated = "true"
ON MATCH SET Dhanush.isFound = "true"
RETURN Dhanush
```

568. Neo4j

Explain the below simple cypher snippets

```
MATCH (a:movie), (b:ProductionHouse)
WHERE a.name = "Ayan" AND b.name = "Studio Green"
MERGE (a)-[r:PART_OF]->(b)
RETURN a, b
```

```
CREATE CONSTRAINT ON (n:actor) ASSERT n.id IS UNIQUE
```

569. Neo4j

How find nodes that dont have a relationship?
How to list all nodes that do not have any relationships?

570. Neo4j

Answer the Below Simple Questions
What is the difference between merge and create command
What is the use of indexes explain with a Real use case example

571. Neo4j

Explain the below simple snippets

```
(usera)-[:isamemberof | :isainvestorof]->(groupa)
(usera)-[:isamemberof ]->(groupb{issecret:true})
(item)-[*1...100]->(customer001)
```

572. Neo4j - Simple Questions

What is the use of Constraints; explain with a Real life example
When to use UNWIND Command, explain with a Real life example
Demo how to use CALL Command, explain with a Real life example

573. Neo4j

What is the output expected if no matches are found
and what is the relation with NULL
MATCH(a:place{type:'rainforest'})
OPTIONAL MATCH (a)-->x
RETURN x

574. Neo4j

Explain the below simple cypher snippets

```
MATCH(movie{name:"kush"})--(indianmovies)-->()
with indianmovies,count(*) as cnt
where cnt>2
RETURN indianmovies
```

575. Neo4j

Explain the below Queries

```
MATCH (s:Shop)
WHERE NOT (:Shop)<-[:likes]-(s)-[:likes]->(:Shop)
RETURN s.business
```

576. Neo4j

Explain the below Queries

```
MATCH (s:Shop)
WHERE NOT (s)-[:likes]->(:Hotel)
RETURN s.business as BusinessType
```

Grafana - Influxdb

577. Grafana -influxdb

What are scripted dashboards?

What does the files scripted_async.js, scripted_templated.js under /public/dashboards demo?

578. Grafana-influxdb

How using annotations can help in managing different Dashboards? What is mean by patching dashboards?

579. Grafana-influxdb

Demo how to use API to create folder, List all Folders and Dashboards available?

What is the usecase of Playlists?

580. Grafana-influxdb

What is the default location of influxdb.conf?

What influxd-ctl show command on Meta nodes will output

581. Grafana-influxdb

What are duplicate points and how are they handled?

582. Grafana-influxdb

Demo how to create and Share Dashboards

What are the two different export options?

What are the Dashboards and plugins that you have used in aprojects?

List 5 Panel types and 5 Collector types

583. Grafana-influxdb

Explain about influxdb line protocol
How Tag set and Field set differs?
How to handle special characters in a line data?

584. Grafana-influxdb

How to enable UDP in influxdb and what is its default port
What is the purpose of meta nodes?

585. Grafana-influxdb

What is the minimum number of two data nodes for enterprise cluster?
What is the purpose of meta-internal-shared-secret configuration?

586. Grafana-influxdb

Explain how to create a retention policy and use it in insert Query
What is a point?

587. Grafana-influxdb

How to list all tag keys and tag values in a database

588. Grafana

What are the new features of Grafana6 like React plugin development, data links

589. Grafana-influxdb

Explain the below influxDB API HTTP Endpoints and their functionality
/debug/pprof
/debug/requests
/debug/vars

590. Grafana-influxdb

Explain the below commands

```
SELECT INTEGRAL("temp",1m) FROM "homemeasurement" WHERE "location" =  
'santa_monica' AND time >= '2020-10-20T00:00:00Z' AND time <= '2020-10-20T00:30:00Z'  
GROUP BY time(15m) LIMIT 1
```

```
SELECT MEAN("temp") FROM "homemeasurement" WHERE time >= '2020-08-17T23:48:00Z'  
AND time <= '2020-10-20T00:54:00Z' GROUP BY time(15m),* fill(9.01) LIMIT 5 SLIMIT 1
```

591. Grafana

Demo how to export a Chart in a panel to an Image file

Also, demo how to export a selected panel in a dashboard to a PDF file

592. Grafana

Check the very informative Grafanacon videos

<https://www.grafanacon.org/2019/videos>

We love the below speeches/Presentations

- Speeches related to flux
- REact Plugins
- Gfana @Ebay
- EMS Ambulance Service

AI

593. AI

Explain about Deeplearning4j Model Persistence
Demo how to use Datavec for Video, Audio, CSV data

594. AI

What is Firebase MLKit?
Demo how to use Firebase MLKit to detect faces with spectacles
Demo how to use Firebase MLKit for Barcode scanning for EMAIL Type

595. AI

Demo how to use the below simple classifiers using Weka available under

- `weka.classifiers.bayes.NaiveBayes`
- `weka.classifiers.lazy.IBk`

596. AI

What is the importance of Fourier Transform?
Demo how to do a real time object detection using opencv

597. AI

Python detecto is a very simple but a powerful package for Object detection
<https://pypi.org/project/detecto/>
Find a java alternative for this

598. AI

Demo How to use opencv with java for Face Detection and tracking

599. AI

Explain about Haar classifier and LBP Classifier

Demo How to remove background from an Image using opencv

600. AI

Demo how to do a real time object detection using Tensorflow and java

601. AI

Check about Googles Chatbot AI Meena, which is claimed to be best in the world.

Also, check about

- Transformer seq2seq architecture
- How does Reformer and Transformer Differs

<https://ai.googleblog.com/2020/01/towards-conversational-agent-that-can.html>

<https://thenextweb.com/artificial-intelligence/2020/01/29/google-claims-its-new-chatbot-meena-is-the-best-in-the-world/>

_From the below article check its Perplexity..just differs from human by few percentage

<https://www.zdnet.com/article/googles-meena-advances-the-exquisite-banality-of-chat-bots/>

602. AI

Evaluate the interesting product lobe

Teach your app to feel emotions, feel movement, understand nature, and hear music

<https://lobe.ai/examples>

603. AI

Evaluate how Python AI based Autocompletion works

<https://kite.com/>

604. AI

Check the awesome list of Opensource projects from google

<https://opensource.google/projects/list/machine-learning>

We are interested in the below 5 Projects

- Adanet
- Voice Bilder
- Tensorflow Plyground
- Quickdraw
- Magenta

605. AI

Check these Interesting Articles

Unbiased Look on Brazil Wildfires

<https://www.kaggle.com/andradaolteanu/unbiased-look-on-brazil-wildfires>

80% of businesses want chatbots by 2020

<https://www.businessinsider.com/80-of-businesses-want-chatbots-by-2020-2016-12>

Check the report 30 Big Tech Predictions for 2020

<https://www.businessinsider.com/intelligence/30-big-tech-predictions-for-2020>

Learning to Smell

<https://ai.googleblog.com/2019/10/learning-to-smell-using-deep-learning.html>

Facial Recognition That Works in the Dark

<https://onezero.medium.com/the-military-is-building-long-range-facial-recognition-that-works-in-the-dark-4f752fa713e6>

606. AI

Check the Awesome AI based Experiments Google is Doing

<https://experiments.withgoogle.com/collection/ai>

607. AI

Check about Neuroph a java based Neural network

<http://neuroph.sourceforge.net/features.html>

Check how it is used for Bagatur chess engine

Also check the interesting java demo available at

http://neuroph.sourceforge.net/online_demo.html

608. AI

Check about Team Data Science Process Lifecycle from Microsoft, One of a clean document which defines each stages clearly. Also check the artifacts produced in every stage

<https://github.com/Azure/Microsoft-TDSP/blob/master/Docs/lifecycle-detail.md>

609. AI

Check the googles new Data search tool for Data sets

<https://datasetsearch.research.google.com/>

610. AI

Detail about Cross-industry standard process for data mining - CRISP-DM. what are the Key phases

What are its cons? How it differs from SEMMA

<https://www.the-modeling-agency.com/crisp-dm.pdf>

611. AI

Knime data Analytics

Knime is wellknown among dataScientists like RapidMiner

<https://www.knime.com/knime>

<https://www.knime.com/example-workflows>

Check the Examples section – has a good list of Very interesting ones

https://hub.knime.com/knime/spaces/Examples/latest/50_Applications/

In the Examples we liked

- Recommendation Engine for reatilers
- NYC Taxi visualization
- Bike restocking alert
- Last FM recommendations

1) Check its workflow hub with more than 1500+ Workflows and 3500 nodes

2) Detail about top 5 useful elements in workflow coach and node repository

3) Explain about Numeric scorer nodes, Meta Nodes , PMML Node, Flow variables .

How to create customized nodes?

Check the extensions for Apache Spark, Database, Excel, Audio Processing

<https://hub.knime.com/search?type=Extension>

Demo how to build a Churn prediction model and train a model using Decision tree learner and evaluate prediction using ConfusionMatrix and ROC curve

In Random forest learner what are the 3 configuration parameters like Depth of Decision trees?

Demo how to use a Random forest predictor node and a scorer node. What is the difefrence between hard node and soft node?

How to intreface python scripts?

Demo how to do image processing with Deeplearning4J

612. AI

Evaluate obviously.ai - which claims -Data Science without Code

<https://www.obviously.ai/>

It supports natural language query similar to PowerBI

Pricing is reasonable, as the paid version will have a dedicated Data scientist

Check about its Compliance.What are its Data Requisites.

Check the case studies for Marketing and retail

Check the interesting Blog articles

5 No-Code Data-Science Predictions for the 2020s

<https://www.obviously.ai/post/5-no-code-data-science-predictions-for-the-2020s>

Your Question Bank for Natural Language Analytics

<https://www.obviously.ai/post/your-question-bank-for-natural-language-analytics>

613. AI

Evaluate the famous RapidMiner Datascience Platform focussing on enterprises

It's absolutely fascinating as it Suggests the Matching machine learning Algo for a data

Check how to use the Rapid miner studio to load and cleanse data

Evaluate how to visualize data using Rapid miner especially using Statistics Tab and AutoModel Button

Check the extensions available such as WEKA Extensions, Python, and Anomaly Detection etc

Check about the interesting RapidMiner Radoop

Also, Check the Link, which details about the models

<http://mod.rapidminer.com/#app>

614. AI Simpler Question

Demo how to use Ternary search

Explain how Spring Cloud Data flow can be used along Tensor Flow

615. AI

Use Deep Learning Models to detect Fire in a Video or in an Image

616. AI

Explore about Amazon SageMaker.

Also detail about Neural topic model ,Factorization machines ,BlazingText Random Cut Forest,Latent Dirichlet allocation

617. AI

How does AWS SageMaker compares with AzureML ,IBM Watson ML for Anamoly detection, Video Object Detection – Facial and Text recogonization

618. AI

Demo how to deploy a Model of your Choice and expose the same as REST API using Spring boot and a deep learning Library

619. AI

How RPA and AI works together – HyperAutomation. List 5 famous products supporting this.

620. AI

Using MNIST database of handwritten digits and Deeplearning4j demo how to create a digit recognizer in java

621. AI

Demo how to create a sentiment analysis using the dataset using <http://ai.stanford.edu/~amaas/data/sentiment> or using any dataset available in <https://www.kaggle.com/datasets>

622. AI

Demo how to create a sentiment analysis using the yelp review dataset - search Kaggle for the dataset

623. AI

Which Algorithm can be used for summarizing a Product review in an Ecommerce Store like amazon?

624. AI

Demo how to use SVM to predict Stock prices or Scores in a Game

625. AI

Explain the below terms

- Density based detection
- Local outlier factor
- Multivariate Additive Noise Model
- Minkowski error
- Multivariate method
- Turkey test
- Honest Significant Test

626. AI

Detail about Federated Learning proposed by Google research. How it is used in Gboard. Detail about TensorFlow Federated (TFF) Framework
Also, detail about how Federated learning of Text generation works using google colab

627. AI

Explain the below Terms

- One-hot encoding
- target statistics
- Target-Based with prior (TBS).
- gradient boosting biases
- missing value ratio
- Matrix factorization
- Laplace smoothing

628. AI

Explain the below Terms

- Asymmetric trees
- Oblivious Trees
- Label encoding
- Hashing encoding
- k-distance
- CART Model
- Correlation matrix
- Factor Analysis
- Belief Propagation

629. AI

Explain the below Terms

- DCGAN
- Gaussian Weight Initialization
- LeakyReLU & Standard ReLU
- Strided Convolutions
- Confidence Coefficient

630. AI

Detail about the below gradient boosting libraries

- CatBoost
- XGBoost
- H2O
- LightGBM

631. AI

Demo how to use XGBoost

Detail about target leakage and train-test contamination. How to overcome them

632. AI

Use a Platform of your choice . Use Regression to predict house price from suburb.

Use dataset from this link <http://lib.stat.cmu.edu/datasets/boston>

633. AI

Explain in detail about SHapley Additive exPlanations (SHAP) and its applications

Also, detail about the role of TreeExplainer, DeepExplainer, GradientExplainer and KernelExplainer

634. AI

Check the useful free tools available @

http://www.cortical.io/free_tools.html

These are interesting

- Disambiguate Terms
- Detect Language
- Keywords Extract

Also, Check about its award-winning product

http://www.cortical.io/solutions_contractIntelligence.html

635. AI

List the pros and cons of the below well known deep learning Frameworks

- Caffe2
- Microsoft CNTK
- MXnet
- Gluon

636. AI

Detail about Reinforcement learning

Detail about its practical applications like Playing Video games, Auto cars, call Centres etc

Detail about

- Policy
- QValue
- Reward
- State
- Agent
- Action
- Discount Factor

How is it related to Markov decision process?

For a Use case of a Bank Loan Approval Process, How will you use Reinforcement Learning?

637. AI

What is the difference between Apache MXNet Gluon and Module API? Detail their usecases

638. AI

How Apache MXNet [Both Gluon and Module] does compares with Tensor Flow in case of speed and Accuracy for a Image Recognition Model

639. AI

Demo how to do a Realtime Emotion Analysis in a live stream video using TensorFlow,Keras

Demo how to do a Realtime Emotion Analysis in a audio clip using TensorFlow,Keras

640. AI – Interesting Projects

Check about the Machine Learning Project that has reduced 40% energy used for data centres
[Thats really Huge]

<https://sustainability.google/projects/machine-learning/>

Global Fishing Watching using ML

<https://globalfishingwatch.org/map/>

641. AI – Interesting Articles

Check these highly interesting articles

Using Machine Learning to “Nowcast” Precipitation in High Resolution

<https://ai.googleblog.com/2020/01/using-machine-learning-to-nowcast.html?m=1>

'Smile with your eyes': How to beat South Korea's AI hiring bots and land a job

<https://www.reuters.com/article/us-southkorea-artificial-intelligence-jo/smile-with-your-eyes-how-to-beat-south-koreas-ai-hiring-bots-and-land-a-job-idUSKBN1ZC022?il=0&utm>

Warner Bros. Signs Deal for AI-Driven Film Management System (Exclusive)

<https://www.hollywoodreporter.com/news/warner-bros-signs-deal-ai-driven-film-management-system-1268036>

Airbnb Claims Its AI Can Predict Whether Guests Are Psychopaths

<https://futurism.com/the-byte/airbnb-ai-predict-psychopaths>

Neural Network Transforms 124-Year-Old Film Into Crisp HD

<https://futurism.com/the-byte/neural-network-old-film-into-crisp-hd>

JetBrains taps machine learning for full-line code completion

<https://www.infoworld.com/article/3518429/jetbrains-taps-machine-learning-for-full-line-code-completion.html>

642. AI

Check about the interesting AI based start-ups and their products

Vision AI for Inspections

<https://www.neurala.com/>

Schedule Mastering

<https://x.ai/how-it-works/>

HR related

<https://eightfold.ai/talent-intelligence-platform/talent-acquisition/>

AI FOR ALL - neurobots RPA + AI

<https://community.petuum.com/neurobots>

Analyzes Human Emotion States

<https://www.affectiva.com/>

Voice Interface to any Devices [Also check about its Products markI &MarkII]

<https://mycroft.ai/>

Computer vision

<https://www.clarifai.com/>

GEO data analysis

<https://orbitalinsight.com/>

643. AI

Evaluate the famous RapidMiner Datascience Platform focussing on enterprises

It is fascinating, as it suggests the Matching machine learning Algo for a data

Check how to use the Rapid miner studio to load and cleanse data

Evaluate how to Visualize data using Rapid miner esp using Statistics Tab and AutoModel

Button

Check the extensions available such as WEKA Extensions, Python, and Anomaly Detection etc

Check about the interesting RapidMiner Radoop

Also Check the Link which details about the models

<http://mod.rapidminer.com/#app>

644. AI

A simple challenge - Demo how to exchange models between java and python
List 3 top frameworks for Object Detection and Facial Recognition and Regeneration
Check about the interesting MOTChallenge

645. AI

What is the prime selection criteria to decide between selecting Linear and Non Linear Regression?

646. AI

Explain about MSER. Build an image classification model to classify street view house numbers using Convolutional Neural Networks
The Street View House Numbers (SVHN) Dataset is available at
<http://ufldl.stanford.edu/housenumbers/>

647. AI

Explain about the below time series models

- ARIMA model
- Holt's Linear Trend Model

648. AI

Demo how to do a Video Object detection using imageAi (Though a Python Library it will be very interesting)

649. AI

Evaluate <https://deepquestai.com/>
Check about FireNet and ActionNet projects

650. AI

Demo how to predict Objects using F-CNN,SSD and YOLO Framework

651. AI

Demo about BaggingClassifier, Voting Classifier AdaBoost classifier with simple examples

652. AI

Check the AI and machine learning products offerings from
<https://cloud.google.com/products/ai/>

Explain about

- What-If Tool
- Continuous Evaluation
- Deep Learning Containers
- Kubeflow pipelines

653. AI

Detail about Ensemble classification models & methods

654. AI

List some well-known techniques for tree pruning

655. AI

What is Short-term memory in RNN.Explain about Long Short-term memory LSTM and Gated Recurrent Units GRU in detail .

656. AI

List few applications of Generative Adversarial Networks (GAN). How to develop Conditional GANS

657. AI

Explain in detail about Bayesian network graph. Detail about their applications. What are its viable alternatives?

658. AI

Explore about the below listed cognitive services offerings from Azure

- Form Recognizer Preview
- Content Moderator
- Bing Entity Search
- QnA Maker

Similarly check Use Form Recognizer with Azure Logic Apps to analyze invoices

<https://docs.microsoft.com/en-us/azure/cognitive-services/form-recognizer/tutorial-form-recognizer-with-logic-apps>

659. AI

Brief about the below

- Markov's Networks-Chains
- Bandit Algorithms and Markov Decision Process
- Boltzmann Machine and Auto-encoders

660. AI

Check one of the most interesting article

Facebook has trained an AI to navigate without needing a map

<https://www.technologyreview.com/f/615078/facebook-has-trained-an-ai-to-navigate-without-needing-a-map/>

661. AI

Check the Interesting Article

Making Data Science Accessible to Developers: Real-Time Multi-Person, Human Pose Estimation with Spring Cloud Data Flow and TensorFlow

<https://content.pivotal.io/blog/making-data-science-accessible-to-developers-real-time-multi-person-human-pose-estimation-with-spring-cloud-data-flow-and-tensorflow>

662. AI

Has BlueDot- AI-driven algorithm predicted Coronavirus

Explain about the importance of Structural Causal Model and Rubin Causal Model (RCM)

663. AI

What is the difference between Ridge regression, Lasso regression, Partial least squares (PLS) regression. Among these three, which can be used when only, few observations are made

664. AI

Detail about SVM. Why the term support Vectors?

What is the relation between Random Forest and Decision Trees?

When to use Dimensionality Reduction Algorithms?

Detail how naive Bayes classifier works?

A simple Exercise - Demo how to use Multinomial logistic regression to predict Election results

665. AI

Explain the below Terms

- Tensors
- Adagrad
- Boltzmann machines
- ResNet
- Recursive Neural Networks
- Bidirectional Recurrent Neural Networks

666. AI

Explain the below Terms

- Recurrent Neural Networks
- Nonlinear Transform Function
- Multilayer Perceptron (MLP)
- Information highways
- Highway Networks
- Eigenvectors

667. AI

Explain the below Terms

- Gated Recurrent Unit (GRU)
- Likelihood Function
- Nesterov's Momentum
- Neural Machine Translation
- Radial Basis Function Networks

668. AI

Explain the below Terms

- f1 Score
- Dropout
- Jacobian matrix
- Word2vec

669. AI

Explain the below Terms

- Backpropagation
- Data Parallelism
- Model Parallelism
- Autoencoder
- Boltzmann Machine

670. AI

Demo how to use kNN, Random Forest and SVM for spam Email classification
[Use Kaggle or UCI ML repo]

671. AI

What is Secured Multi-Party Computations (sMPC)?

What is the role of PySyft Library and detail about its high-level architecture?

672. AI

Check the Below Articles - Though Simple But very Useful

eBay's Platform is Powered by AI and Fueled by Customer Input

<https://tech.ebayinc.com/engineering/ebays-platform-is-powered-by-ai-and-fueled-by-customer-input/>

Machine learning reduces language barriers in global trade, research show

<https://source.wustl.edu/2019/05/machine-learning-reduces-language-barriers-in-global-trade-research-shows/>

673. AI

Simple 3 Questions

In Naïve Bayes how to set the threshold?

What is the key difference between the two regularization techniques L1 and L2 Norm?

What is the use of Bias variance tradeoff?

Kotlin

674. Kotlin

Explain how to do the same in Kotlin

```
public List<Integer> multiplesof10(List<Integer> in_list_numbers) {  
  
    List<Integer> list_in_list_numbers = new ArrayList<Integer>(in_list_numbers);  
    Iterator<Integer> listIterator = list_in_list_numbers.listIterator();  
    while (listIterator.hasNext()) {  
        Integer num = listIterator.next();  
        if (num % 10 != 0) listIterator.remove();  
    }  
    return list_in_list_numbers;  
}
```

675. Kotlin

Explain the output of the below code

```
var carName: String? = null  
carName?.trim()
```

```
carName = "Tesla"  
carName?.trim()
```

```
carName!!.trim()
```

```
val str2: String = "BMW X7"  
str2.trim()
```

676. Kotlin

Evaluate how detekt static analyzer works

<https://arturbosch.github.io/detekt/>

677. Kotlin

Explain how to do the same in Kotlin

```
public static class FootBallTeam {  
  
    private String coachName;  
  
    public FootBallTeam(String name) { coachName = name; }  
  
    public String getName() { return coachName; }  
  
    public void setName(String name) { coachName = name; }  
  
    @Override public boolean equals(Object o) {  
        if (this == o) return true;  
        if (o == null || getClass() != o.getClass()) return false;  
  
        FootBallTeam footBallTeam = (FootBallTeam) o;  
        return coachName != null ? coachName.equals(footBallTeam.coachName) :  
            footBallTeam.coachName == null;  
    }  
  
    @Override public int hashCode() {  
        return coachName != null ? coachName.hashCode() : 0; }  
    }
```

678. Kotlin

Explain the below simple Questions with examples

Functions are top-level elements & first-class citizens

Supports for constant values and immutable collections for Parallel and Functional Programming

A Generic class can be covariant and contravariant

Companion objects are best alternative to static fields.

679. Kotlin

Explain the importance of Covariance and Contravariance with detailed examples

What is the selection criteria for inlined and noinline

When to use inline functions? What are its advantages over high order functions?

680. Kotlin

What is the difference between the below code snippets

Object Demo {

```
fun printSomething(valin: String) { /* .. */ }  
}
```

Class Demo {

```
fun printSomething(valin: String) { /* .. */ }  
}
```

681. Kotlin

Explain the below code and how to access the function add

```
class User private constructor(val num: Int) {  
  
    companion object {  
  
        fun add(num: Int) = User(num)  
    }  
}
```

682. Kotlin

Is the below is a Valid Kotlin code

```
var comment = when(itemcost) {  
    1000,1500 -> "Low"  
    3000-> "ok"  
    in 4000..10000 -> "High"  
    !in 10000..300000 -> "nope"  
    else -> "check again"  
}
```

683. Kotlin

Is the below is a Valid Kotlin code

```
fun isValidValidComment(comment: Any) = when(comment) {  
    is String -> print("Text Comment")  
    checkSQLInjection(comment) ->  
    print("OK Valid Comment")  
    else -> false  
}
```


684. Kotlin

Is the below is a Valid Kotlin code

```
when (datain) {  
    is Double -> print("Double")  
    is Int -> print("Integer")  
    is String -> print("String")  
    is FloatArray -> print("Array")  
}
```

685. Kotlin

Is the below is a Valid Kotlin code

```
when {  
    salary > 150000 -> print("Great")  
    position == "TechLead" ->  
        print("Market Range is more than 150000$")  
    val x: String? = y as String?  
}
```

686. Kotlin

What is the error expected from the very simple code blocks

```
class ClassA(name: String)  
class ClassB(name: String) : ClassA(p)  
  
val valuein = 18000  
var projectpayment: Float? = valuein as? Float
```

687. Kotlin

What is the output expected from the below simple code segment

```
val numlist = listOf(5, 10)
println(numlist.fold(0, { start, element -> start + element }))
println(numlist.fold(15, { start, element -> start - element }))
```

688. Kotlin

What is the output expected from the below simple code segment

```
val places = setOf("belgium", "alaska", "kenya")
println(places.fold("I hava visited ", { start, element -> start + "$element "}))
```

689. Kotlin

What is the output expected from the below simple code segment

```
val demolist = listOf(listOf(55,55),listOf(22,33))
println(demolist.flatten())

data class IQ(val person: String, val iqvalue: Int)
val iqlist = listOf(IQ("alex", 122), IQ("aaron", 176), IQ("Einstein", 180))
println(iqlist.flatMap { listOf(it.iqvalue) } )
```

690. Kotlin

Solve the Generics under Kotlin Koans

<https://play.kotlintlang.org/koans/Generics/Generic%20functions/Task.kt>

691. Kotlin

What is an Any class? How it differs from Java Object Class

692. Kotlin

Explain about the Below Modifiers in depth

693. Kotlin

Explain about the Below Modifiers in depth

- vararg
- suspend
- annotation
- companion
- inline
- infix

694. Kotlin

Explain about the below plugins and their uses

sam-with-receiver compiler plugin

No-arg compiler plugin

A Simple Question - What is the Difference between the below

const val age = 80

val age = 80

695. Kotlin

Demo How to use Okhttp/Retrofit along with Kotlin Coroutines

696. Kotlin

How to decompile a Kotlin class to java

697. Kotlin

How Nested and Inner classes work in Kotlin?

For accessing Nested class do we need to instantiate the Outer class?

Explain in detail about how *extension function* works?

How will you access the member variable with the same name as of extension variable in an extension Function?

698. Kotlin

Explain the code and [Where is it more appropriate to have the below code line

```
this@SMSBroadcast.sent = true
```

Is the below is a Valid code

```
enum class SMSStatus : MessageStatus{
    DELIVERED {
        override fun getStatus() = DELIVERED
    },
    PENDING {
        override fun getStatus() = PENDING
    },
    PROTOCOL_USED {
        override fun setProtocol(name: String) = "SMPP"
    };
    abstract fun getStatus(): SMSStatus
}
```

699. Kotlin

Explain about the below JVM Annotations

- @JvmName
- @JvmOverloads
- @JvmField
- @JvmMultifileClass
- @JvmSuppressWildcards
- @JvmWildcard

700. Kotlin

How Annotation Parameters work and what are its restrictions

Also explain about the Below

- @Retention
- @MustBeDocumented
- @Repeatable
- AnnotationTarget
- AnnotationRetention

701. Kotlin

What is the difference between 1st group & 2nd group

1.let ,also

2.run, with, and apply

What is the difference between 1st group & 2nd group

1.apply , also 2

2.let, run, and with

702. Kotlin

Explain about the below with examples and what are their limitations

- open class
- Data class
- annotation class

703. Kotlin

How scope function and Lambda expressions are related

What is the similarity and difference between the below five

let, run, with, apply, and also

What does 'this' or 'it' refers to?

Is apply is advantageous over also?

704. Kotlin

Convert the simple java code to Kotlin

```
public class SMSSender implements Message {
```

```
    class InnerClass {  
        int x1 = 100;
```

```
    }  
    class InnerInnerClass {  
        int x2 = 500;  
    }  
}
```

```
@Override  
public void send() {  
    System.out.println("Sending");  
}
```

```
@Override  
public void receive() {  
    System.out.println("Receiving");  
}  
}
```

```
@JvmDefault @JsonExclude @JvmField  
val str:String="Hello"  
val isEmpty: Boolean get() = size == 0
```

705. Kotlin

Explain about *Nothing* type and when to use them with a simple example

List few examples for read-only and mutable collections

Demo how to use `Delegates.observable` function

What happens `+=` and `-=` operator is used on read-only and mutable collections

706. Kotlin

What is the function name for `--x`, `x--`, `!x` operators

A simple Question - what is a destructuring declaration

A simple Question Why an `_` is used

`val (_, result) = getScore()`

What does the below indicates for destructuring in Lambdas

`{ (a, b), c -> ... }`

707. Kotlin

What is the use of the annotation `@JvmName` and `@JvmMultifileClass`

What happens to the visibility of internal declarations in kotlin when calling Kotlin from Java?

How type `Nothing` is handled when calling Kotlin from Java

708. Kotlin

Explain the Below Documentation

- 1) `***RabbitMQ is wellknow***` and `___`used by Millions and Famous Companies`___`
- 2) `~~~testcode`
- 3) `# Dev`
`## Cino`
`# Testing`

709. Kotlin

Explain the Below Documentation

a)

`/**`

`** Information about this Release :*`

`** Native Chnages`

`** Linux Chnages`

`*This is SMS Broadcaster`

b) `* ```

c) This is [a demo](<http://rabbitmq.com/> "Messaging Example") for System Integration

Unit Testing

710. JUnit

Demo how to use below annotations with example

@RepeatedTest

@Tag

@Disable

@Nested

711. JUnit 3 Simple Questions

When to use TestInfo?

What is @TestInstance? Explain about PER_METHOD and PER_CLASS

Demo how to use ParameterResolver?

712. JUnit 3 Simple Questions

Demo how to test exceptions with JUnit5

Demo how to Unit test inner classes

Demo the difference between JUnit assume and JUnit assert

713. JUnit A Simple Question

List Five New best practices for junit5 that is new to this version

714. JUnit

Explain about fragile tests and the solutions mentioned in <http://xunitpatterns.com>

Explain about

- Context Sensitivity
- Behavior Sensitivity
- Interface Sensitivity

715. JUnit 3 Simple Questions

Demo how to write JUnit parameterized test with method source

Demo how to write JUnit parameterized test with EnumSource

Demo how to write JUnit parameterized test with CSV source

716. JUnit

Use Mockito framework to create Mock tests for a Void method and handle the exception thrown by it

717. Mockito

How mockito works with Junit5 using extension

How Mockito and powermock works internally?

What is the role of cglib?

718. Mockito

Demo how ArgumentCaptor works for varargs

How to verify the interactions order using InOrder

Evaluate JMockit vs Mockito. Why JMockit is advantageous?

719. Mockito

Explain the below

- verifyNoMoreInteractions
- verifyZeroInteractions
- doCallRealMethod

720. Mockito

When will you use @spy and @mock annotations?

How to unit test (verify) the real interaction of a Method & make sure that the method call results in desired result using @spy annotation

For eg) Make a Web Page reader program use @spy annotation to make sure that a desired String is found in the resulting String.

Also, check the arguments using Mockito ArgumentCaptor

721. PowerMock & Mockito

Demonstrate how to use PowerMock with Mockito to mock a Static method and a Private method

722. Power Mock - Simple 3 Questions

Is it possible to mock final methods? If yes is the answer, demo the same

Demo how to use powermock to mock a private method and private variable?

Demo how to use PowerMockito.Suppress

723. Power Mock

Can we do a partial test-using spy for a private final List variable? if yes then demo it

724. WireMock

Use WireMock with Junit4 to mock a web request with a specific response headers and response body content [From a File].

If you can stimulate a delayed response using fixed delays, Multipart/form-data & cookies it will be great

725. WireMock

Wiremock is one of the best Simulators I have worked with. It is highly important especially in this era of Microservices, REST webservices for stubbing and mocking.

Use WireMock with Junit4 to mock a web request with a specific response headers and response body content [From a File].

If you can stimulate delayed response, using fixed delays, Multipart/form-data & cookies it is great.

726. WireMock

Wiremock is one of the best Simulators i have worked with. It is highly important, especially in this period of Microservices, REST webservices for stubbing and mocking.

727. Mocking

Compare JMockito - EasyMock - Mockito [with PowerMock] and Select the best to suit a large-scale project with more than 700,000 lines of Code

Also, consider below into selection criteria

- Community support
- License
- Commercial Support
- Integration with CI
- Partial Mocking Support
- Coverage Support

728. Logging

Evaluate Loggly, GoAccess, GrayLog, and Logenteries for a Website like alibaba

The Key metrics are Visitors GeoLocation, IP, 404, URLs requested, Referral sites, Unique Visitors

The additional Key factors to be evaluated are below.

Data Volume,Auditing,License,Text Search ,Graphs, Live-Tail, Apps supported

729. Logging Tools - Simple 3 Questions

Demo how to make all loggers asynchronous in Log4j2?

Explain about ACCEPT, DENY or NEUTRAL in filters?

Demo how to use TimeFilter, MarkerFilter, RegexFilter and StructuredDataFilter?

When to use Log4j IOStreams? Demo with an Example

Explain about bridges in SLF4J and demo how to use them .Does Log4j2 also includes a bridge?

730. Logging Simple 3 Questions

What is the importance of Garbage-free Steady State Logging?

On Performance criteria for both sync and async logging, which logging package will you recommend?

What is the importance of org.apache.logging.log4j.message Package and what is the advantage of StructuredDataMessage

731. Logging Simple 3 Questions

Among the 3 which is the best appender for Log4j2 - RandomAccessFile or MemoryMappedFile or FileAppender

Demo how to use Servlet Appender in log4j2 and demo how to do async logging in a webapplication using jsp, servlet?

What is the use of disruptor.jar file?

732. Logging Simple 3 Questions

List the java logging libraries, which support hot reloading of configuration, Files?

How you handle sensitive important data in the logging? Demo how to use Log4j2 LogEventPatternConverter

Demo how to use rollingfileappenders based on time and size in log4j2

Agile Scrum Kanban

733. Agile Scrum

Explain the below

- As a <User / type of user>
- I want to <action / feature to implement>
- So that < target>

734. Agile Scrum

Explain the below

- Sprint
- Sprint points
- User Stories

735. Agile Scrum

How will you select a tool, which is well suited for a scrum / Kanban based project.
List the top 5 features

736. Agile Scrum

Demo how to create a backlog - Story points - sprints stories for a simple pet store web application

737. Agile Scrum

Explain about Tshirt Sizing technique.
If you can demo the same how to use it with Trello or related software

738. Agile Scrum

We know that Burndown chart is very important to measure
How estimation and tracking differs.
What is the primary use of Epic burndown chart?
Demo how to create it using JIRA or any related software

739. Agile Scrum

A simple Question - Who captures business requirement and prioritize the backlog

740. Agile Scrum

Explain about story points for a Web application like etsy.com
How they are related to hours and user stories?
Why Story points looks like a Fibonacci-like format

741. Agile Scrum

What is the use of Swimlane and Epic in JIRA?

742. Agile Scrum

What are Agility Boards? When a team can opt for that ?

743. Agile Scrum

What are the core practices of Kanban?
Evaluate Kanban boards using Asana or trello

744. Agile Scrum

Explain the below Issues of Scrum project Management with a practical example - for eg) in
Mobile app development

- Scope creep
- Team commitment
- Timeline issues

745. Agile Scrum

Evaluate the scrum template in Clickup
if you can evaluate the kanban templates it will be good.

Can you compare the same with the features offered by Asana
The evaluation should include price, feature and integration with other software like slack

746. Agile Scrum

In a conflict where a Product owner has disagreement regarding a sprint?
What needs to be done?

747. Agile Scrum

What is Scaled Agile Framework and what are its Business Benefits?
Brief about Lean Enterprise Assessment
Is SAFe is suitable for small/Medium sized teams.
Explain about LeSS and DAD.
Also, Explain in detail about DevOps and Release on Demand.
Also Mention about Devops Health Radar
What is the role of ART representatives?

748. Agile Scrum

Explain about SAFe Requirements Model
Explain about Weighted Shortest Job First WSJF model for prioritization
What is SAFe Enterprise Balanced Scorecard and what are the four perspectives

749. Agile Scrum

What is the Difference between Capability and Feature with an example and similarly explain
the difference between User Story and Enabler Story with an Example

750. Agile Scrum

What are the key principles that SAFe is based on?

Explain about the below terms with an example

- GuardRails
- Feature
- Epic Owner
- Value Streams
- Lean flow
- Agile Release Train

751. Agile Scrum

What are the key differences between Large Solution SAFe and Essential SAFe?

Explain about the below SAFe terms with an example for a News WebSite like NYTimes/theguardian

- Portfolio Epic
- Solution Epic
- Program Epic
- Business Epic
- Enabler Epic

752. Agile Scrum

Explain about the below events of a Scrum Mobile app project UI Design phase with an example

- Sprint Planning
- Daily scrum
- Backlog refinement or Grooming
- Sprint review
- Sprint retrospective

753. Agile Scrum

Explain the below 3 artifacts of scrum with example for a Login and signup page

- Product backlog
- Sprint backlog
- Product increment

754. Agile Scrum

Explain in detail about the artifacts - Product backlog, Sprint backlog and increment backlog for a simple Mobile app product like a Pomodoro Timer.

Also, mention who is responsible for creating these artifacts

755. Agile Scrum

Does the Product backlog is ordered based on Higher Business value or on the complexity of the implementation?

756. Agile Scrum

Can multiple teams work on a same scrum project?

In this case, how many product owners and Product backlogs are allowed?

757. Agile Scrum

In which event sprint backlog is created.

Can development team modify it after finalising?

758. Agile Scrum

Can a Scrum Master and Product Owner can express their views or Question during daily scrums?

759. Agile Scrum

Can Software Development Team cancel a Sprint?

Are time boxes in a Sprint are extendable?

760. Agile Scrum

Explain about the importance of Sprint Burndown & Burnup Charts, Release Burndown & Burnup Charts & Sprint Burn up chart.

What are the key parameters?

How you managed these in your projects. Share your experience

761. Agile Scrum

Does Scrum Master has to attend the daily scrum meetings?

What are the output of Sprint1 ?

762. Agile Scrum

In which Sprint, the Performance, security like non-functional features are planned

Explain about INVEST model with examples

763. Agile Scrum

What are the Qualities expected in a Scrum Master?

Explain about MoSCoW methods for Analysis and also list its cons

764. Agile Scrum

Explain about Kano Model Analysis

Explain about the simple and famous 100 points technique and how is it used to prioritize requirements or sprints

765. Agile Scrum

Who are involved in JAD sessions and why is it important? Who arranges these meetings?

Explain in detail how to do a SWOT analysis and Gap Analysis for a CRM project

766. Agile Scrum

What is Scrum of scrums?

What is CUTFIT Rules? How they are used

767. Agile Scrum

Create a simple tree and forest requirement analogy Pyramid for a money transfer application like paypal/paisape

SonarQube

768. SONAR QUBE

- Explain the below Metric definitions
Complexity, functions, lines of code, statements
- What is the role of //NOSONAR Comment?
- How will you handle false Positives?
- How to create webhooks for a Quality gate Alert?
- Use Docker Sonarqube image available at https://hub.docker.com/_/sonarqube/
- Analyze a sample project provided by Sonarqube available in this URL to calculate the Technical Debt
<https://docs.sonarqube.org/display/SONAR/SonarQube+Project+Examples>
- Similarly set a Quality gate of 4% for Duplicate lines and analyze it

769. SONARQUBE – Simple Questions

What is LCOM4 used by SonarQube

What are seven Axes of Quality of SonarQube?

770. SONARQUBE

- Use SonarCloud to analyse an open source project in GitHub
<https://sonarcloud.io/about>
- For instance you can use the below link
<https://github.com/google/guava>
- Evaluate SonarLint with Eclipse

Database & JDBC

771. Mongodb

Demo how to create a Pojo *for eg) Call Details* and use it to create a simple CRUD application using PojoCodecProvider

772. Mongodb

Mongodb is undeniably overtook Cassandra and other nosql databases. With being ACID introduced in the new version, it will be used in many high profile projects

Demonstrate a simple CRUD and Gridfs operation with Mongodb.

Compare BLOB of Traditional DB and Gridfs of MongoDB

Demonstrate how to do bulk Write to a Mongo Collection using Java.

Use *Arrays.asList*. It will be great if you can measure the performance difference

773. Mongodb

<http://mongodb.github.io/mongo-java-driver/3.4/driver/tutorials/bulk-writes/>

Demo how to create a Text Index using java and demo how to get the associated score with a search result

For the above demo you can use the sample data in the example

<https://docs.mongodb.com/manual/text-search/>

Or

You can get the sample JSON from here

<https://github.com/ozlerhakan/mongodb-json-files>

My Suggestion is to use the Tweets sample data for the above challenge

774. Mongodb

- Demo how to create a sample collection with fields Company, Age, Department, and Salary
- Demo how to use Java & Aggregation operators in Mongodb
- Find the total number of employees in the age group of 35-40, their Average Salary
- Find the best paying department and its mean employee's age group

775. Mongodb

- Explain about Encryption at Rest
- Explain in detail about Client-Side Field Level Encryption
- Explain about Automatic Field Decryption
- What is `db.collection.watch.fullDocument()`

776. Mongodb

- How to do a schema validation to enforce encryption of specific fields in a collection.
- What is the importance of Causal Consistency?

777. Mongodb

Demo how to use graphql-java with mongodb for a simple random number generator application

778. Mongodb

Explore about MongoDB Stitch – Serverless Platform. What are the language runtimes supported in Stitch

If possible using mongodbatlas cloud console to create a public API endpoint for a simple weather application or a SMS sending application using a *public stitch function + http service + incoming webhook*

779. Mongodb

Detail about MongoDB cloud Products & Tools

- MongoDB Stitch
- MongoDB Atlas
- Mongodb cloudManager
- Mongodb Ops Manager
- MongoDB charts
- MongoDB Atlas Open Service Broker
- Mongodb Kubernetes Operator

780. Mariadb

Check the DB-Engines Ranking of Time Series DBMS and Wide Column Stores?

781. Mariadb

- What are temporal tables? What is System versioning?
- Demo how to use SYSTEM_TIME
- Also, explain about the Application time support for datetime columns.

782. Mariadb

- What does this Query returns
SELECT ENGINE, SUPPORT FROM information_schema.ENGINES
- What is the difference between XtraDB and innodb?

783. Mariadb

- If a Database has less writes and heavy reads which engine will you suggest - Aria or XtraDB?
- What is the use of files with extension .ibd? What is meant by file-per-table mode?
- What is an .frm file and how is it related to the table?

784. Mariadb

Explain about the below

- Tablespace
- Segment
- Buffer Pool
- Page
- Dirty Page
- overflow pages
- Extents

785. Mariadb

- When to use the below command
`SET @@global.innodb_strict_mode = ON;`
- What is the difference between Clustered Index and secondary Index?
- What Happens When there are no Primary or Unique Columns defined?

786. Mariadb

- What is the output of the below command
`SELECT 1 /*M! , 'Will this execute?' */;`
- What is Barracuda file format of innodb and how is it related to Compression
- What is the compression algorithm used?

787. Mariadb

- How to create a compressed table in Innodb?
- What is the advantage of parallel replication and from which version of Mongodb, this feature became available?

788. Mariadb

- List 5 partition expressions examples
- Evaluate galeracluster.com and how can it be used?

789. Mariadb

- How to use Foreign keys with partitioned tables?
- Demo how to use CONNECT Mariadb engine to an external Database

790. Mariadb

- How does Binary and varbinary type differs?
- How varbinary differs from tinyblob/mediumblob
- Explain about SHOW PROCEDURE STATUS command and what will be displayed in the output
- What is the expected output of the command SHOW PROCESSLIST;

791. Mariadb

What is CTE and what is the alternative ways to that
Demo how use recursion in CTE.

792. Mariadb

- What is a Window Function and how it differs from a regular function?
- What is the syntax of window Function?
- What is the role of Frame definition?
- Why multiple <window_name> sections are used?

793. Mariadb

Explain about the below functions

DENSE_RANK()
NTH_VALUE()
NTILE()
PERCENT_RANK()
PERCENT_RANK()
LAG()
LEAD()

794. Mariadb

Explain about the below functions

DENSE_RANK()
NTH_VALUE()
NTILE()
PERCENT_RANK()
PERCENT_RANK()
LAG()
LEAD()

795. Mariadb

- What does the command `mysql_secure_installation` does?
- What does the below commands mean

```
set global slave_parallel_threads=8;  
global slave_domain_parallel_threads=8;
```

796. Mariadb

- How to use JSON datatype with MariaDB and how it differs from LONGTEXT?
- How to create a table with JSON type with Validity check?

797. Mariadb

Is it a valid JSON insert

```
SET @json = '{ "ONE": 0, "TWO": [1, 2] }';  
SELECT JSON_INSERT(@json, '$.THREE', '[1,3, 3]');
```

798. Mariadb

- What is the primary difference between JSON_QUERY and JSON_VALUE?
- Demo how JSON Array Insert works

799. Mariadb

Explain the below SQL Query

```
CREATE TABLE call_details (id INTEGER NOT NULL PRIMARY KEY AUTO_INCREMENT,  
callfrom VARCHAR(50) NOT NULL,  
callto VARCHAR(50) NOT NULL,  
callattr VARCHAR(256),  
CHECK (callattr IS NULL OR JSON_VALID(callattr)));
```

800. DB SQL WINDOWS – A Simple Challenge

What are SQL Windows Functions and why they are very popular?
How to use them with JDBC?

801. Full Text Search

Demo how to use mysql Fulltext search with AGAINST and MATCH and access the result in JDBC

802. Encrypted Database

How to work with Always Encrypted Database Engine of SQLServer and JDBC

Get more info on this Superb Feature

https://docs.microsoft.com/en-us/sql/relational-databases/security/encryption/always-encrypted-database-engine?view=sql-server-2017#Anchor_5

803. Mariadb Windows Function

Explain the below Windows Function

```
SELECT theatre, year, movie, ticketsold, LAG(ticketsold) OVER wf_1 AS prev,  
LEAD(ticketsold) OVER wf_1 AS next, ROUND(AVG(ticketsold) OVER wf_3) AS avg,  
RANK() OVER wf_2 AS rnk FROM moviedata  
WHERE movie = 'asuran'  
AND theatre = 'MegaMall'  
WINDOW  
wf_1 AS (  
    PARTITION BY movie, theatre  
    ORDER BY theatre, year  
) ,  
wf_2 AS (  
    PARTITION BY movie, theatre  
    ORDER BY ticketsold DESC  
) ,  
wf_3 AS (wf_2  
ROWS BETWEEN  
UNBOUNDED PRECEDING  
AND  
UNBOUNDED FOLLOWING  
)  
ORDER BY movie, theatre, rnk;
```

804. DB Simple Challenges

- When to use `refreshRow()`, `moveToInsertRow()`
- In a database how to check whether it supports `TYPE_SCROLL_SENSITIVE` & `CONCUR_UPDATABLE`
- When to use `HOLD_CURSORS_OVER_COMMIT`, `CLOSE_CURSORS_AT_COMMIT`
Also, mention the Alternatives.

805. DB Simple Challenges

- When to use `ResultSet.getNString ()`, `ResultSet.getAsciiStream ()`, `ResultSet.getBinaryStream()`?
- How to get the warning associated with a `ResultSet` and Clear them?
- What is the use of `java.sql.Ref` and does `mysql` supports it?
- What are the well-known databases that do not support `SQLROWID`?

806. DB-Simple Challenge

- What are the possible exceptions for `ResultSet.rowDeleted ()`
- How will you search for a Column label in a Query in a `ResultSet`?
- When to use the Below Code blocks

```
if (!ResultSetRef.isBeforeFirst() ) {    }  
if (!ResultSetRef.isAfterLast() ) {    }
```

807. DB

- Demonstrate how to use `ROWNUM` for Pagination
- List the five types of the Rowsets and their specialities
- Demonstrate how to generate xml-using `Websrowset`

808. Jdbc null,prefetch webbrowser

- Demo how to handle Database Null values
- What are the advantages of Prefetch and demo how to do it `JDBC`?
- What is `WebRowset acceptChanges()` method do ? Why is it important

809. DB JoinRowSet

Assume you have three tables in a database for a Food chain like Taco -

- `branches_zipcode_info`
- `tbl_foodItems_branches_info`
- `tbl_Sales_fooditems_branches_info`

Use `JointRowset` to find the top two sold food items in an area using zipcode
Do not use `JDBCRowset`. Keep it disconnected.

810. Async Jdbc

I hope AsyncJDBC is work in progress and from the information we have it will be released along JDK11

Use Apache DBUtils -> AsyncQueryRunner to update a set of rows and fetch the result

811. List the Mappings for the below data types in JDBC

- ROWID
- ARRAY
- XML
- Structured types
- DISTINCT

812. Jdbc data types

The challenge is to read these three articles. All are useful.

10 Common Mistakes Java Developers Make when Writing SQL

<https://blog.jooq.org/2013/07/30/10-common-mistakes-java-developers-make-when-writing-sql/>

10 More Common Mistakes Java Developers Make when Writing SQL

<https://blog.jooq.org/2013/08/12/10-more-common-mistakes-java-developers-make-when-writing-sql/>

Yet Another 10 Common Mistakes Java Developers Make When Writing SQL (You Won't BELIEVE the Last One)

<https://blog.jooq.org/2014/05/26/yet-another-10-common-mistakes-java-developer-make-when-writing-sql-you-wont-believe-the-last-one/>

813. JDBC

- What is session_cached_cursors in oracle and what its role?
- What is N+1 Query Problem?
- What are Sparse/COMPACT columns?

814. JDBC

How to get the foreign keys and Primary keys in a table using JDBC?

How to select the optimal Cursor?

What is Page-by-Page Iterator pattern?

815. JDBC

Evaluate HikariCP production-quality connection pool.

<https://brettwooldridge.github.io/HikariCP/>

Also, find the usages of allowPoolSuspension,leakDetectionThreshold and connectionTestQuery

816. JDBC SQL EXCEPTIONS

Explain about the below exception - Causes and Fixes

SQLTransientException

SQLNonTransientException

SQLRecoverableException

SQLDataException

SQLClientInfoException

SQLTransactionRollbackException

817. MYSQL Password – JSON

Try using Mysql's SHA2 for Password storage and AES_ENCRYPT and AES_DECRYPT for Sensitive information

https://dev.mysql.com/doc/refman/8.0/en/encryption-functions.html#function_sha1

Try handling JSON datatype of Mysql in JDBC

Try using JSON_MERGE, JSON_ARRAY, JSON_CONTAINS,JSON_VALID functions in the code.

JShell

818. JSHELL

- List the commands like /vars /list /drop and their uses
- How to launch Jshell code in External Editor like Notepad++ or Sublime
- What is Forward reference in Jshell?
- How will you create an unassigned variable and use it in jshell
- How to get a Minimal Feedback for commands

Its obvious that like Python REPL JSHELL is going to be widely used for a long time

819. JSHELL

Using JShell bundled, demo how to run a jshell program in loop to tail a log file

820. JSHELL

- How to save Java Snippets and JShell commands and Reuse them
- Compare Python REPL with java REPL
- How are Exceptions handled in a snippet written on Jshell?
- How can you imports all Java SE packages in the startup script

Regex

821. REGEX

Demonstrate how java String. Matches (REGEX) works for an Synonyms Suggestion App for a given input

822. REGEX

How to do a Global match for a Certain String in Regular Expression
(Example -> replace all)

What does the Quantifier Denotes $X\{n,m\}$, $X\{n,\}$?, X^*+

How to do a Intersection,union, subtraction of Character classes

What does `\p` and `\u` refers to
eg) `\p{IsLatin}`

823. REGEX

Verify the Result of these simple Expressions

`[a-zA-Z][a-zA-Z][a-zA-Z]`, dpYm

`[tT]aes[jJa]nmes`, james

`^[^\\d].*`, win123

`(0?[1-9]|[12][0-9]|3[01])/((0?[1-9]|1[012])/((19|20)\\d\\d),12/12/2019`

`([^\s]+(\\.(?i)(pdf|png|csv|pdf)))$`,hello.png

`^(\\d{1,3})\\. (\\d{1,3})\\. (\\d{1,3})\\. (\\d{1,3})$` ,192.176.333.216

824. REGEX

In the below String use split() method with regular expression get the ip addresses involved

Requests are from 172.12.23.12, then from 172.44.23.12, 192.12.23.44 and more than 20233 requests 172.44.23.13

and also check the number of requests is greater than 200 using regular expressions

825. REGEX

Use regular expressions to find duplicate words in the below link

https://en.wikipedia.org/wiki/Serverless_computing

Use regular Expressions to identify the image files in a page

https://en.wikipedia.org/wiki/Life_Is_Beautiful

Use regular Expressions to check for orphan links in a Page

https://en.wikipedia.org/wiki/The_Sixth_Sense

826. REGEX

Use regular Expressions to extract email address from a Webpage

https://www.citibank.ae/uae/consumer/reach_us/reach_us.htm

Though Old Try the challenges here

<https://callumacrae.github.io/regex-tuesday/>

<https://www.hackerrank.com/domains/regex>

827. REGEX

Convert the below to a more readable regex

`^[C-G0-9]{4}:[C-G0-9]{4}:[C-G0-9]{4}:[C-G0-9]{4}:[C-G0-9]{4}:[C-G0-9]{4}$`

What is exponential backtracking? Demo with a Simple Example

Remember that Java Regex is a NFA engine.

Linux

828. Linux

How to list the top 3 Memory consuming java processes

How to check a Port is occupied or not - Using Netcat is an option

How to use telnet for a ip and a Specified port. For eg) Check the DBserver and Port using Telnet

829. Linux

Demo how to use Netcat to check UDP connections

Demo how to use Netcat to create a Simple web server that listens to Port 900

830. Linux

These below are practical challenges

- When to use traceroute, nslookup
- How to check System issues like disc error in Syslog or Dmesg
- Why systemd is important and from which linux version it was introduced

831. Linux

Though the below challenges seems to more of admin / Devops stuff having a strong knowledge of these topics are required for a developer as linux is growing its market share in many folds.

How to Schedule a Cronjob to run a Shell on Alternate Sundays - You may require a Check inside the script

Write a Shell Script that will periodically check for status of a Process. If the process stops, it has to restart it and Send an Email alert to admin

832. Linux

Demo how to Sync with a Remote server Directory using Rsync or any tool of your choice
Demo how to use mtr to check the latency and performance of a remote server

833. Linux

Netcat mts rsync are quite useful for development and admin purposes.
rsync is one of the most useful application and it is frequently used.

Demo how to check SSH status in a local dev server and how to allow Root login
Write a Simple shell script to check a Log file using regex and create a Email alert when an Error Sequence matches

834. Linux

Knowing about SSH is important as this is the primary way of communicating with a remote server or a local VM development environment.

Deployment & Environment

835. Deployment

When to use

- Rolling Deployment
- Blue-green deployment
- Canary Deployment
- A/B Testing Deployment

836. OKHTTP - postman

Generate OKHttp Java code snippet using Postman for an API Request
<https://www.amdoren.com/api/currency.php>

837. Postman – Newman

Run a Test collection for 3 times using command line Newman and export the output to a result JSON.

Integrate Newman with Jenkins and view the console output in Jenkins

838. Postman

Compare Assertible with Postman API Monitoring.

Redis

839. Redis pubsub

Use Redis to demo PubSub Operation a sample log subscription from different systems, Server logs, Webserver log, application log

Use PSUBSCRIBE for multiple logs subscription

840. Redis Streams

Explain about Redis Streams. How consumer groups work?

Demo how to create stream, groups and consume Redis stream using java

841. Redis

What is the primary difference between AOF and RDB and Where they are more suited

Mention 3 real life use cases for BitSet or bitmap

842. Redis Streams

List 3 Non-blocking stream commands
Explain the below commands

```
XADD demostream 11111111 name demo1
XADD demostream MAXLEN ~ 555555 * name demo2
XADD demostream * name x1
XDEL demostream 1527062149913-1
```

843. Redis Streams

Explain the below commands

```
XREAD COUNT 100 STREAMS demostream 1527062149913-1 $
XREAD BLOCK 60000 STREAMS demostream 1527062149913-1
XRANGE demostream 1527062140913-0 1527062149913-0 COUNT 5
XRANGE demostream - + COUNT 2
```

844. Redis Streams

Explain the below commands

```
XGROUP CREATE demostream demogrp $
XGROUP DESTROY demostream demogrp
XGROUP DELCONSUMER demostream demogrp democonsumer
XREADGROUP GROUP demogrp democonsumer01 COUNT 5 STREAMS demostream >
XACK demostream demogrp 55555-0 55566-0
```

845. Redis

What 3 real life use cases for the below datatypes

For eg) SortedSets are used for categorizing shopping items based on their customer Review rating

- Hashes
- Streams
- Sets
- HyperLogLogs

846. Redis

Describe about the below Time Series related commands

- TS.CREATE
- TS.ADD
- TS.RANGE
- TS.CREATERULE
- TS.MRANGE
- TS.MADD
- TS.QUERYINDEX

847. Redis

Detail about the below commands

- bgrewriteaof
- replicaof
- slaveof
- Sync
- Bgsave

848. Redis

Explain a Redis architecture with

- HA clustered database
- Shared-nothing architecture
- REST API based

Where it functions as a configuration database and user info database for big enterprise applications with more than 2500 requests a sec

849. Redis

Are Redis Streams and MicroServices are related?

850. Redis

From the redis documentation get the below information on memory used by

An empty instance

1 Million small Keys -> String Value pairs

1 Million Keys -> Hash value, representing an object with 5 fields

851. Redis

How to split data among multiple Redis instances

Explain about the below

- Consistent hashing
- Hash partitioning
- Range partitioning

852. Redis

What are the Disadvantages of partitioning?

Is it true that When Redis used as a data store, a given key must always map to the same Redis instance?

Hibernate

853. Hibernate java8

How in Hibernate 5 java 8 LocalDateTime, Duration, LocalDate Datatypes are Handled

854. Hibernate - Java8 Stream

Demo how to do Streaming of a ResultSet

Use Hibernate Native Query along with java 8 Stream use getResultList() ,map and Foreach to get the contents.

Avoid using filter() in code please do it in Query itself

855. Hibernate

How to do join unrelated/unassociated entities in HQL .

What are the available options and which is the best.

Hint: It's a cool feature introduced in recent versions.

856. Hibernate

What are the 3 primary differences between Hibernate & EclipseLink

Few well known facts are error logging, SQL customization, boilerplate Code generated, Community, Documentation

857. Hibernate Cache

In Hibernate how to persist larger objects across different sessions by default.

Use EHCache or any other provider of your choice to demonstrate this.

858. Hibernate

Demo pagination using HQL, Named parameter binding, Named Queries.

Use sum() method

Sample Data

Transaction happened between Two users where sum>100000 in 24 hours

859. Hibernate SortedMap

Using SortedMap add a custom Comparator for a Customers table -credit Limit

Demonstrate a simple CRUD for that using Hibernate

860. Hibernate

Demonstrate how to use Custom Native Queries for Insert, update for the Users and Order table

861. Hibernate

What is mean by consistent hashing?

What tools provide clustered cache. List the top 3 most used and their pros and cons?

862. Hibernate

What are the replicated caching methods commonly used?

Explain how to set replicated cache using Ecache?

863. Hibernate – Interview Questions

Differentiate First level & Second Level cache, which one will you use to cache a large collection

What are the cache Expiration policies used

864. Hibernate – Interview Questions

What are the four built-in concurrency strategies?

Maven

865. Maven

Brief about the below listed useful Plugins

- Exec-maven-plugin
- site-maven-plugin
- Sonar-maven-plugin
- cargo

866. Maven

How to speed up the Maven Build? Suggest the measures to be taken

867. Maven Plugins

Brief about the below Plugins

- Corbertura
- JSPC
- Build Number plugin

868. Maven Plugins

Brief about the below Plugins

- Selenium
- Mojo License Plugin
- Versions Maven Plugin

869. Maven

Check about the Modernizer Maven Plugin

<https://github.com/gaul/modernizer-maven-plugin>

870. Maven

What is a uber-jar and shade library means?

Spring Boot

871. Springboot

Though simple Create Snake Game and TicTacToe

Use Vaadin as the frontend or use Angular-Springboot .This will be challenging

872. Springboot

Create a Spring boot application to handle file upload?

Is it possible to show the upload progress to the client?

873. Swagger

Use Swagger with springfox,swagger-ui libraries ,with compile time scope ,
to create a spring boot app for a Ticket booking application

Use regex for matching the path .

Also add @ApiResponse code for 200,500,404 status

874. Spring Contract

Create a simple contract for a Telecom service provider and retail shops for selling recharge cards using Spring Cloud contract.

Check how to use CallBacks?

Test it using Spring Cloud Contract WireMock modules .

https://cloud.spring.io/spring-cloud-contract/multi/multi_spring_cloud_contract_wiremock.html

More info @ <https://github.com/spring-cloud/spring-cloud-contract/tree/master/samples>

875. Spring Boot

Explain the below Dependencies and their Roles in a Spring boot project

- Zuul
- Eureka
- Config Client
- HAL Browser

876. Spring Boot

Brief about the below Spring projects

- Spring Cloud Skipper
- Spring Flo
- Spring Cloud Task
- Spring Cloud Data Flow

877. Spring Boot

Explain the below Dependencies and their Roles in a Spring boot project

- Aspects
- Actuator
- Hystrix
- Retry
- DevTools

878. Spring Boot

What is the difference between the below

`@Scheduled(fixedRate = 30000)`

`@Scheduled(fixedDelay = 30000, initialDelay = 10000)`

Demo how to use cron with Spring for scheduling

`@Scheduled(cron = "${scheduler.cron.expression}")`

879. Spring Boot

Demo how to use `DefaultCookieSerializer`

Functional Programming

880. Functional Programming

Demo the below with examples and their real life usages

- Currying
- Referential Transparency
- Lazy Evaluations
- Closure

881. Functional Programming

Not a Promotion. Check the Youtube videos of Victor **Rentea** and list 10 best things you like or learned from his presentations

882. Functional Programming

Mention five best practices for Functional Programming like using Optionals

883. Functional Programming

Is it true that functional programming is not suitable for real world projects and it brings down the productivity?

Using code and real life usecases to prove or unprove the above statement

884. Functional Programming

Demo how to use `java.util.function.Function` interface with Lambda Expressions

Demo how to use Consumer Interface

Demo how Java Functional Composition using `compose()` method

885. Functional Programming

What is the need of pure functions?

Can a higher order function take pure function as parameter?

What is meant by No *side effects*

Why recursion is favored over Looping. Demo with a practical example

Charts

886. Charts

In the Below given Charts, list their usage and their example usage

For eg)

Barchart - Comparison - Usage example- comparing mobile prices

Pareto - line and Column chart - Usage example- Festivals and People Celebrating

Linear Scale - data display - Students Marks - Category A, A+, B+

- Box and whisker chart
- Treemap Charts
- SteamGraph
- Radar Charts
- Bullet Graph
- Multi Axis Bar charts
- Rating meter

887. Charts

In the Below given Charts, list their usage and their example usage

For eg)

Barchart - Comparison - Usage example- comparing mobile prices

Pareto - line and Column chart - Usage example- Festivals and People Celebrating

Linear Scale - data display - Students Marks - Category A, A+, B+

- Nested Pie,Box plot
- Word Cloud
- ComboCharts
- CandleDisk Charts
- Linear trendlines

WEB

888. Web load balancing

Most common load balancing techniques in web-based applications are

- Round robin
- Session affinity or sticky session
- IP Address affinity

Explain how they work and how to configure in the webserver

889. Web

Why all the attributes/objects that are saved in a HTTP Session are serializable

890. Web Assembly

What is webpack bundler?

Explain about WebAssembly

What are the cons of using it?

891. Sticky Session

What is Sticky session and session replication?

How to configure the load balancer to do that in the server for eg) Tomcat?

Explain how it works for a User request for a 2-node server instance, in case of server shutdown

How to handle connection draining in a load balancer?

892. WebAuthn

Detail about the new Web Authentication Standard “WebAuthn”

893. SSR

Detail about server side rendering with some practical usecases and examples of companies using that

Is it possible to have a SSR in java and using the frontend library like React or Angular?
If possible, demo the same.

What are the key benefits of isomorphic apps?

894. SAML

Demo how to use SAML for SSO across two different web applications

895. Websockets

Create a Demo using a Framework of your choice

A simple chat-app with WebSockets (Java Based) and run the web application using GraalVM

896. CORS

Create a Demo using a Framework of your choice

Single page app using a Frontend library of your choice and a Server side framework of your choice using java

Demo how to implement CORS (Cross-Origin Resource Sharing) using a web framework of your choice

897. Javalin

Explore the Framework <https://javalin.io/> . What are the 3 features that you find compelling.

898. javalin

Explore these interesting demos

Creating a Google Docs clone with WebSockets [Continued in Next Page]

<https://javalin.io/tutorials/realtime-collaboration-example>

Creating a simple chat-app with WebSockets

<https://javalin.io/tutorials/websocket-example>

899. sparkjava

Evaluate <http://sparkjava.com/>

[A micro framework for creating web applications]

If possible, explore the demo <http://sparkjava.com/tutorials/twitter-clone>

900. lgtm

What is <https://lgtm.com/> ?

What is QL?

Using this evaluate an open source project like apache struts with java as a language

901. PWA Vaadin

Explain about PWA and List few Websites / Companies are currently using it

Detail about Web App Manifest and Service Workers.

Explain in detail how offline mode works in PWA

How to create a PWA using Java?

902. PWA Vaadin

Evaluate Vaadin flow

Create a simple PWA to evaluate the API provided by <http://worldclockapi.com/> and Vaadin

903. Vaadin

How to have a Cookie Consent Banner using Vaadin

904. Vaadin

Explain about Portlets and their use in Microservices

905. Java-Vaadin

Demo how to use Iframes with Vaadin and when to use them
Why using iframes is called as Evil?

906. Java-Vaadin

How to do a MultiSelection in a Grid and Similarly how to do Grouping of Columns?

907. Java-Vaadin

How will you get the history of Browser Navigation in Server side?

908. Java-Vaadin

Explain the following in Vaadin

- Server Push & Async Updates
- Dynamic Content using StreamResource

909. Java-Vaadin

Explain the following in Vaadin

- Shadow DOM or Light DOM
- Component vs Element

910. Java-Vaadin

Explain the following in Vaadin

- App Layout vs Ordered Layout vs Form Layout
- TemplateRenderer

911. Java-Vaadin

Explain about the below in Vaadin Flow

- SpringServlet
- RootMappedCondition

912. Java-Vaadin

Explain about the below in Vaadin Flow

- VaadinSessionScope
- VaadinUIScope

913. Web j2ee

From which version of JSF WebSocket support is implemented?

Demo how to use the <f:websocket> tag - What are the possible scope values like session

What is the roles of connected="false"

914. Web j2ee

Demo how to push asynchronous data to a dataTable in a JSF HTML page?

Demo how to use Angular/Bootstrap as webjars

915. JSFUnit

Evaluate Jboss supported JSFUnit

<https://jsfunit.jboss.org/>

Demo how to test a Simple Todo application or a CRUD based on JSF .Test these 3 key things

- DB Inserts and Retrieval
- Navigation
- State of Managed Beans

916. Web j2ee

Explain the following scopes with examples

@ConversationScoped

@FlowScoped

@ViewScoped

917. Web-j2ee

When to use <f:view transient="true">

When to use @RememberMe

918. Web J2ee

How to disable or Enable a Bean validator?

What is the use of

javax.faces.INTERPRET_EMPTY_STRING_SUBMITTED_VALUES_AS_NULL

Detail about the below Built-In Bean Validation Constraints

@Future

@Pattern

919. JSF

A Simple Question - How multiple forms in a single page is handled in JSF or any other framework of your Choice

920. Web common Issues

Suggest the tool or tech you will use to fix the below web issues

- Handling Back button in SPA - Single page Applicatoion
- Browser "Back" button support - generally, Client Browser and webserver application will be outofsync
[In JSF we have NoCacheFilter and Viewstate]
- Concurrency issues with HTTP session data when accesed in multiple tabs
- CSRF issue with multiple tabs

921. JSF Bootfaces

Demo how to use Bootfaces . Evaluate the below Components

- RemoteCommand
- FullCalendar
- ButtonGroup
- ScrollSpy
- Kebab in a Navbar

922. JSF – Angularfaces

Demo how to use AngularFaces. Evaluate it against PrimeNG from Primefaces

Check the Tetris Demo using both Angularfaces and Bootfaces

<http://angularfaces.net/tetris/index.jsf>

Check about the interesting Links

The AngularFaces way of doing AJAX

http://angularfaces.net/version2.1/tutorial/step_08/index.jsf

Using native HTML tags

http://angularfaces.net/version2.1/tutorial/step_11/index.jsf

Using mustaches in JSF attributes

http://angularfaces.net/version2.1/tutorial/step_04/index.jsf

923. JSF – Prime faces

Demo how to use the famous PrimeFaces. Also Evaluate PrimeReact (It's really good)

<https://www.primefaces.org/>

Check the interesting

- AutoUpdate
- Nested Dialog
- Block UI and Sticky
- PickList
- DataGrid
- TimeLine
- DataExporter

924. Spring MVC

What is the use of Spitter & FlashAttributes?

What is the role of requiresChannel() in Spring security?

Demo how to use rememberMe() function

Demo how to use <security:authorize> for conditional rendering

925. Spring web Flow

What are the cons of spring webflow for a web application with complex navigation?

Detail about the roles of

- flow-executor
- flow-registry
- flow-location-pattern
- FlowHandlerMapping
- FlowHandlerAdapter

Explain about states, transitions, and flow data.

Brief the below states with a practical example

- Action
- Decision
- End
- subflow
- View

A. Write a simple code snippet for subflow-state - for a transition to a state when an exception is thrown

B. When to use <secured>

Android & App development

926. Android

Evaluate <http://cesarferreira.com/dryrun/> to dry run Android Libraries

927. Android

List top 5 UI design AntiPatterns

- Few are listed here
- Confirmation popup
- Tabs that Don't Popup

928. Android

List some top interesting features of Android Studi 4.0 like Jetpack Compose, Motion Editor
<https://developer.android.com/studio/preview/features>

929. Android

List 5 Android Anti Patterns
For eg) Use of Static variables

930. Android

Explore about jetpack compose

<https://developer.android.com/jetpack/compose/>

What are its Pros and Cons.?

What are composable functions?

How it works with Material Design

Explain about Android Jetpack and its components.

What is the role of the new namespace androidx.*?

What will be the next version to the current version of AppCompat (v28.x?)

931. Android

Explore about jetpack compose

<https://developer.android.com/jetpack/compose/>

What are composable functions?

How it works with Material Design?

Explore the key packages androidx.ui.foundation,androidx.ui.graphics,androidx.ui.layout

932. Android

Demo how to use Espresso Test Recorder .What are its Limitattions.

Explain about ViewMatchers, ViewActions, and ViewAssertion in the Espresso framework

Demo how to use IntentsTestRule to mock intents

Is it possible to test async tasks using Espresso?

933. Android

Demo how to use jetpack – Navigation component. What are the issues does this address

Detail about NavigationGraph, NavHost, NavHostFragment, NavController, Destination & Actions

What are the different types of destinations supported for eg) A Dialog

Demo how to navigate using Actions

Detail about the plugin

'androidx.navigation.safeargs' and demo how to use Argumnets for Navigation

Finally a more interesting Question.

Demo how to do an Implicit Deeplink using navigation Component

934. Android

Demo How to read OTP automatically

935. Android

Explore about Stetho - Android Debug Bridge.
Evaluate its features like debugging using Chrome Dev tool, Javascript console, Commandline interface
Chekc the Dumpapp sample @
<https://gist.github.com/renanferrari/1625ba5c23dcd845daac5638b2501633>

936. Android

Explain how to find leaking Views and how to tackle them
What are the common causes?

937. Android

Simple Questions

Demo how to migrate an activity to a fragment. What are the general issues faced esp.on Async tasks
Detail about the importance of Safeargs

938. Android

Simple Questions

Comparte RxJava2 with Coroutines.What will be your choice?
Detail about the upcoming Jetpack Compose
Detail about the upcoming Jetpack Security

939. Android

Simple Questions

Demo how to create a Simple Video calling application
Write a Simple app to test your internet speed and chart it.

940. Android

Simple Questions

What are the reasons for OutOfMemoryError like holding static reference in activities, handling listeners?

Detail in detail about how Handler and looper works

Demo how to create a worker using Handler for a Price Alert Application

941. Android

Simple Questions

Detail about ReentrantReadWriteLock, Reentrant Lock, ReadWriteLock and StampedLock with an example.

What is Fair and Unfair mode?

942. Android

Simple Questions

Detail with an example of how ViewModelProviders & ViewModelFactory works

What are the issues faced while using RecyclerView in MVVM?

Demo how to use Recycler View with MVVM LiveData

943. Android

Simple Questions

Detail and demo about the new Navigation component. Explain about NavHost Navigation Graph. Also, demo how to create the beautiful swipe views with tabs using ViewPager2 [Really, interesting]

944. Android

Simple Questions

Demo how to use ThreadPoolExecutor, LinkedBlockingQueue for a Application of your choice

Detail about Pixel-Perfect UI in the WebView

945. Android

Simple Questions

Detail about at-install delivery and demand delivery. List 3 use cases

Explain about scoped storage and when to use requestLegacyExternalStorage

946. Android

In this Code guidelines page available here

<https://source.android.com/setup/contribute/code-style>

Get the info about the below topics

- Write short methods, Follow field naming conventions
- Treat acronyms as words, Log sparingly

947. Android

From the Below Code Guidelines

https://github.com/ribot/android-guidelines/blob/master/project_and_code_guidelines

What's the naming convention for

- Drawables
- Dialog - under 1.2.2.2 Layout files
- Values files
- Annotations style for Fields
- Parameter ordering in methods
- Arguments in Fragments and Activities

948. Android

How to use simple Deque for backstack

949. Android

Explain in detail about Android Fragment Lifecycle

950. Android Leakcanary

Evaluate Leakcanary to detect Memory leaks in the build

951. Android Deguard

Evaluate <http://apk-deguard.com/> to make sure that the app cannot be Deobfuscated

952. Android Flash tool

What is the use of Android Flash Tool

<https://flash.android.com/welcome?continue=%2Fcustom>

953. Android Glide

Evaluate Glide and picasso as a Image viewer in a App

Compare their Storage Size, Image Cache, Support for Thumbnails, GIF, Memory efficiency, Fragment integration

Use RxJava to replace AsyncTask and AsyncTaskLoader with rx.Observable for background tasks especially for chaining REST calls

954. Android

Demo how to send an Image Content to a Whatsapp Number using android

955. Android

Explain about the below mobile App Vulnerabilities and how to avoid them

- zip files sent in transit
- cookie without secure flag
- cookie without httponly flag
- sensitive data in transit (no encryption)

956. Android

Explain in detail about how to avoid Tapjacking and the use of below

- filterTouchesWhenObscured
- onFilterTouchEventForSecurity

957. Android

Explain and Evaluate the Below Libraries

- otto
- hugo
- Treeview
- MultiSnapRecyclerView

958. Android

Explain and Evaluate the Below Libraries

- Android-job
- gradle-dependency-graph-generator-plugin

959. Android

Explain and Evaluate the Below Libraries

- Chuck
- ShimmerRecyclerView
- Ultra Page Viewer

960. Android

Explain and Evaluate the Below Libraries

- Android-job-library from evernote
- VegaLayoutManager
- Explain and Evaluate the Below Libraries
- Cicerone
- Calligraphy

961. Android

Using eventbus available here

<https://github.com/greenrobot/EventBus>

Demonstrate how to create a simple pub sub application like a Newsreader

962. Android

Evaluate Android Clean Architecture Boilerplate

<https://github.com/bufferapp/android-clean-architecture-boilerplate>

963. Android

Evaluate the following frameworks

- Mobius
- Grox
- Android

964. Android

Evaluate <https://suas.readme.io/docs>

965. Android

Explain in detail about the new format App Bundle

When to use Dynamic Delivery and Dynamic Feature module?

966. Android

What are the three types of Split apk?

967. Android

Demo how to create a Simple weather App bundle for two different screen sizes and verify using bundletool?

968. Android

Why using **enum**, is not recommended for Android Development?

969. Android

Robolectric is used in many projects for years and it is highly recommended.
Evaluate it.

"Running tests on an Android emulator or device is slow! Building, deploying, and launching the app often takes a minute or more. That is no way to do TDD. There must be a better way."

<http://robolectric.org>

970. Android

How to use Heap Dump to check memory leaks

971. Android

What is the standard application Start up and maximum memory heap allocation?

How to configure largeheap in Androidmanifest.xml?

972. Android

How many functions are there in RxJava library? Is it Heavy to use it in a App?

How to create reusable components in different XML files and how to use them using <include/>

973. Android

Evaluate Theatre

<https://github.com/andremion/Theatre>

“Pet project using Clean Architecture + MVVM + Reactive Extensions + Android Architecture Components”

It is Well Explained with good set of diagrams

974. Android

What are the two key advantages of using Room Framework [*The architectural component*]?

List 3 differences between Room - Realm/GreenDAO

[*Especially about Entity Relationships, annotations, migrations*]

975. Android Room

List the steps to migrate from SQLite based to Room

List 5 Best Practices similar to *Using Runnable for every DBQuery*

976. Android

What is the advantage and disadvantage of having one DAO class per entity type?

977. Android Room

Create a Simple app using the API provided by <https://newsapi.org/> with offline storage support using Room, LiveData and if possible along with Rxjava

978. Android Room

Demo how to use facebook login and get the Friends list

979. Android

Demo how to post a Tweet from an Android App

980. Android

Demo how to create a Sub Preference Form in addition to main Preference Form and similarly demo how to set the default values

981. Android

How to use List Preference with more than one values - Group related using PreferenceHeaders

982. Android

Demonstrate how to Access SharedPreferences that belongs to an activity from a different activity using Listener

983. Android

Demonstrate how to use Fragments to access SharedPreferences Android

984. Android

Demo how to use ItemAnimator to beautify the list handling with Scrolling Support.

985. Android Application Encryption

Build a Password Protected app with Notes being saved and Encrypted- Use Facebook's Conceal Library and enable sharing application data with other applications using a Signed Key

986. Android - Volley

Demonstrate how to use Volley for a JsonRequest Post

987. Android Music

Create a simple application that will connect to a Bluetooth Headset and stream Music [Use Android ExoPlayer]

988. Android - DownloadManager

Demo how to use DownloadManager to download a Hugefile of Size around 100MB

989. Android Retrofit & Dagger

Demo how to Create a Twitter client using Retrofit2,RxJava and read the tweets.

Create a simple client using the mock REST web service tool using dagger for DI, Retrofit2 and Rxjava

<https://jsonplaceholder.typicode.com/>

990. Android

Explain - How to protect and hide API keys used in an Android application?

991. Android

Demo how to use Google Maps API print all the Speed Limits brief for a Road trip between two Locations

992. Android

Demonstrate how to use google Maps API in Android,to create Markers with an Icon and move the camera view to the current Position with orientation and angle

993. Android

Demo how to create a Simple GeoFences app that will send SMS if the location is outside the Fence and Display alerts on the screen

994. Android

Create a Simple location-tracking app

Demo how to use Firebase Road API to store and Fetch Data and periodically send SMS every 5 minutes

995. Android

Demonstrate How to use Media Router to cast an image Slideshow from the Android app using Media Router Button to the Smart TV or ChromeCast

996. Android

Demo how to use Build Variants?

List top 3 Android Profilers that have better features than android Studio profiler.

997. Android

Demo how to use spoon for testing on multiple devices and save the interaction as GIF
How spoon can be automated with jenkins for tests using Espresso or any other Testing framework?

998. Android

List the key classes and uses of the below packages

androidx.ui.material.ripple
androidx.ui.graphics.colorspace
androidx.ui.graphics.vector
androidx.ui.graphics.vectormath

999. Android

List the key classes and uses of the below packages

androidx.compose
androidx.compose.adapters
androidx.compose.annotations
androidx.compose.frames

1000. Android

List the key classes and uses of the below packages

androidx.ui.semantics
androidx.ui.test.android
androidx.ui.test.android.fake
androidx.ui.testutils

1001. Android Game -Simple Questions

How to do Antipiracy for Android Game
Explain how Nearby Connections work in android Game
What is mean by pre-connection and post-connection phases?
Explain how Offline file transfers work

1002. Android

Explore the key packages androidx.ui.foundation, androidx.ui.graphics, androidx.ui.layout

1003. Android

How Instrumentation tests differ from Unit tests? Why instrumented tests are built into an APK?

Which test framework can be used to test notifications and firebase interactions?

1004. Instant android

Demo how to create an Instant android app by moving an existing code into a Feature Module and Make sure that you use App Links Assistant

JWT

1005. JWT

Evaluate <https://jwt.io/>

What are the 3 different parts in a JWT token .

Whats their separator and encoding used.

1006. JSON Web Token

Secure communication in MicroServices using JSON objects is a primary requirement and the digital signature in the JWT plays a key role in that.

So in the First Challenge JWT.io allows you to decode, verify and generate JWT. So Evaluate it

What does nbf in payload means?

What is the Difference between JWT, JWE and JWS?

What is Bearer Scheme and why is it recommended to send the JWT token in the Authorization header?

1007. JWT

Demo how to create a JWS request and a parser using JJWT library [*use the default RS256 Algorithm for private Key signing*]

1008. JWT HACK

The Challenge is to Read the Article

Brute Forcing HS256 is Possible: The Importance of Using Strong Keys in Signing JWTs

<https://auth0.com/blog/brute-forcing-hs256-is-possible-the-importance-of-using-strong-keys-to-sign-jwts/>

Hacking & Security

1009. HACKING AND SECURITY

Half of Global Fortune 100 continue to download flawed Apache Struts used to breach Equifax
<https://www.scmagazine.com/half-of-global-fortune-100-continue-to-download-flawed-apache-struts-used-to-breach-equifax/artile/764480/>

Failure to patch two-month-old bug led to massive Equifax breach
<https://arstechnica.com/information-technology/2017/09/massive-equifax-breach-caused-by-failure-to-patch-two-month-old-bug/>

How would you have avoided it? Also, suggest third party Solutions

1010. Security

List three Products in each below category

- AI Based Endpoint Security
- IAST,SAST,DAST,RASP
- WAF,DDOS

1011. Security

How to spoof the MAC Address of a Linux device and a Windows Device

1012. Security

List three Products in each below category

- Application Security for Java
- Mobile AST
- Penetration Testing

1013. Security

A Very Good Set of Related Articles esp. this link

<https://techbeacon.com/why-equifax-breach-should-never-have-happened>

<https://www.synopsys.com/blogs/software-security/equifax-apache-struts-cve-2017-5638-vulnerability/>

Read about one of the world famous security Breach which involved Apache Struts framework

<https://thehackernews.com/2017/10/equifax-credit-security-breach.html>

Equifax twice missed finding Apache Struts vulnerability allowing breach to happen

<https://www.scmagazine.com/equifax-twice-missed-finding-apache-struts-vulnerability-allowing-breach-to-happen/article/697693/>

The Equifax breach resulted in the leak of 56,200 drivers' licenses, passports, and other forms of ID

<https://www.businessinsider.com/equifax-breach-check-details-update-2018-5>

1014. Google Hacking database

What is John the Ripper and why is it special?

How can it be used in the application development?

If Possible, can you evaluate *ncrack* against John the Ripper?

John the Ripper

<https://github.com/magnumripper/JohnTheRipper>

<http://openwall.com/john/>

1015. Security

Explain how the below hacks happened? In addition, detail how they might have been avoided?

- Uber
- RNC
- Equifax
- Verizon
- Facebook

1016. Onion – Tor

Demo how to make a Tor website [Onion domain]

1017. Hacking

What is Exploit database, why is it used?

List how many exploits are Archived.

How to use SearchSploit?

1018. Hacking

Check for the Exploits in java and Android in the database

<https://www.exploit-db.com>

Similarly check <https://cve.mitre.org/> for list of publicly known cybersecurity vulnerabilities.

What is Whonix network and how it works?

What is Shodan? Explain about that

1019. Hacking

Demo how to use THC Hydra Cracker to do a Brute force attack on a web application

1020. Hacking

Demo how to use Tamper data or Burp suite to assist the same.

You can also use Damn Vulnerable Web Application (DVWA) for Demo.

1021. Hacking

Detail about Some proven application security principles

- Keep security simple (verifiable, economy of mechanism)
- Detect intrusions (compromise recording)
- Don't trust infrastructure

1022. Security

Detail about Some proven application security principles

- Don't trust services
- Establish secure defaults (psychological acceptability)

1023. Security

Detail about the well known some proven application security principles

- Apply defense in depth (complete mediation)
- Use a positive security model (fail-safe defaults, minimize attack surface)
- Fail securely

1024. Security

Detail about the well known some proven application security principles

- Run with least privilege
- Avoid security by obscurity (open design)

1025. Hacking

Mention the Role of Penetration Testing in Deployment domain

1026. Hacking

Brief about CMVM Level2 and Level3 Activities

1027. Hacking

What is the Difference between OpenSAMM and BSIMM?

However, now has viable Alternative checklists ,Brief about STRIDE Threat model?

1028. Hacking

Demo how to use Burp Suite to check for Cross-site scripting and demo how to use the Burp intruder to check SQL Injection Vulnerability in a webapp

1029. Hacking

Detail about the Top Web application Vulnerabilities and explain the below with examples

- Cross Site Scripting - Reflected & Persisted
- SQL Injection

1030. Hacking

Detail about the Top Web application Vulnerabilities and explain the below with examples

- Path Disclosure
- Memory corruption

1031. Security

Detail about the Top 5 Web application Vulnerabilities and explain the below with examples

- Denial of Service
- Code Execution

1032. Security

Explain about the Following

- Flash cross-domain policy
- Cross-domain Referer leakage
- Email addresses disclosed

1033. Security

Explain about the below Vulnerabilities

- Insecure Session Cookies - HttpOnly / SSL
- Remote System Discovery

1034. Security

Explain about the Following

- File Guessing attacks
- Admin Web Server Interface Compromise

1035. Vulnerabilities

Explain about the below Vulnerabilities and how to avoid them

- Interactive Shell to Admin Server
- Administrative Privilege Escalation

1036. Vulnerabilities

Explain about the below Vulnerabilities and how to avoid them

- Java Client Attacks
- Internal IP address disclosure
- SSL Weak Ciphers

1037. Metasploit

Using Metasploit list the exploits and use *Wmap* with Metasploit to check the Vulnerabilities in a Website

1038. Security

Explain and demo the Below with Examples. How to avoid them?

- Parameter Tampering
- URL Jumping

1039. Security

Explain and demo the Below with Examples. How to avoid them?

- Escalation to Local Administrator
- Deep Packet Inspection Bypass

1040. Security

Explain and demo the Below with Examples. How to avoid them?

- Website Pilfering
- Escalation to Domain Administrator
- Authenticated Code Execution through Web Server Application Deployer [for instance Apache Tomcat Manager]

1041. BlackHat Arsenal

Check the Arsenal in the below URLS and select the related tools for your project type

<https://www.blackhat.com/us-15/arsenal.html>

<https://www.blackhat.com/us-16/arsenal.html>

<https://www.blackhat.com/us-17/arsenal.html>

<https://www.blackhat.com/us-18/arsenal.html>

For instance, check for

- WSSAT
- Android-InsecureBankv2
- APPMON
- Coffeeshot
- ASTRA
- Android Tamer
- ADA: Android Dynamic Analysis Tool
- ANWI
- BRO

1042. Security

Use IpSpoofing to hide the machine address and confirm the same with wireshark
Use Amap or unicorn scan to check the application that is running on a Specific port

1043. Security

What is Metasploitable

<https://www.offensive-security.com/metasploit-unleashed/filesystem-and-libraries/>

Using Metasploit get the SMB details of a machine

What is Rhino_java Exploit?

1044. Security

Demo how to gather information of target machines with Kali Linux tools

Explain how to hack systems using Social Engineering attacks and client side attacks

1045. Hacking

How do you scan a Target Machine with IP Spoofing Technique?

Demo how to find Accurate Vulnerabilities with Nessus

1046. Hacking

Demo how to gather data on a person on the social media using Maltego

1047. Hacking

Demo how to do a SYN Flooding attack using HPing3

1048. Hacking

Demo how to gather data on a person on the social media using Maltego

AZURE Functions

1049. Azure Functions

What is the role of function.json?

Can a function have multiple input and output bindings?

1050. Azure Functions

Explain the differences between below services.

- Microsoft Flow
- Azure Logic Apps
- Azure Functions
- Azure App Service WebJobs

1051. Azure Functions

What are functional Proxies? What are slots?

1052. Azure Functions

Explain with a usecase, which one of the following is suitable for a service like
Generating financial reports on every month
A Tensor flow based image-tagging service

1053. Azure Functions

Which type of JDK runtime do Azure Functions use?

1054. Azure Functions

Detail about the below Triggers

- BlobTrigger
- QueueTrigger
- EventGridTrigger
- EventHubTrigger
- ServiceBusQueueTrigger

1055. Azure Functions

Explain the below command

```
az functionapp config appsettings set --name <APP_NAME> \  
--resource-group <RESOURCE_GROUP> \  
--settings "JAVA_OPTS=-Djava.awt.headless=true" \  
--allowed-origins https://democlient.com
```

1056. Azure Functions

How to test the Java Azure function locally?

How does parallel execution of functions works?

1057. Azure Functions

What is mean by --always-on option in the below command

```
az functionapp config set --always-on true --name demoApp --resource-group  
demoresourcegroup
```

1058. Azure Functions

Is Azure logic Apps are advantageous over Azure functions? How they can both interact in a Workflow or in a Project Azure Functions

AWS

1059. AWS

Which applications like webservers, API gateways are more suited for using local instance store for the root device?

1060. AWS

What is the use of Amazon QLDB?

Explain how it can be used in Marine Logistics – Container Handling

How it differs from Blockchain Implementation?

1061. AWS

What is AWS cold starts? How to overcome it?

What is AWS Step Function?

1062. AWS – Dynamodb

What is hash Attribute and Range Attribute?

How many types of primary keys are supported? Explain in detail

What are the two kind of indexes supported by Dynamodb?

How indexes are created and managed by dynamodb

How global and local secondary indexes differ on size restrictions and Querying partitions

1063. AWS – Dynamodb

What is the default limit for global secondary indexes and local secondary indexes per table?
What is the upper limit on the number of distinct sort key values per partition key value?
Demo the difference Document interface and object persistence interface for fetching an item
How does the low-level DynamoDB API works? Where can it be used?

1064. AWS – Dynamodb

Demo how to create a DynamoDB with stream enabled.
What is the difference between Triggers in a DB like SQLServer to DynamoStreams
Demo to use AWS Lambda with Dynamo streams
Explain about global table in detail .Also Demo how to add replica table and a global secondary index

1065. AWS – Dynamodb

Demo how to enable autoscaling to existing tables?
How to handle timeseries data with dynamodb?
What are the best practices.How to change the Write and Read capacity of a table
Are partition keys are logical or Physical entities?
For a blog-content table, what are the recommended partion keys, if the table is destined to grow large in future?

1066. AWS – Dynamodb

When to use Parallel scan Operations? Demo how to use parallel scan operations using java?
How to efficiently handle the TotalSegments settings?
Why scan operation is not suggested for large tables?
Is Query is faster than scan?
List their unique use cases?
What is the relation between page size and Scans?
What is ProvisionedThroughputExceeded message?

1067. AWS- CodeCommit

In Codecommit what is the maximum GIT blob size supported and similalry what is the file size limit for an individual file through Code Commit Console

Compare code commit with github for Workflow, integrations, IDE support, Security features,pricing, code review support,Issue tracking ,Triggers and Documentation like gihub pages support

1068. AWS

Evaluate AWS – Secrets manager

Check how AWS Lambda works with AWS Secrets Manager for API access and DB Access
How key rotation works?

1069. AWS

What is the reserved and on -demand limit for m5.large, m5.4xlarge, g3.16xlarge type of instances

List ephemeral disk size of any three types of instances.

1070. AWS

What is the advantage of AWS cloud formation?

What are the languages supported for creating a AWS CloudFormation template?

What is the extra cost associated by using AWS CloudFormation?

How is it related to Kubernetes?

1071. AWS

Have you used Marbot.io? Have you used the feature quick link?

What are RunBooks and how it can help a Devops team?

1072. AWS

Explain about bastion hosts.When are they used? What is SSH agent forwarding?

1073. AWS

Demo how to build a serverless application using Lambda and without using Lambda

1074. AWS

Detail an architecture based on AWS, using S3, SQS, and cloudwatch for a website like pinterest or instagram

1075. AWS-SQS

Demo how to send batch messages using SQS, what is the upper limit for number of messages and message length.

What is the allowed max size of a Message? What is the message retention period?

How many messages can be included in a batch request?

1076. AWS-SQS

Demo how to send messages using Timers

When to use Long polling and short polling and explain it with a Reallife example like a chat system

What is the max throughput supported for standard Queue and a FIFO queue.

1077. AWS-SQS

What is the advantage of using AmazonSQSBufferedAsyncClient

Demo an example to use long poll and with a visibilityTimeoutSeconds of around 3 minutes

1078. AWS-SQS

Explain some uses of tagging queues and what is the limitation

What are the ways to reduce costs while using SQS?

1079. AWS-SQS

If you have set of messages with size more than 3GB [for eg) a Backup service or a DWH service or a Media service], how to handle then using java and SQS

What is the maximum time limit of Delay queue, messages per Queue in inflight and inmemory Queue?

1080. AWS-SQS

What are the key metrics of a SQS service and demo how to intergrate it with CloudWatch service

Explain the below metrics

- ApproximateAgeOfOldestMessage
- ApproximateNumberOfMessagesDelayed
- NumberOfEmptyReceives
- NumberOfMessagesDeleted

1081. AWS-SQS

What are the key metrics of a SQS service and demo how to intergrate it with CloudWatch service

Explain the below metrics

- ApproximateAgeOfOldestMessage
- ApproximateNumberOfMessagesDelayed
- NumberOfEmptyReceives
- NumberOfMessagesDeleted

1082. AWS-SQS

Draw an Architecture to use SQS, S3 for a Money transfer system like WesternUnion.

What are the key factors needs to considered like visisbilty timeout, retention period & message size?

What are the Queue types you will be using?

How the erros, retries, dead letter Queue, backoff logic will be handled in the architecture.

1083. AWS-SQS

How will you achieve message ordering in an application?

If pricing is a primary consideration for app design, which Queue will you use- FIFO or standard?

How will you protect the application messages?

1084. AWS-SQS

Demo how to write a simple FIFO queue java client with ContentBasedDeduplication as true

1085. AWS-SQS

In SQS batch how many messages can be combined in a Single action?

Similarly what is the size limit?

What is the difference between Amazon MQ and SQS?

If you need "Exactly-Once Processing" which type of Queue will you select?

1086. AWS-SQS

If message ordering is important which Queue, will you select?

What is the default number of messages supported by FIFO queue and how to increase this limit ?

What is the importance of message deduplication ID and where is it used? What is 5-minute deduplication interval?

1087. AWS-SQS

What is the message size supported by SQS?

What is Visibility timeout? What will happen if the visisbility time is high or low?

What are SQL Delay Queues? Mention Few Usecase(s) for them

What is the limitation of large SQS messages ? Explain about how to manage large SQS messages in S3 works?

1088. AWS-SQS

What are the functions provided by SQL Extended Client Library? If possible demo how to use it for a Large message?

What is the major difference between SQS standard queues and FIFO queues

1089. AWS-CODEDEPLOY

Explain how Blue/Green Deployments are done using Codedeploy and also explain how cross region deployment pipeline works using cloud watch and Lambda

1090. AWS-CODEDEPLOY

What is the structure of codedeploy folder structure and contents?

Explain about AppSpec file and its structure

What are hooks - BeforeAllowTraffic ,BlockTraffic & AfterAllowTraffic

Also, explain the stages in deployment like - ApplicationStop, Download Bundle etc

1091. AWS-CODEDEPLOY

Demo how Docker, codecommit and Codedeploy work together in creating an application

1092. AWS

What is the difference between Cloudwatch , Config and CloudTrail,describe their applications. Which can be used to monitor API calls?

1093. AWS

What is the default encryption used in S3?

Explain about PUTS?

1094. AWS

What is the use of IAM User Temporary Credentials?

What is the use of the package `com.amazonaws.services.s3.model`?

1095. AWS

What is the importance of the IP `http://169.254.169.254`

What is the use of EC2Rescue

Explain about the throttle limit in sending email over port 25 and timeout errors and it can be fixed

1096. AWS

How S3 and amplify can work together ?

Explain about AWS Amplify Interactions, AWS Amplify PubSub and AWS Amplify Push Notifications for Email Notification channel

1097. AWS

What is the default region for all SDKS

What is the output of the command `aws configure list`

1098. AWS

Demo how to create Chatbot for Customer service of a book publishing country using AWS Amplify implements Amazon Lex

What is the maximum number of intents that can be associated with a bot?

What is the default session timeout period for a bot? Similarly what is the minimum and maximum session timeout value?

1099. AWS

Why the intents in the Built-in Intent Library in the Alexa Skills Kit are not supported in LEX ?

What is the alternative to this?

Explain about below simple built in intents

AMAZON.FallbackIntent

AMAZON.SelectIntent

1100. AWS-Kinesis

Explain about the Kinesis streaming data platform?

List some 10 Kinesis Data Streams use cases

What is a KPL and KCL?

Detail about KPL Records, Batching, Aggregation, Collection

What is the difference between KPL user records and Kinesis Data Streams Records?

1101. AWS-Kinesis

How to write to Kinesis Data Stream Using the KPL

What is KPL Aggregation and also explain about Consumer De-aggregation.

What is put-to-get delay ?

What is Firehose delivery stream and How to configure it using AWS Management console

1102. AWS Parquet -General

How to use Apache Parquet and what is its primary usecase? Explain in detail about its file format ,data types support ?

1103. AWS parquet

When to use Apache Parquet / Apache ORC

What is the relation between Streams and shards and how to do Resharding

How to add Multiple Records with PutRecords and what is the maximum records supported

Explain about PutRecords Response Syntax

1104. Apache Cognito

What is Amazon Cognito?

What is SAML and OIDC

What is a User Pool & Identity Pool?

What is the relation between Cognito and AWS AppSync

What are the steps to integrate with User Pools for Android Apps

Apache Spark

1105. Spark

What are the key function of DAGScheduler *for eg) It Determines preferred location for tasks, Tracks cached RDDS etc*

Explain in detail about directed acyclic graph (DAG)

1106. Spark

How to predict fuel efficiency using Spark. dataset - <https://archive.ics.uci.edu/ml/index.php>

1107. Spark

What are narrow and wide execution plans and detail about their application?

Explain about the below

- withColumn
- randomSplit
- getOrCreate
- setSparkHome
- setIfMissing
- setJars
- setExecutorEnv

1108. Spark

What are clustering algorithms?

Why the term clusters is used, for those algorithms used?

What is Euclidean distance?

Can it be used for fraud detection and unauthorized access?

1109. Spark

List top 5 Usecase(s) of GraphX For eg) analyzing business trends, Fraud detection

1110. Spark

A simple exercise - Measure accuracy of prediction using Naive Bayes model

1111. Spark

What is Topic Modelling, Dirichlet distribution & Latent Dirichlet Allocation? What are its use cases?

1112. Spark

Is the below are true?

Each node in the cluster can have multiple partitions

The total number of partitions = Sum of all the cores in all the executor nodes

Tuples in the same partition will be on the same machine

1113. Spark

What is the API to get the partition details like number of partitions, partition structure etc?

What is the best practice for single partition size and a single shuffle block?

What is the suggestion for number of cores and for number of partitions?

1114. Spark

When 'Size exceeds Integer.MAX_VALUE' error occurs and what is the fix for that

1115. Spark

What is the easiest way to export RDD to JSON?

Demo how HashPartitioner and RangePartitioner works

1116. Spark

Demo how to use aggregateByKey along with a Custom partitioner

What is shuffling? What are its effects and how to overcome it?

1117. Spark

Explain about Lasso Model

Demo how to predict data using the Lasso Model and how to evaluate the model's correctness

1118. Spark

Demo how to do an Exploratory Data Analysis to find the Frequency of Distinct Values/Outlier detection, using BOTH spark SQL and using API

Use any related Kaggle dataset

1119. Spark

Do a Sales forecasting using Walmart's kaggle data using MLIB

Explain in detail about Spark's own standalone cluster and its components

1120. Spark

What is fair scheduler pool?

How does FIFO and FAIR works?

What are the possible values for Weight configuration?

1121. Spark

What is a ShuffleMapTask and ResultTask?

How to use spark-submit to launch on kubernetes cluster?

1122. Spark

What is the importance of *streamingContext.remember*

Demo how to use DataFrames with SQL, foreachRDD, JavaRDD [Find Tweets with Specific words]

1123. Spark

What is the simple difference between directed, undirected, weighted, edge labelled, vertex labelled, Cyclic, Directed Acyclic, Disconnected graphs?

Mention their applications in real life scenarios.

1124. Spark

Is Property Graph immutable?

Is it fault tolerant like RDD, explain How it works internally

What is the functionality of VertexRDD, EdgeRDD, Edge Triplet, graph.vertices , graph.edges ?

Is it possible to create a Graph only from Edges?

1125. Spark

Why the name directed multigraph?

When to use Property Graph?

Explain about VertexID, VertexRDD, EdgeRDD, triplet view?

1126. Spark

Detail about PageRank, connected components, strongly connected, Triangle Counting algorithm, label propagation, SVD++ and their respective use cases

1127. Spark

Demo how to compute pagerank using graphx

1128. Spark

Explain the below in mllib

- Dimensionality Reduction
- Collaborative filtering
- Frequent pattern mining
- Feature extraction and transformation

1129. Spark

Why Apache Arrow is used with Spark?

1130. Spark

Explain about the below Graph Algorithms and their applications

- PageRank
- Connected Components
- Triangle Counting

1131. Spark

What is Presto and how does it competes with Spark?

What will be your selection criteria for a Spark / Presto based on Simple/Complex, Short/long running queries

1132. Spark

Explain how Structured Streaming is more favourable to Spark Streaming for real-time streaming

Explain about the below Operations

- `updateStateByKey`
- `reduceByKeyAndWindow`

1133. Spark

Demo how to create a DAG with tasks

How important is Apache Livy

1134. Spark Simple Question

What is RDF and SPARQL and explain about their Application.

Check about Apache Rya - A Big Data triple store. Why is it special.

ELK

1135. Elastic Search

- Explain how Sharding and Replica works in Elastic search
- What is mean by Primary-Backup?
- What are the responsibilities of Primary shard?
- How replicas are maintained in Sync?
- How does Routing works in Elastic search?

1136. ELK

Explain this simple logstash Configuration

```
Log stash input {
  file {
    path => "/var/log/httpd/access_log*"
    start_position => "beginning"
  }
}
filter {
  grok {
    match => { "message" => "%{HTTPD_COMMONLOG}" }
  }
}
output {
  stdout {}
}
```

1137. ELK –Logstash

What is a Logstash Forwarder?

What are Grok, mutate& drop filters and what are the Plugins associated with this

List some logstash input and output plugins

How to add UUID to events

What happens if there is no codec is used?

How to use CSV codec for selected fields?

1138. ELK

How Document routing works in Elastic Search?

Explain about metrics and buckets aggregations

What are the Types of bucket aggregations?

What is the type aggregation that can be used for categorizing tweets based on certain words

1139. ELK

How to use MetricsAggregationBuilder using java

Demo how to use extended_stats for a website visitor data

1140. ELK

Demo how to use Range Bucket aggregation using java based on age in students data

1141. ELK

Demo how to use FunctionScoreQueryBuilder with weight and boost mode

What is a cardinality aggregation and where can it be used?

Demo how to build parent child relation mappings

For eg) Use TV shows and Actors Document

Finally how to index them using query?

1142. ELK

Demo how to use BulkProcessor with SearchType.SCAN in java

What is the use of script_score?

What is the importance of ES_HEAP_SIZE configuration and how it affects the performance of an elastic Server?

1143. ELK

Handling Geo-spatial data [GeoPoint] in Elastic Search is one of the Interesting and useful feature.

Demo how to use geoDistanceRangeQuery & geoDistanceSort in java.

1144. ELK

Demo how to use BulkRequestBuilder using java

What is the difference between Term-based search queries and Full-Text Search Queries?

1145. ELK

Explain the below simple Query

```
{
  "query":{
    "constant_score":{
      "filter":{
        "missing":{"field":"age"}
      }
    }
  }
}
```

1146. ELK

Explain the below simple Query

```
{
  "query": {
    "terms": {
      "entities.places": [
        "Agra",
        "Nepal",
        "Dubai",
        "Brussels"
      ],
      "minimum_match": 5
    }
  }
}
```

Version Control & GIT

1147. GitWeb

How to use GitWeb?
Evaluate Ungit and cgit
How to use Gitolite with Gitweb?

1148. Gerrit - Gitbilit

How to use Gerrit Code Review along with GIT?
How to use Gitblit along with Gerrit?

1149. Rebase and Merging

What is the difference between rebase and Merging?
Which is best for public branches?
How to integrate a feature to master with rebase. Similarly how to integrate a feature to master without rebase?

1150. Reset, Revert, checkout

What is the difference between GIT Reset, Revert, and Checkout?
How reflog and reset --hard are related?
Why stash has to be done before hard reset
What is the importance of git reflog?

1151. Git hooks

How to use GIT hooks?
Explain how to create a Server side post-receive to notify users?

1152. GIT Migration

How to migrate to GIT from an existing Version control system like SVN.
Check the possibility of using GIT as a Client to an existing Version Control System

1153. GIT

What is the Primary difference between Gitlab, GitHub [Microsoft] and Atlassian BitBucket?
Is GitHub is open source?
What is Githubs pricing for 10 users when compared to BitBucket and how many repositories are Supported and their storage limits?

Check how they integrate with an existing workflow and CI tool like Jenkins
Though not important, find which languages are used to create Github & Bitbucket

1154. GIT Workflows

Explain about the below GIT Workflows

- Gitflow
- Integration-Manager Workflow
- Dictator and Lieutenants Workflow
- Email-based workflow

Tomcat

1155. Tomcat jsp gmail mysql

Demo how to configure mysql & Google SMTP Server using JNDI in Tomcat.
Demo how to save the recent 10 emails subjects in mysql table using a Servlet or JSP

1156. Tomcat embedded

List the key jar files in the embedded tomcat distribution

1157. Tomcat JDBC Store

Demo how to use JDBCStore along with tomcat PersistentManager
Configure saveOnRestart as true and checkInterval as 180 seconds and confirm that it works as expected
Tomcat has standardManager, Clustermanager and persistent managers.
This challenge is about Persistence manager

1158. How will you change the default name for cookie - JSESSIONID used for tracking

1159. Tomcat

Use <http://www.ioplex.com/jespa.html> or the waffle library to integrate tomcat with Active Directory to authenticate users

1160. Web Socket

Demonstrate how to use Video Streaming using Java API for WebSocket and javascript Client

1161. Tomcat WAF

How will you protect tomcat-using WAF?
What are the pros and cons of using mod_security with apache?
For more info, check this
https://www.owasp.org/index.php/Category:OWASP_ModSecurity_Core_Rule_Set_Project

1162. Tomcat Vulnerabilities

Read about Apache Tomcat Exploitation
<https://pentestlab.blog/2012/03/22/apache-tomcat-exploitation/>

Read about Apache Tomcat's two remote code execution (RCE) vulnerabilities
<https://www.trendmicro.com/vinfo/us/security/news/vulnerabilities-and-exploits/apache-tomcat-spotted-with-vulnerabilities>

See list of vulnerabilities for Tomcat8 and their fix
https://tomcat.apache.org/security-8.html#Apache_Tomcat_8.x_vulnerabilities

1163. Tomcat Security Hack

Check this Article, which says how a researcher was able to hack into planes using their network using Apache Tomcat

<https://www.businessinsider.com/plane-hacker-talks-about-plane-hacking-at-grrcon-2012-2015-5>

Related Video Here https://www.youtube.com/watch?v=H0F2J_Xh6MA

Web & HTTP2

1164. Domain Sharding

What is mean by Domain Sharding and what is its importance?

Mention its advantages over HTTP/2 model

Detail a Real life example using that.

How many concurrent connections are allowed in Chrome and firefox towards a domain?

1165. HTTP/2

List the top 3 primary differences between HTTP/2 and HTTP/1

What are the API and Architecture changes in Servlet /jsf/ Spring framework done to support HTTP/2?

1166. HTTP/2

Demonstrate how to a create a sample Online Magazine website like Magzter

Show how the use of latest Servlet or spring platforms will support and benefit for HTTP/2 based Client Server Architectures

1167. HTTP/2

Demonstrate how to configure the Tomcat server to support http2

SQL & DB

1168. SQL-Simple Challenges

What is the best way to handle a very large table with millions of Rows?
Demo an example that will use left and right join at the same time

1169. SQL

How to determine whether a table is partitioned or not.
How to create a Table partition with a simple partition scheme using a numeric pk column

1170. SQL-Simple Challenges

What is Window functions and when to use it?
Detail about its Performance
What is the alternative to window function?

Demo how to

- Insert a new number based on the previous row column. [*Try to lock and unlock the table before and after transaction*]
- Using CTE find the sales total for every Quarter

1171. SQL

How to check the Fragmentation levels of your index and rebuild the required indexes.
Similarly how will you determine whether an existing index is useful or not
Find a Best way to rebuild a fragmented table without a Clustered index

1172. SQL

How to capture the currently executing Queries in the database and detail about the Query execution plan for your SQL query

1173. SQL

When to use Clustered and Non Clustered index.
Similarly use a Database Tuning advisor[inbuilt or 3rd party] to check about indexes

1174. SQL

What are the types of Locks available in the Database of your current project [sql server has Exclusive,shared,intent,update], How they occur and how to identify them using DB specific function

1175. SQL

A table has two columns date, total_train_passengers for different dates
Write a Sql Query to list the average of Train passengers for every week in a month

1176. SQL

In an employee table with Department and Salary column, list the highest paid top 3 employees in each department

1177. SQL

In an employee table with Department and performance rank column, list the lowest performing 2 employees in each department

1178. SQL

What are the type of Indexes ?
Explain about HASH, TREE, RTREE, BITSET and when to use them

1179. SQL

From a table with Football playing nations create a table with *all possible combinations* of matches

Countries table

Kenya
Canada
Columbia

The result has to be like Matches

Country1 Country2

Kenya Canada
Kenya Columbia
Canada Columbia

1180. SQL

Write a SQL Query to find all the Invalid emails in an Address table

1181. SQL

In a table with bank Transactions , find the last three transaction done by every bank customer

1182. SQL

Find the median of marks using subqueries in a students_marks Table

BlockChain

1183. Ethereum

Create a simple smart contract for an App Hosting vendor like Apple, for sharing revenue between the vendors and the app developers.

For this create a Ethereum private node using Geth, solidity & web3j Java Library

1184. Blockchain

Explain the below in BlockChain tech

- IPFS
- Nuanace
- Genesis Block
- Proof of work , proof of stake consensus algorithms
- Double Spend

1185. Blockchain

Explain the below in BlockChain tech

- Atomic broadcast API
- Pluggable cryptography
- Ordering service
- Committing Peer , Endording peer
- Metamask
-

1186. Blockchain

Explain the below in BlockChain tech

- Permissioned network
- Membership services
- PBFT algorithm
- Consenters

1187. Blockchain

Explain the below in BlockChain tech

- Certificate Authority service.
- MNID
- QuorumChain
- DAO
- Provenance

1188. Blockchain - Simple Challenge

What is the use of ganache, Truffle, metamask and demonstrate how to use them.
What are the best alternatives to them?

1189. Blockchain

Evaluate <https://composer-playground.mybluemix.net/login>

1190. Blockchain

What are the Primary difference between Hyperledger Fabric and Ethereum Network like
Speed of the Network, Private, Public,
Select the suitable BlockChain technology for a Medical Drug Manufacturer and Distributor a
B2B application with channel support

1191. Hyperledger-Blockchain

What are the different Hyperledger frameworks and Tools under Linux Foundation and their
purpose like this Frameworks - Hyperledger Fabric, Sawtooth Tools - Cello, Indy?

1192. Hyperledger-Blockchain

Draw a high-level architecture of a Hyperledger based Real estate system involving MSP,
Anchor, Orderer, Solo, Endorsers, Ledgers, and Channels

Use Hyperledger Fabric samples from <https://github.com/hyperledger/fabric-samples.git>

Use fabcar sample for the below demo

Query the Ledger to see all cars available, update the car Owner and finally create a new car
https://hyperledger-fabric.readthedocs.io/en/release-1.2/write_first_app.html

1193. Hyperledger-Blockchain

Brief about the below and their primary purpose

- Hyperledger Burrow
- Hyperledger Grid
- Hyperledger Iroha

1194. Hyperledger-Blockchain

Brief about the below and their primary purpose

- Hyperledger Caliper
- Hyperledger Cello
- Hyperledger Composer

1195. Hyperledger-Blockchain

Brief about the below and their primary purpose

- Hyperledger Quilt
- Hyperledger Indy
- Hyperledger Sawtooth
- Hyperledger Aries
- Hyperledger Transact

1196. Hyperledger-Blockchain

What is the status of Java SDK in Sawtooth? Is it Stable?

What cryptographic signatures supported in a Transaction?

Explain about CBOR and how is it used in Sawtooth?

What is secp256k1?

1197. Hyperledger-Blockchain

What is the role of npm Packages
fabric-client-ca
fabric-shim

1198. Hyperledger-Blockchain

Explain about transaction scheduling and their types

What is the role of Chain controller, Book Publisher & Executor?

Explain how executors and transaction Processors work

List few sawtooth metrics that will be displayed in Grafana

1199. Hyperledger-Blockchain

What are the key options for the below commands
For example `--orderer` is an option

- peer channel join
- peer channel create
- peer channel fetch

1200. Hyperledger-Blockchain

What is the command to see the list of available channels?

What is the difference between peer channel fetch and peer channel getinfo command

1201. Hyperledger-Blockchain

Explain in detail about the bellow attacks and how to prevent them

- Dust Attack
- Hot Wallet Attack

Swagger

1202. Swagger

Demo how to use Swagger Online/Offline editor to specify JSON/YAML based Rest API Specifications and Swagger Validator to Validate the Definitions

1203. How to integrate Swagger with Postman

1204. Demo how to use the editor.swagger.io/# to validate a API

JHipster

1205. Jhipster

What are the deployments supported by JHipster in addition to Docker, AWS, Kubernetes, and OpenShift?

1206. JHipster

Can JHipster support Monolith applications in addition to Microservices?

What are the 4 types of Application it generates

What are the types of Authentication it supports?

1207. Jhipster

What are the advantage of using Consul over JHipster registry?

How using both of them benefits Microservice Architecture?

Also, check how JHipster console uses ELK

Great! You reached the End!
I hope this Challenges collection, might not have been as good as
GTAV challenges
but sure it matches Mafia3's Challenge levels
Thanks, See you soon - GK