



Yogesh Chawla

Other

PDF generated at: 29 Jan 2026 07:37:05 UTC

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71.7% • 1717.5 / 2395

scored in Practice_Assessment_JAVA_FSD_(ODC 4A, 4th Floor, Tower 2) in 1070 min 58 sec on 28 Jan 2026 19:11:09 IST

Candidate Information

Email	yogesh.chawla@hclguvi.com
Test	Practice_Assessment_JAVA_FSD_(ODC 4A, 4th Floor, Tower 2)
Candidate Packet	View ↗
Taken on	28 Jan 2026 19:11:09 IST
Time taken	1070 min 58 sec / 2000 min
Work Experience	< 1 years
Location	Noida
Batch Name	Java Fsd odc 4a
Invited by	Maheswaran
Invited on	19 Jan 2026 10:27:33 IST

Skill Distribution

No.	Skill	Score
1	Spring Boot Basic	98%
2	SQL Basic	100%
3	PL/SQL Basic	100%
4	SQL Intermediate	96%
5	React Basic	95%

6	React Intermediate	93%	<div style="width: 93%;"></div>
7	Spring Boot Intermediate	96%	<div style="width: 96%;"></div>
8	Microservices	100%	<div style="width: 100%;"></div>
9	Kubernetes Basic	7%	<div style="width: 7%; background-color: red;"></div>
10	Git Basic	100%	<div style="width: 100%;"></div>
11	JUnit	100%	<div style="width: 100%;"></div>
12	Java Basic	100%	<div style="width: 100%;"></div>
13	Java Intermediate	100%	<div style="width: 100%;"></div>

Tags Distribution

Spring Boot	100%	Easy	63%
Bean Configuration	100%	Java	100%
Filtering	100%	Sorting	100%
File Handling	100%	File Validation	100%
REST Controller Advice	100%	Request Validation	100%
MySQL	98%	Database	100%
Constraints	100%	SQL	100%
Medium	97%	React	94%
Class Components	100%	React Hooks	83%
Functional Components	66%	State Management	100%
Event Handlers	50%	Front-End Development	93%
Router	100%	Props	100%
Classes	100%	CSS3	100%
Styling React	100%	Hooks	100%

React Router	100%	Routes	100%
Syntax	100%	Component State Management	100%
Event Listener	100%	React Component Lifecycle	75%
React Component	100%	Array Functions	100%
HOC	100%	Reducer	100%
Data Passing	100%	React Props	100%
Front-End Frameworks	100%	JavaScript	100%
AWS	100%	Lambda Function	100%
Error Handling	100%	Node.js	33%
ExpressJS	0%	Middleware	0%
Spring Test	100%	Mockito	100%
Spring Mocking	100%	Spring Expression Language	100%
Spring Security	100%	Starter Parent	100%
Spring Scope	100%	Spring	100%
Transaction Management	100%	Dependency Management	100%
Spring MVC	100%	Spring Configuration	100%
Configuration	100%	Application Properties	100%
Spring Data	100%	REST API	100%
Spring Data JPA	100%	Spring AOP	100%
Aspect-Oriented Programming	100%	JPA	100%
Transactional	100%	Application Properties Annotations	100%
Exception Handling	100%	Microservices	100%
Service Mesh	100%	Distributed Systems	100%
HTTP	100%	JSON	100%
DevOps	0%	RBAC	0%
Kubernetes	7%	CI/CD	0%
StatefulSet	0%	HPA	0%
Git	100%	JUnit	100%
Hard	100%	Reactive Programming	100%
Spring Integration Test	100%	Integration Testing	100%
JDBC	100%	FilteredRowSet	100%

Implicit Objects	100%	JSP	100%
Servlet	100%	Interfaces	100%
Inheritance	100%	Inner Class	100%
Static	100%	Method Overriding	100%
Abstract Class	100%	Classes and Objects	100%
Methods	100%	Method Overloading	100%
Garbage Collection	100%	Collections	100%
Queues	100%	Java Networking	100%
Generics	100%	Design Patterns	100%
Java 8	100%	Multithreading	100%
Stacks	100%	Stream	100%
Polymorphism	100%	Abstraction	100%
OOPS	100%	OOP	100%
Strings	100%	Language Proficiency	100%
Functions	100%	Arrays	100%
Vectors	100%	Problem Solving	100%
Programming	100%	Hash Map	100%
Overloading	100%	Synchronization	100%
Operator Overloading	100%	Concurrency	100%
Operators	100%	Algorithms	100%
Constructors	100%	Application Development	100%
Arithmetic Operations	100%	Data Structures	100%
Math	100%		

Questions

Spring Boot • 250 / 250

No.	Question	Skill	Score	Code Quality	Time Taken	Status
1	Spring Boot: Bean Configuration Styles Back-end Developer	Spring Boot (Basic)	50/50	-	10 min 47 sec	✓

2	Spring Boot: Filter Microservice Back-end Developer	Spring Boot (Basic)	50/50	-	26 min 8 sec	
3	Spring Boot: Multipart File Handling Back-end Developer	Spring Boot (Basic)	50/50	-	17 min 7 sec	
4	Spring Boot: Rest Controller Advice Setup Back-end Developer	Spring Boot (Basic)	50/50	-	24 min 1 sec	
5	Spring Boot: Custom Request Validator Back-end Developer	Spring Boot (Basic)	50/50	-	16 min 56 sec	

SQL MCQs • 315 / 320

No.	Question	Skill	Score	Code Quality	Time Taken	Status
6	MySQL: Column Deletion Multiple Choice	SQL (Basic)	5/5	-	2 min 42 sec	
7	MySQL: Self Join Multiple Choice	SQL (Basic)	5/5	-	13 sec	
8	MySQL: Sorting Direction Multiple Choice	SQL (Basic)	5/5	-	9 sec	
9	MySQL: Comma In From Clause Multiple Choice	SQL (Basic)	5/5	-	27 sec	
10	MySQL: Space In From Clause Multiple Choice	SQL (Basic)	5/5	-	17 sec	
11	MySQL: Combining Tables Multiple Choice	SQL (Basic)	5/5	-	36 sec	
12	MySQL: Result Limit Offset Multiple Choice	SQL (Basic)	5/5	-	18 sec	
13	MySQL: Rounding Numbers Multiple Choice	SQL (Basic)	5/5	-	13 sec	
14	MySQL: Field Selection Multiple Choice	SQL (Basic)	5/5	-	22 sec	
15	MySQL: Result Set Combine Operator Multiple Choice	SQL (Basic)	5/5	-	12 sec	

16	MySQL: Condition Operators Multiple Choice	SQL (Basic)	5/5	-	15 sec	✓
17	MySQL: GROUP BY Statement Multiple Choice	SQL (Basic)	5/5	-	31 sec	✓
18	MySQL: Joins Multiple Choice	SQL (Basic)	5/5	-	30 sec	✓
19	MySQL: NULL Constraint Multiple Choice	SQL (Basic)	5/5	-	31 sec	✓
20	MySQL: Deleting a Database Multiple Choice	SQL (Basic)	5/5	-	9 sec	✓
21	MySQL: Creating a Database Multiple Choice	SQL (Basic)	5/5	-	30 sec	✓
22	MySQL: Comment Types Multiple Choice	SQL (Basic)	5/5	-	26 sec	✓
23	MySQL: Deleting a Table Multiple Choice	SQL (Basic)	5/5	-	20 sec	✓
24	MySQL: Join Type That Left Then Right Multiple Choice	SQL (Basic)	5/5	-	26 sec	✓
25	MySQL: String Comparison Multiple Choice	SQL (Basic)	5/5	-	22 sec	✓
26	MySQL: Join Type That Matching Values in Both Tables Multiple Choice	SQL (Basic)	5/5	-	19 sec	✓
27	MySQL: Results Order Multiple Choice	SQL (Basic)	5/5	-	15 sec	✓
28	MySQL: White Space in Field Alias Multiple Choice	SQL (Basic)	5/5	-	34 sec	✓
29	MySQL: Join Types Multiple Choice	SQL (Basic)	5/5	-	15 sec	✓
30	Student Result Multiple Choice	SQL (Basic)	5/5	-	23 sec	✓
31	Common Students Multiple Choice	SQL (Basic)	5/5	-	32 sec	✓

32	MySQL: Results Limit Multiple Choice	SQL (Basic)	5/5	-	14 sec	<input checked="" type="checkbox"/>
33	MySQL: Like Expression Pattern Multiple Choice	SQL (Basic)	5/5	-	18 sec	<input checked="" type="checkbox"/>
34	Output Rows Multiple Choice	SQL (Basic)	5/5	-	1 min 37 sec	<input checked="" type="checkbox"/>
35	SQL Order of Operations Multiple Choice	SQL (Basic)	5/5	-	24 sec	<input checked="" type="checkbox"/>
36	Select Statements Multiple Choice	SQL (Basic)	5/5	-	30 sec	<input checked="" type="checkbox"/>
37	Which command? Multiple Choice	SQL (Basic)	5/5	-	13 sec	<input checked="" type="checkbox"/>
38	SQL ROUND Multiple Choice	SQL (Basic)	5/5	-	27 sec	<input checked="" type="checkbox"/>
39	Print the Domain Name Multiple Choice	SQL (Basic)	5/5	-	25 sec	<input checked="" type="checkbox"/>
40	Which command is behaving incorrectly? Multiple Choice	PL/SQL (Basic)	+1 5/5	-	13 sec	<input checked="" type="checkbox"/>
41	MySQL: Search In Specific Range Of Values Multiple Choice	SQL (Basic)	5/5	-	22 sec	<input checked="" type="checkbox"/>
42	MySQL: PRIMARY KEY Constraint Multiple Choice	SQL (Basic)	5/5	-	35 sec	<input checked="" type="checkbox"/>
43	MySQL: Null Value Comparison Multiple Choice	SQL (Intermediate)	5/5	-	2 min 15 sec	<input checked="" type="checkbox"/>
44	MySQL: Group By Clause Multiple Choice	SQL (Intermediate)	5/5	-	58 sec	<input checked="" type="checkbox"/>
45	MySQL: Nested Comments Multiple Choice	SQL (Intermediate)	5/5	-	2 min 33 sec	<input checked="" type="checkbox"/>
46	MySQL: Ampersand in Select Clause Multiple Choice	SQL (Intermediate)	5/5	-	13 min 10 sec	<input checked="" type="checkbox"/>
47	MySQL: Pipe In Select Clause Multiple Choice	SQL (Intermediate)	5/5	-	1 min 38 sec	<input checked="" type="checkbox"/>

48	MySQL: String Trimming Multiple Choice	SQL (Intermediate)	5/5	-	30 sec	✓
49	MySQL: Substring Extraction Multiple Choice	SQL (Intermediate)	0/5	-	13 sec	✗
50	MySQL: Substring Function Multiple Choice	SQL (Intermediate)	5/5	-	1 min 24 sec	✓
51	MySQL: Comparing Types Multiple Choice	SQL (Intermediate)	5/5	-	38 sec	✓
52	MySQL: Repeating Strings Multiple Choice	SQL (Intermediate)	5/5	-	1 min 27 sec	✓
53	MySQL: ANY and ALL Operators Multiple Choice	SQL (Intermediate)	5/5	-	1 min 11 sec	✓
54	MySQL: AUTO_INCREMENT Attribute Multiple Choice	SQL (Intermediate)	5/5	-	34 sec	✓
55	MySQL: DEFAULT Constraint Multiple Choice	SQL (Intermediate)	5/5	-	13 sec	✓
56	MySQL: FOREIGN KEY Constraint Multiple Choice	SQL (Intermediate)	5/5	-	12 sec	✓
57	MySQL: UNIQUE Constraint Multiple Choice	SQL (Intermediate)	5/5	-	20 sec	✓
58	MySQL: Table Constraints Multiple Choice	SQL (Intermediate)	5/5	-	15 sec	✓
59	MySQL: Creating a Table Multiple Choice	SQL (Intermediate)	5/5	-	6 sec	✓
60	MySQL: Group By Condition Multiple Choice	SQL (Intermediate)	5/5	-	3 min 34 sec	✓
61	MySQL: Group Field Multiple Choice	SQL (Intermediate)	5/5	-	9 sec	✓
62	MySQL: Group By Having Multiple Choice	SQL (Intermediate)	5/5	-	34 sec	✓

63	MySQL: Group By Order Multiple Choice	SQL (Intermediate)	5/5	-	9 sec	<input checked="" type="checkbox"/>
64	MySQL: Group Variations Multiple Choice	SQL (Intermediate)	5/5	-	26 sec	<input checked="" type="checkbox"/>
65	MySQL: Distinct Select Multiple Tables Multiple Choice	SQL (Intermediate)	5/5	-	52 sec	<input checked="" type="checkbox"/>
66	MySQL: Substring Function Multiple Choice	SQL (Intermediate)	5/5	-	15 sec	<input checked="" type="checkbox"/>
67	MySQL: Select Multiple Tables Multiple Choice	SQL (Intermediate)	5/5	-	20 sec	<input checked="" type="checkbox"/>
68	SQL Statements Multiple Choice	SQL (Intermediate)	5/5	-	31 sec	<input checked="" type="checkbox"/>
69	MySQL: Table Alteration Multiple Choice	SQL (Intermediate)	5/5	-	48 sec	<input checked="" type="checkbox"/>

React MCQ • 242.5 / 255

No.	Question	Skill	Score	Code Quality	Time Taken	Status
70	Query Based Question 3 Multiple Choice	React (Basic)	5/5	-	18 sec	<input checked="" type="checkbox"/>
71	Class Component Initial Rendering Multiple Choice	React (Basic)	5/5	-	39 sec	<input checked="" type="checkbox"/>
72	React Class Component State Multiple Choice	React (Basic)	5/5	-	58 sec	<input checked="" type="checkbox"/>
73	State Update Multiple Choice	React (Basic)	0/5	-	5 min 58 sec	<input checked="" type="checkbox"/>
74	Initial Rendering Multiple Choice	React (Basic)	5/5	-	16 min 10 sec	<input checked="" type="checkbox"/>
75	State Management Multiple Choice	React (Basic)	5/5	-	23 sec	<input checked="" type="checkbox"/>
76	Event Multiple Choice	React (Basic)	5/5	-	54 sec	<input checked="" type="checkbox"/>

77	React: True statements Multiple Choice	React (Basic)	2.5/5	-	20 sec	🟡
78	React: Route Multiple Choice	React (Basic)	5/5	-	8 sec	🟢
79	React: Children Multiple Choice	React (Basic)	5/5	-	6 min 49 sec	🟢
80	React: Check statements Multiple Choice	React (Basic)	5/5	-	29 sec	🟢
81	React: Add class Multiple Choice	React (Basic)	5/5	-	1 min 56 sec	🟢
82	React: Styling in JavaScript Multiple Choice	React (Basic)	5/5	-	17 sec	🟢
83	React: Hooks and Their Applications Multiple Choice	React (Basic)	5/5	-	22 sec	🟢
84	React: Welcome Multiple Choice	React (Basic)	5/5	-	12 sec	🟢
85	React: Components and Routes Multiple Choice	React (Basic)	5/5	-	30 sec	🟢
86	React: Counter Multiple Choice	React (Basic)	5/5	-	18 sec	🟢
87	React: Functional Components Multiple Choice	React (Basic)	5/5	-	7 min 49 sec	🟢
88	React: States and Props Multiple Choice	React (Basic)	5/5	-	6 min 39 sec	🟢
89	React: Events Multiple Choice	React (Basic)	5/5	-	39 sec	🟢
90	Render Function Multiple Choice	React (Basic)	5/5	-	7 sec	🟢
91	Wrap Code Multiple Choice	React (Basic)	5/5	-	6 sec	🟢
92	Hooks Multiple Choice	React (Basic)	5/5	-	56 sec	🟢

93	Click 3 Multiple Choice	React (Basic)	5/5	-	37 sec	✓
94	Method Search Multiple Choice	React (Basic)	5/5	-	5 sec	✓
95	Science Project Multiple Choice	React (Basic)	5/5	-	5 sec	✓
96	Submit Multiple Choice	React (Basic)	5/5	-	5 sec	✓
97	Hello Multiple Choice	React (Basic)	5/5	-	10 sec	✓
98	React State Multiple Choice	React (Basic)	5/5	-	7 sec	✓
99	Name Multiple Choice	React (Basic)	5/5	-	7 sec	✓
100	Leap Year Multiple Choice	React (Basic)	5/5	-	20 sec	✓
101	Attribute Access Multiple Choice	React (Basic)	5/5	-	7 sec	✓
102	Array Functions Multiple Choice	React (Basic)	5/5	-	13 sec	✓
103	Components Multiple Choice	React (Basic)	5/5	-	11 sec	✓
104	React: Valid Routes Multiple Choice	React (Basic)	5/5	-	3 min 25 sec	✓
105	Clock Multiple Choice	React (Basic)	5/5	-	21 min 2 sec	✓
106	React Hooks Multiple Choice	React (Intermediate)	5/5	-	35 sec	✓
107	Query Based Question 2 Multiple Choice	React (Intermediate)	5/5	-	2 min 17 sec	✓
108	Query Based Question Multiple Choice	React (Intermediate)	5/5	-	11 min 43 sec	✓

109	React Component Multiple Choice	React (Intermediate)	5/5	-	1 min 29 sec	
110	HOC Multiple Choice	React (Intermediate)	5/5	-	1 min 38 sec	
111	Reducer Multiple Choice	React (Intermediate)	5/5	-	3 min 5 sec	
112	React - Components 2 Multiple Choice	React (Intermediate)	5/5	-	58 sec	
113	Hooks 2 Multiple Choice	React (Intermediate)	5/5	-	1 min 21 sec	
114	Hooks Multiple Choice	React (Intermediate)	5/5	-	1 min 16 sec	
115	React Props Multiple Choice	React (Intermediate)	5/5	-	40 sec	
116	Infinity Multiple Choice	React (Intermediate)	5/5	-	3 min 35 sec	
117	Snippet Multiple Choice	React (Intermediate)	0/5	-	36 sec	
118	Data Multiple Choice	React (Intermediate)	5/5	-	1 min 44 sec	
119	React: Hooks Multiple Choice	React (Intermediate)	5/5	-	9 min 50 sec	
120	React: Hooks I Multiple Choice	React (Intermediate)	5/5	-	3 min 54 sec	

Spring Boot MCQ • 285 / 295

No.	Question	Skill	Score	Code Quality	Time Taken	Status
121	Error Handling in AWS Lambdas Multiple Choice	Spring Boot (Basic)	5/5	-	30 sec	
122	Clustered Express Middleware Multiple Choice	Spring Boot (Basic)	0/5	-	3 min 17 sec	
123	Mocking Beans Multiple Choice	Spring Boot (Basic)	5/5	-	38 sec	

124	Secure Method Multiple Choice	Spring Boot (Basic)	5/5	-	25 sec	<input checked="" type="checkbox"/>
125	Bean Scopes Multiple Choice	Spring Boot (Basic)	5/5	-	8 sec	<input checked="" type="checkbox"/>
126	Spring Circular Bean Trap Multiple Choice	Spring Boot (Basic)	5/5	-	1 min 45 sec	<input checked="" type="checkbox"/>
127	Spring AOP Usage Multiple Choice	Spring Boot (Basic)	5/5	-	13 sec	<input checked="" type="checkbox"/>
128	Bean definition enhancement Multiple Choice	Spring Boot (Basic)	5/5	-	7 sec	<input checked="" type="checkbox"/>
129	Transactional Tests Multiple Choice	Spring Boot (Basic)	5/5	-	9 sec	<input checked="" type="checkbox"/>
130	Behavior Inheritance Multiple Choice	Spring Boot (Basic)	5/5	-	6 sec	<input checked="" type="checkbox"/>
131	Multiple Beans Definition Multiple Choice	Spring Boot (Basic)	5/5	-	9 sec	<input checked="" type="checkbox"/>
132	Path Variable Multiple Choice	Spring Boot (Basic)	5/5	-	23 sec	<input checked="" type="checkbox"/>
133	Create a User Controller Multiple Choice	Spring Boot (Basic)	5/5	-	18 sec	<input checked="" type="checkbox"/>
134	Spring Dependency Injection Multiple Choice	Spring Boot (Basic)	5/5	-	14 sec	<input checked="" type="checkbox"/>
135	Query Annotation Multiple Choice	Spring Boot (Basic)	5/5	-	5 sec	<input checked="" type="checkbox"/>
136	Profile Multiple Choice	Spring Boot (Basic)	5/5	-	4 sec	<input checked="" type="checkbox"/>
137	Property Value Injection Multiple Choice	Spring Boot (Basic)	5/5	-	6 sec	<input checked="" type="checkbox"/>
138	Dependency Injection Multiple Choice	Spring Boot (Basic)	5/5	-	1 min 54 sec	<input checked="" type="checkbox"/>
139	Endpoints Multiple Choice	Spring Boot (Basic)	5/5	-	4 sec	<input checked="" type="checkbox"/>

140	Validator Multiple Choice	Spring Boot (Basic)	5/5	-	13 sec	<input checked="" type="checkbox"/>
141	Rest Handle Multiple Choice	Spring Boot (Basic)	5/5	-	35 sec	<input checked="" type="checkbox"/>
142	Mechanism Multiple Choice	Spring Boot (Basic)	5/5	-	10 sec	<input checked="" type="checkbox"/>
143	Classes Segment Multiple Choice	Spring Boot (Basic)	5/5	-	11 sec	<input checked="" type="checkbox"/>
144	Employee Multiple Choice	Spring Boot (Basic)	5/5	-	8 sec	<input checked="" type="checkbox"/>
145	Actuator Multiple Choice	Spring Boot (Basic)	5/5	-	8 sec	<input checked="" type="checkbox"/>
146	Spring Annotation Multiple Choice	Spring Boot (Basic)	5/5	-	7 sec	<input checked="" type="checkbox"/>
147	Book Multiple Choice	Spring Boot (Basic)	5/5	-	1 min 35 sec	<input checked="" type="checkbox"/>
148	RESTful Multiple Choice	Spring Boot (Basic)	5/5	-	10 sec	<input checked="" type="checkbox"/>
149	FooBar Multiple Choice	Spring Boot (Basic)	5/5	-	3 min 9 sec	<input checked="" type="checkbox"/>
150	Postgres Specific Service Multiple Choice	Spring Boot (Basic)	5/5	-	20 sec	<input checked="" type="checkbox"/>
151	Component Dependency Multiple Choice	Spring Boot (Basic)	5/5	-	14 sec	<input checked="" type="checkbox"/>
152	Application Properties Override Multiple Choice	Spring Boot (Basic)	5/5	-	10 sec	<input checked="" type="checkbox"/>
153	Testing a Spring Application Multiple Choice	Spring Boot (Basic)	5/5	-	3 min 57 sec	<input checked="" type="checkbox"/>
154	Spring Data Repository Type Multiple Choice	Spring Boot (Intermediate)	5/5	-	1 min 13 sec	<input checked="" type="checkbox"/>
155	Event Bus Handler Multiple Choice	Spring Boot (Intermediate)	0/5	-	28 sec	<input checked="" type="checkbox"/>

156	Controller Correct Definition Problem Multiple Choice	Spring Boot (Intermediate)	5/5	-	4 min 41 sec	✓
157	Spring Data Repositories Multiple Choice	Spring Boot (Intermediate)	5/5	-	6 min 55 sec	✓
158	Pointcut Expressions Multiple Choice	Spring Boot (Intermediate)	5/5	-	46 sec	✓
159	Spring Data Transactional Multiple Choice	Spring Boot (Intermediate)	5/5	-	3 min 6 sec	✓
160	Configuration Properties Multiple Choice	Spring Boot (Intermediate)	5/5	-	1 min 2 sec	✓
161	Spring Bean Initialization Multiple Choice	Spring Boot (Intermediate)	5/5	-	35 sec	✓
162	Spring Transactional Multiple Choice	Spring Boot (Intermediate)	5/5	-	35 sec	✓
163	Spring Data Entity Graph Multiple Choice	Spring Boot (Intermediate)	5/5	-	25 sec	✓
164	Security Custom Login Multiple Choice	Spring Boot (Intermediate)	5/5	-	14 sec	✓
165	Spring Circular Dependency Multiple Choice	Spring Boot (Intermediate)	5/5	-	11 sec	✓
166	Spring Data Repository Multiple Choice	Spring Boot (Intermediate)	5/5	-	24 sec	✓
167	Spring Boot Localization Multiple Choice	Spring Boot (Intermediate)	5/5	-	18 sec	✓
168	Spring IOC Container Multiple Choice	Spring Boot (Intermediate)	5/5	-	9 sec	✓
169	Dispatcher Servlet Multiple Choice	Spring Boot (Intermediate)	5/5	-	9 sec	✓
170	CSRF Multiple Choice	Spring Boot (Intermediate)	5/5	-	1 min 17 sec	✓
171	Spring Scopes Multiple Choice	Spring Boot (Intermediate)	5/5	-	42 sec	✓

172	Spring MVC RestController Multiple Choice	Spring Boot (Intermediate)	5/5	-	54 sec	<input checked="" type="checkbox"/>
173	Endpoint Security Multiple Choice	Spring Boot (Intermediate)	5/5	-	25 sec	<input checked="" type="checkbox"/>
174	DemoHandler Multiple Choice	Spring Boot (Intermediate)	5/5	-	1 min 2 sec	<input checked="" type="checkbox"/>
175	Security Multiple Choice	Spring Boot (Intermediate)	5/5	-	1 min 3 sec	<input checked="" type="checkbox"/>
176	JWT with RSA Multiple Choice	Spring Boot (Intermediate)	5/5	-	4 min 37 sec	<input checked="" type="checkbox"/>
177	Error Handling Multiple Choice	Spring Boot (Intermediate)	5/5	-	1 min 54 sec	<input checked="" type="checkbox"/>
178	API Multiple Choice	Spring Boot (Intermediate)	5/5	-	3 min 49 sec	<input checked="" type="checkbox"/>
179	Predict the Output Multiple Choice	Spring Boot (Intermediate)	5/5	-	2 min 4 sec	<input checked="" type="checkbox"/>

Microservices and Kubernetes MCQ • 130 / 780

No.	Question	Skill	Score	Code Quality	Time Taken	Status
180	Transactions Multiple Choice	Microservices	5/5	-	1 min 18 sec	<input checked="" type="checkbox"/>
181	Microservices Security Multiple Choice	Microservices	5/5	-	23 sec	<input checked="" type="checkbox"/>
182	Conway's Law Multiple Choice	Microservices	5/5	-	20 sec	<input checked="" type="checkbox"/>
183	Client Side Load Balancing Multiple Choice	Microservices	5/5	-	47 sec	<input checked="" type="checkbox"/>
184	Master Master Replication Multiple Choice	Microservices	5/5	-	51 sec	<input checked="" type="checkbox"/>
185	Semantic Monitoring Drawback Multiple Choice	Microservices	5/5	-	20 sec	<input checked="" type="checkbox"/>
186	Tests in Production Multiple Choice	Microservices	5/5	-	15 sec	<input checked="" type="checkbox"/>

187	Master Master Replication 3 Multiple Choice	Microservices	5/5	-	25 sec	
188	Microservices Reliability Multiple Choice	Microservices	5/5	-	1 min 6 sec	
189	Disaster Recovery Multiple Choice	Microservices	5/5	-	27 sec	
190	Service Discovery Multiple Choice	Microservices	5/5	-	12 sec	
191	Distributed System Characteristics Multiple Choice	Microservices	5/5	-	29 sec	
192	Understanding Microservice Multiple Choice	Microservices	5/5	-	11 sec	
193	Communication Methods Multiple Choice	Microservices	5/5	-	10 sec	
194	Microservices Usage Multiple Choice	Microservices	5/5	-	16 sec	
195	Master Master Replication 2 Multiple Choice	Microservices	5/5	-	34 sec	
196	RBAC: User Entry Client Certificate Auth DevOps	Kubernetes (Basic)	0/50	-	1 min 56 sec	
197	CronJob: Basic Implementation DevOps	Kubernetes (Basic)	0/50	-	35 sec	
198	StatefulSet: Basic Implementation DevOps	Kubernetes (Basic)	0/50	-	6 sec	
199	StatefulSet: Basic Performance Optimization DevOps	Kubernetes (Basic)	0/50	-	57 sec	
200	Kubernetes Two or More Instructions Multiple Choice	Kubernetes (Basic)	5/5	-	41 sec	
201	Kubernetes Pod Logs Multiple Choice	Kubernetes (Basic)	5/5	-	49 sec	
202	HPA: Basic Autoscaling DevOps	Kubernetes (Basic)	0/50	-	9 sec	

203	StatefulSet: Update Strategy Change DevOps	Kubernetes (Basic)	0/50	-	3 sec	✖
204	Kubernetes Run Command Multiple Choice	Kubernetes (Basic)	5/5	-	1 min 34 sec	✓
205	Kubernetes Find Documentation Multiple Choice	Kubernetes (Basic)	5/5	-	19 sec	✓
206	Kubernetes Pods Query Multiple Choice	Kubernetes (Basic)	5/5	-	1 min 16 sec	✓
207	Kubernetes Basic Pod Multiple Choice	Kubernetes (Basic)	5/5	-	50 sec	✓
208	Kubernetes Pods Status Multiple Choice	Kubernetes (Basic)	5/5	-	11 sec	✓
209	Kubernetes: Secrets DevOps	Kubernetes (Basic)	0/50	-	8 sec	✖
210	Kubernetes Get Deployment Information Multiple Choice	Kubernetes (Basic)	5/5	-	14 sec	✓
211	Kubernetes Labels & Annotations Multiple Choice	Kubernetes (Basic)	5/5	-	10 sec	✓
212	Kubernetes Deployment Scale Multiple Choice	Kubernetes (Basic)	5/5	-	22 sec	✓
213	Kubernetes: Resources Limits DevOps	Kubernetes (Basic)	0/50	-	44 sec	✖
214	Kubernetes: Volume Mounting DevOps	Kubernetes (Basic)	0/50	-	2 sec	✖
215	Kubernetes: Annotations and Labels DevOps	Kubernetes (Basic)	0/50	-	2 sec	✖
216	Kubernetes: Deployment Replication DevOps	Kubernetes (Basic)	0/50	-	1 sec	✖
217	Kubernetes: Basic Redis Deployment DevOps	Kubernetes (Basic)	0/50	-	3 sec	✖
218	StatefulSet: Volume Claim Template DevOps	Kubernetes (Basic)	0/50	-	18 sec	✖

No.	Question	Skill	Score	Code Quality	Time Taken	Status
219	git status Multiple Choice	Git (Basic)	5/5	-	1 min 18 sec	✓
220	git squash Multiple Choice	Git (Basic)	5/5	-	40 sec	✓
221	How Many Branches? Multiple Choice	Git (Basic)	5/5	-	6 sec	✓
222	Clone a Git Repo Multiple Choice	Git (Basic)	5/5	-	1 min 7 sec	✓
223	git describe Multiple Choice	Git (Basic)	5/5	-	11 sec	✓
224	Java Mockito Usage Annotation Multiple Choice	JUnit	5/5	-	30 sec	✓
225	Integration Test Dirties Context Annotation Usage Multiple Choice	JUnit	5/5	-	11 min 31 sec	✓
226	JUnit Multiple When Usage Multiple Choice	JUnit	5/5	-	6 min 47 sec	✓
227	JUnit Real Method Call Trap Multiple Choice	JUnit	5/5	-	1 min 50 sec	✓
228	Mockito Inject Mock Multiple Choice	JUnit	5/5	-	8 sec	✓
229	Mockito MockMvc Multiple Choice	JUnit	5/5	-	52 sec	✓
230	Mockito Mock-Spy Multiple Choice	JUnit	5/5	-	41 sec	✓
231	Mockito Static Methods Multiple Choice	JUnit	5/5	-	16 sec	✓
232	Mockito Solution Multiple Choice	JUnit	5/5	-	9 sec	✓
233	JUnit Test Order Multiple Choice	JUnit	5/5	-	2 min 36 sec	✓

234	Reactive Unit Test Multiple Choice	JUnit	5/5	-	1 min 46 sec	
235	Mockito Verify Multiple Choice	JUnit	5/5	-	29 sec	
236	Spring Integration Dispose Context Multiple Choice	JUnit	5/5	-	14 sec	
237	Spring Integration Test MockMvc Multiple Choice	JUnit	5/5	-	28 sec	

Java MCQ • 400 / 400

No.	Question	Skill	Score	Code Quality	Time Taken	Status
238	Java Keywords Multiple Choice	Java (Basic)	5/5	-	34 sec	
239	Java Constants Multiple Choice	Java (Basic)	5/5	-	11 sec	
240	Java Types Multiple Choice	Java (Basic)	5/5	-	7 sec	
241	FilteredRowSet Multiple Choice	Java (Intermediate)	5/5	-	54 sec	
242	JSP Implicit Objects Multiple Choice	Java (Intermediate)	5/5	-	17 sec	
243	Servlet and JSP Integration Multiple Choice	Java (Intermediate)	5/5	-	26 sec	
244	Interfaces Multiple Choice	Java (Intermediate)	5/5	-	19 sec	
245	Inner Class, Static and Final Multiple Choice	Java (Intermediate)	5/5	-	11 sec	
246	Classes and Objects Multiple Choice	Java (Basic)	5/5	-	18 sec	
247	Method Overloading Multiple Choice	Java (Basic)	5/5	-	10 sec	

248	Java Garbage Collection Multiple Choice	Java (Intermediate)	5/5	-	12 sec	
249	Java BufferedReader Multiple Choice	Java (Basic)	5/5	-	19 sec	
250	Java PriorityQueue Multiple Choice	Java (Intermediate)	5/5	-	25 sec	
251	Java parseInt Multiple Choice	Java (Basic)	5/5	-	12 sec	
252	Java Networking Multiple Choice	Java (Intermediate)	5/5	-	10 sec	
253	Java Generics Multiple Choice	Java (Intermediate)	5/5	-	13 sec	
254	Java Design Pattern Multiple Choice	Java (Basic)	5/5	-	5 sec	
255	Java Concatenate Multiple Choice	Java (Basic)	5/5	-	16 sec	
256	Java Interface Multiple Choice	Java (Basic)	5/5	-	11 sec	
257	Multi-threaded code Multiple Choice	Java (Intermediate)	5/5	-	15 sec	
258	Empty Collection Multiple Choice	Java (Intermediate)	5/5	-	30 sec	
259	Java Operators Multiple Choice	Java (Basic)	5/5	-	7 sec	
260	Legacy Code Multiple Choice	Java (Intermediate)	5/5	-	10 sec	
261	Display Boolean Multiple Choice	Java (Intermediate)	5/5	-	28 sec	
262	Java Inheritance Overriding Multiple Choice	Java (Basic)	5/5	-	9 sec	
263	Java Streams Multiple Choice	Java (Intermediate)	5/5	-	10 sec	

264	Java String Pool Multiple Choice	Java (Basic)	5/5	-	8 sec	
265	Find the Output Multiple Choice	Java (Intermediate)	5/5	-	13 sec	
266	Java Variables Multiple Choice	Java (Basic)	5/5	-	6 sec	
267	Console Output Multiple Choice	Java (Intermediate)	5/5	-	8 sec	
268	Best Three Scores Multiple Choice	Java (Intermediate)	5/5	-	17 sec	
269	Java : Collections Multiple Choice	Java (Intermediate)	5/5	-	7 sec	
270	Even Numbers Multiple Choice	Java (Intermediate)	5/5	-	1 min	
271	Identify Runtime Exceptions Multiple Choice	Java (Intermediate)	5/5	-	5 sec	
272	Empty a HashMap Multiple Choice	Java (Intermediate)	5/5	-	4 sec	
273	Java : OOPS Multiple Choice	Java (Intermediate)	5/5	-	5 sec	
274	Which of the following is true about iterators ? Multiple Choice	Java (Intermediate)	5/5	-	8 sec	
275	The Keyword Synchronized Multiple Choice	Java (Intermediate)	5/5	-	12 sec	
276	Look Up an Element in a Map Using a Key Multiple Choice	Java (Intermediate)	5/5	-	6 sec	
277	Type Promotions Multiple Choice	Java (Intermediate)	5/5	-	4 sec	
278	Which of the following operators is overloaded for string objects? Multiple Choice	Java (Basic)	5/5	-	5 sec	

279	Select the correct statement, from the options below: Multiple Choice	Java (Basic)	5/5	-	9 sec	<input checked="" type="checkbox"/>
280	Root Class of the Java Exception Hierarchy Multiple Choice	Java (Intermediate)	5/5	-	6 sec	<input checked="" type="checkbox"/>
281	Given the following code, what is the most likely result: Multiple Choice	Java (Basic)	5/5	-	9 sec	<input checked="" type="checkbox"/>
282	Field Names in Classes Multiple Choice	Java (Intermediate)	5/5	-	11 sec	<input checked="" type="checkbox"/>
283	Static Analysis 3 Multiple Choice	Java (Intermediate)	5/5	-	8 sec	<input checked="" type="checkbox"/>
284	Static Analysis 1 Multiple Choice	Java (Intermediate)	5/5	-	14 sec	<input checked="" type="checkbox"/>
285	Java Classes Multiple Choice	Java (Intermediate)	5/5	-	6 sec	<input checked="" type="checkbox"/>
286	Result of Concurrent Threads Multiple Choice	Java (Intermediate)	5/5	-	7 sec	<input checked="" type="checkbox"/>
287	Bitwise Operators in Java Multiple Choice	Java (Basic)	5/5	-	9 sec	<input checked="" type="checkbox"/>
288	JDK Design Patterns Multiple Choice	Java (Basic)	5/5	-	6 sec	<input checked="" type="checkbox"/>
289	Value of k After Function Runs Multiple Choice	Java (Basic)	5/5	-	17 sec	<input checked="" type="checkbox"/>
290	Default Packages Multiple Choice	Java (Basic)	5/5	-	35 sec	<input checked="" type="checkbox"/>
291	Automatic Imports Multiple Choice	Java (Basic)	5/5	-	8 sec	<input checked="" type="checkbox"/>
292	Java: Constructor, Exception Handling and Inheritance Multiple Choice	Java (Intermediate)	5/5	-	50 sec	<input checked="" type="checkbox"/>
293	Interfaces Multiple Choice	Java (Basic)	5/5	-	9 sec	<input checked="" type="checkbox"/>

294	Java Class Path Multiple Choice	Java (Basic)	5/5	-	5 sec	
295	Static Code Analysis 3 Multiple Choice	Java (Basic)	5/5	-	10 sec	
296	Will This Compile? 2 Multiple Choice	Java (Basic)	5/5	-	29 sec	
297	Java Print a Sum Multiple Choice	Java (Basic)	5/5	-	11 sec	
298	What is result of the following command? Multiple Choice	Java (Basic)	5/5	-	11 sec	
299	Which of the following statements is correct? Select the one correct answer. Multiple Choice	Java (Basic)	5/5	-	6 sec	
300	C++ Loop Control Multiple Choice	Java (Basic)	5/5	-	32 sec	
301	Calling a Constructor Multiple Choice	Java (Basic)	5/5	-	6 sec	
302	Java: Find the Output Multiple Choice	Java (Basic)	5/5	-	5 sec	
303	Java Execution Flow Multiple Choice	Java (Intermediate)	5/5	-	9 sec	
304	Java: Inner Classes Multiple Choice	Java (Basic)	5/5	-	7 sec	
305	Which of the following statements is correct? Multiple Choice	Java (Basic)	5/5	-	6 sec	
306	Arrays in Java Multiple Choice	Java (Basic)	5/5	-	10 sec	
307	What is the correct declaration of an abstract method that is intended to be pub? Multiple Choice	Java (Basic)	5/5	-	3 sec	
308	Java: String Array Multiple Choice	Java (Basic)	5/5	-	23 sec	

309	Which of the following will output -4.0 ? Multiple Choice	Java (Basic)	5/5	-	7 sec	<input checked="" type="checkbox"/>
310	Java : Object Class Multiple Choice	Java (Basic)	5/5	-	22 sec	<input checked="" type="checkbox"/>
311	Which of the following are true about the Error and Exception classes? Multiple Choice	Java (Intermediate)	5/5	-	9 sec	<input checked="" type="checkbox"/>
312	"Syntax Review 2" Multiple Choice	Java (Basic)	5/5	-	25 sec	<input checked="" type="checkbox"/>
313	Java : Division Check Multiple Choice	Java (Basic)	5/5	-	5 min 26 sec	<input checked="" type="checkbox"/>
314	Java: Classes Multiple Choice	Java (Basic)	5/5	-	5 sec	<input checked="" type="checkbox"/>
315	Java String Concatenation Multiple Choice	Java (Basic)	5/5	-	10 sec	<input checked="" type="checkbox"/>
316	Declarations Multiple Choice	Java (Basic)	5/5	-	15 sec	<input checked="" type="checkbox"/>
317	"Syntax Review 1" Multiple Choice	Java (Basic)	5/5	-	1 min 29 sec	<input checked="" type="checkbox"/>

1. Spring Boot: Bean Configuration Styles

 Correct

[Back-end Developer](#) [Spring Boot](#) [Easy](#) [Bean Configuration](#)

Question description

Spring Boot allows one to configure application beans using Java, XML, or annotation. In this project, there are a few classes that are used for sending notifications. Use all 3 types of configuration styles (i.e., XML, Java, and annotation) to define the beans so that those beans can be loaded into Spring Boot Application Context.

Candidate bean classes are given as follows:

SN	Bean name	Bean class	Constructor args	
1	smsNotificationService	SmsNotificationService.java	SMS_SERVICE	
2	callNotificationService	CallNotificationService.java	CALL_SERVICE	
3	emailNotificationService	EmailNotificationService.java	EMAIL_SERVICE	
4	thirdPartyNotificationService	ThirdPartyNotificationService.java	THIRD_PARTY_SERVICE	

Configuration classes are given as follows:

- JavaBasedConfiguration.java: This contains the beans defined using Java.
- XmlBasedConfiguration.java: This contains the beans defined on the xml_based.Bean_configuration.xml.
- xml_based.Bean_configuration.xml: The XML configuration file that contains the bean definitions.
- App.java: The starting point of the application where beans are defined using annotations.

Tasks:

1. Define beans #1 and #2 using Java-based configuration.
2. Define bean #3 using annotation-based configuration.
3. Define bean #4 using XML-based configuration.

Complete the project according to requirements so that it passes all the test cases when running the unit tests.

Candidate's Submission

Testcase	Test file	Status	Score
testAnnotationBasedConfiguration	TEST-com.hackerrank.configstyles.ConfigurationStylesTest.xml	Success	16.67 / 16.67
testJavaBasedConfiguration	TEST-com.hackerrank.configstyles.ConfigurationStylesTest.xml	Success	16.67 / 16.67
testXmlBasedConfiguration	TEST-com.hackerrank.configstyles.ConfigurationStylesTest.xml	Success	16.67 / 16.67

Review logs: [output log](#)

[View candidate code](#)

No comments.

2. Spring Boot: Filter Microservice

Correct

[Back-end Developer](#) [Spring Boot](#) [Java](#) [Filtering](#) [Sorting](#) [Easy](#)

Question description

Implement REST APIs to perform filter and sort operations on a collection of Products.

Each event is a JSON entry with the following keys:

- barcode : the unique id of the product (String)
- price : the price of the product (Integer)
- discount : the discount % available on the product(Integer)
- available : the availability status of the product (0 or 1)

Here is an example of a product JSON object:

```
[  
  {  
    "barcode": "74001755",  
    "item": "Ball Gown",  
    "category": "Full Body Outfits",  
    "price": 3548,  
    "discount": 7,  
    "available": 1  
  },  
  {  
    "barcode": "74002423",  
    "item": "Shawl",  
    "category": "Accessories",  
    "price": 758,  
    "discount": 12,  
    "available": 1  
  }  
]
```

You are provided with the implementation of the models required for all the APIs. The task is to implement a set of REST services that exposes the endpoints and allows for filtering and sorting the collection of product records in the following ways:

GET request to /filter/price/{initial_range}/{final_range} :

- returns a collection of all products whose price is between the initial and the final range supplied
- The response code is 200, and the response body is an array of products in the price range provided.
- In case there are no such products return status code 400.

GET request to /sort/price :

- returns a collection of all products sorted by their pricing
- The response code is 200 and the response body is an array of the product names sorted in ascending order of price.

Complete the given project so that it passes all the test cases when running the provided unit tests.

▼ EXAMPLE REQUESTS AND RESPONSES

GET request to /filter/price/{initial_range}/{final_range}

The response code is 200, and when converted to JSON, the response body is as follows for filter/750/900:

```
[  
  {  
    "barCode": "74002423"  
  }  
]
```

GET request to /sort/price

The response code is 200 and the response body, when converted to JSON, is as follows:

```
[  
  {  
    "barCode": "74002423"  
  },  
  {  
    "barCode": "74001755"  
  }  
]
```

```
    "barCode": "74001755"  
}  
]
```

Interviewer guidelines

controller/SampleController.java

```
package com.hackerrank.sample.controller;  
  
import java.util.ArrayList;  
import java.util.Arrays;  
import java.util.Collections;  
import java.util.List;  
  
import org.json.JSONArray;  
import org.json.JSONException;  
import org.json.JSONObject;  
import org.springframework.http.HttpStatus;  
import org.springframework.http.ResponseEntity;  
import org.springframework.web.bind.annotation.CrossOrigin;  
import org.springframework.web.bind.annotation.GetMapping;  
import org.springframework.web.bind.annotation.PathVariable;  
import org.springframework.web.bind.annotation.RestController;  
import org.springframework.web.client.RestTemplate;  
  
import com.hackerrank.sample.dto.FilteredProducts;  
import com.hackerrank.sample.dto.SortedProducts;  
  
@RestController  
public class SampleController {  
  
    final String uri = "https://jsonmock.hackerrank.com/api/inventory";  
    RestTemplate restTemplate = new RestTemplate();  
    String result = restTemplate.getForObject(uri, String.class);  
    JSONObject root = new JSONObject(result);  
  
    JSONArray data = root.getJSONArray("data");  
  
    @CrossOrigin  
    @GetMapping("/filter/price/{initial_price}/{final_price}")  
    private ResponseEntity<ArrayList<FilteredProducts>> filtered_books(@PathVariable("initial_price") int init_price , @PathVariable("final_price") int final_price)  
    {  
  
        try {  
  
            ArrayList<FilteredProducts> books = new ArrayList<FilteredProducts>();  
  
            List<JSONObject> list = new ArrayList<>();  
            for (int i = 0; i < data.length(); i++) {  
                if (data.getJSONObject(i).getInt("price") >= init_price && data.getJSONObject(i).getInt("price") <= final_price) {  
                    FilteredProducts filteredProduct = new FilteredProducts(data.getJSONObject(i).getString("barcode"));  
                    books.add(filteredProduct);  
                }  
            }  
        }  
    }  
}
```

```
if (books.isEmpty()){
    throw new Exception();
}
return new ResponseEntity<ArrayList<FilteredProducts>>(books, HttpStatus.OK);

}

}catch(Exception E)
{
System.out.println("Error encountered : "+E.getMessage());
return new ResponseEntity<ArrayList<FilteredProducts>>(HttpStatus.NOT_FOUND);
}

}

@CrossOrigin
@GetMapping("/sort/price")
private ResponseEntity<SortedProducts[]> sorted_books()
{

try {
List<JSONObject> list = new ArrayList<>();
for (int i = 0; i < data.length(); i++){
    list.add(data.getJSONObject(i));
}

list.sort((s1, s2) -> {
    try {
        return Integer.compare(s1.getInt("price"), s2.getInt("price"));
    } catch (JSONException e) {
        e.printStackTrace();
    }
    return 0;
});

SortedProducts[] ans=new SortedProducts[data.length()];

for (int i = 0; i < list.size(); i++){
    ans[i] = new SortedProducts(list.get(i).getString("barcode"));
}

return new ResponseEntity<SortedProducts[]>(ans, HttpStatus.OK);

}catch(Exception E)
{
System.out.println("Error encountered : "+E.getMessage());
return new ResponseEntity<SortedProducts[]>(HttpStatus.NOT_FOUND);
}

}

}
```

Candidate's Submission

Testcase	Test file	Status	Score
FilterPrice1	TEST-com.hackerrank.sample.SampleApplicationTests.xml	✓ Success	10.0 / 10.0
FilterPriceCheck2	TEST-com.hackerrank.sample.SampleApplicationTests.xml	✓ Success	10.0 / 10.0
FilterPriceCheck3	TEST-com.hackerrank.sample.SampleApplicationTests.xml	✓ Success	10.0 / 10.0
FilterPriceCheck4	TEST-com.hackerrank.sample.SampleApplicationTests.xml	✓ Success	10.0 / 10.0
SortCheck	TEST-com.hackerrank.sample.SampleApplicationTests.xml	✓ Success	10.0 / 10.0

Review logs: [output log](#)

[View candidate code](#)

 No comments.

3. Spring Boot: Multipart File Handling

✓ Correct

[Back-end Developer](#) [Spring Boot](#) [Easy](#) [File Handling](#) [File Validation](#)

Question description

File uploads and downloads are integral parts of many web applications. In this problem, you will be working with a project that provides a REST API for file upload and download operations with a few validations.

The definitions and detailed requirements list follow. You will be graded on whether your application performs data retrieval and manipulation based on given use cases exactly as described in the requirements.

Validations to be performed:

- If a file size exceeds 100KB, return the status code `INTERNAL_SERVER_ERROR` and don't store the file in the database.
- You are expected to use a file size limit constraint using configuration instead of doing it programmatically.

The REST service needs to expose 2 API endpoints for file uploads and downloads. All the uploaded files need to be stored in the local file system, which needs to be at `UPLOAD_DIR=PROJECT_ROOT/uploads`.

`POST` request to `/uploader`:

- receives two parameters, `fileName` and `file`
- stores the file in `UPLOAD_DIR` and returns status code 201 as a response
- if the user uploads the same `fileName` again, the previous file should be replaced with the latest one and return status code 201

`GET` request to `/downloader`:

- accepts `fileName` as a request parameter
- if the file exists, it should return the file with status code 200

- if the file doesn't exist, it should return status code 404

Your task is to complete the given project so that it passes all the test cases when running the provided unit tests.

▼ EXAMPLE REQUESTS AND RESPONSES

POST request to /uploader

Request body:

```
{  
  "fileName": "test_file.txt",  
  "file": content of test_file.txt  
}
```

The response code is 201. This puts the file into the UPLOAD_DIR.

GET request to /downloader

Request body:

```
{  
  "fileName": "test_file.txt"  
}
```

The response code is 200, and it returns test_file.txt as the response.

GET request to /downloader

Request body:

```
{  
  "fileName": "test_file2.txt"  
}
```

The response code is 404 because the file doesn't exist.

Candidate's Submission

Testcase	Test file	Status	Score
testDuplicateUpload	TEST-com.hackerrank.files.ApplicationTests.xml	Success	12.5 / 12.5
testFileSizeExceeds	TEST-com.hackerrank.files.ApplicationTests.xml	Success	12.5 / 12.5
testUpload	TEST-com.hackerrank.files.ApplicationTests.xml	Success	12.5 / 12.5

testDownload	TEST-com.hackerrank.files.ApplicationTests.xml	Success	12.5 / 12.5
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Review logs: [output log](#)

[View candidate code](#)

No comments.

4. Spring Boot: Rest Controller Advice Setup

Correct

[Back-end Developer](#) [Spring Boot](#) [REST Controller Advice](#) [Easy](#)

Question description

The `@ControllerAdvice` annotation in Spring Boot is used as an interceptor to handle exceptions thrown from the controller's `@RequestMapping` methods. It acts as a global exception-handling component for the entire application. This question is about setting up one such controller advice component using the `@ControllerAdvice` and `@ExceptionHandler` annotations.

The definitions and detailed requirements are listed as follows.

Given a rest controller class `FizzBuzzController.java`, there is a `GET` API endpoint to be modified, which can throw three types of runtime exceptions:

1. `FizzException`
2. `BuzzException`
3. `FizzBuzzException`

Below is the endpoint for the `GET` API with a single path parameter:

`GET /controller_advice/{code}`

Exceptions are to be thrown based on the value of the path param `{code}` passed to the REST API.

Here is a series of requests and their corresponding expected responses:

`GET` request to `/controller_advice/fizz`:

- Should trigger the `FizzException`
- Should return the response code 500 and the `GlobalError` as the response body

`GET` request to `/controller_advice/buzz`:

- Should trigger the `BuzzException`
- Should return the response code 400 and the `GlobalError` as the response body

`GET` request to `/controller_advice/fizzbuzz`:

- Should trigger the `FizzBuzzException`
- Should return the response code 507 and the `GlobalError` as the response body

`GET` request to `/controller_advice/success`:

- Should not trigger any exceptions

- Should return the response code 200 and the FizzBuzzResponse as the response body

Complete the project so that it passes all the test cases when running the provided unit tests. To do so, implement a controller advice global exception handler `FizzBuzzExceptionHandler`, intercept the runtime exceptions thrown from the `GET` API endpoint, and return a response entity wrapped in the `GlobalError` class.

The runtime exceptions and error response classes are already predefined in the project. Complete the implementation controller `GET` API endpoint and the controller advice classes.

▼ EXAMPLE REQUESTS AND RESPONSES

GET request to /controller_advice/fizz

The response code is 500, and when converted to JSON, the response body is:

```
{  
    "message": "Fizz Exception has been thrown",  
    "errorReason" : "Internal Server Error"  
}
```

GET request to /controller_advice/buzz

The response code is 400, and when converted to JSON, the response body is:

```
{  
    "message": "Buzz Exception has been thrown",  
    "errorReason" : "Bad Request"  
}
```

GET request to /controller_advice/fizzbuzz

The response code is 507, and when converted to JSON, the response body is:

```
{  
    "message": "FizzBuzz Exception has been thrown",  
    "errorReason" : "Insufficient Storage"  
}
```

GET request to /controller_advice/success

The response code is 200, and when converted to JSON, the response body is:

```
{  
    "message": "Successfully completed fizzbuzz test",  
    "statusCode": "200"  
}
```

Interviewer guidelines

FizzBuzzController.java

```
package com.hackerrank.restcontrolleradvice.controller;

import org.springframework.http.HttpStatus;
import org.springframework.http.MediaType;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.bind.annotation.RequestMethod;
import org.springframework.web.bind.annotation.RestController;

import com.hackerrank.restcontrolleradvice.dto.BuzzException;
import com.hackerrank.restcontrolleradvice.dto.FizzBuzzException;
import com.hackerrank.restcontrolleradvice.dto.FizzBuzzResponse;
import com.hackerrank.restcontrolleradvice.dto.FizzException;
import com.hackerrank.restcontrolleradvice.enums.FizzBuzzEnum;

@RestController
public class FizzBuzzController {

    @RequestMapping(value = "/controller_advice/{code}", method = RequestMethod.GET, produces = MediaType.APPLICATION_JSON_VALUE)
    public ResponseEntity<FizzBuzzResponse> getFizzBuzzResponse(@PathVariable("code") String code)
        throws FizzException, BuzzException, FizzBuzzException {
        if (FizzBuzzEnum.FIZZ.getValue().equals(code)) {
            throw new FizzException("Fizz Exception has been thrown", "Internal Server Error");
        } else if (FizzBuzzEnum.BUZZ.getValue().equals(code)) {
            throw new BuzzException("Buzz Exception has been thrown", "Bad Request");
        } else if (FizzBuzzEnum.FIZZBUZZ.getValue().equals(code)) {
            throw new FizzBuzzException("FizzBuzz Exception has been thrown", "Insufficient Storage");
        }

        //return FizzBuzzResponse
        return new ResponseEntity<>(new FizzBuzzResponse("Successfully completed fizzbuzz test", HttpStatus.OK.value()), HttpStatus.OK);
    }
}
```

FizzBuzzExceptionHandler.java

```
package com.hackerrank.restcontrolleradvice.exception;

import com.hackerrank.restcontrolleradvice.dto.BuzzException;
import com.hackerrank.restcontrolleradvice.dto.FizzBuzzException;
import com.hackerrank.restcontrolleradvice.dto.FizzException;
import com.hackerrank.restcontrolleradvice.dto.GlobalError;
import org.springframework.http.HttpHeaders;
import org.springframework.http.HttpStatus;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.ExceptionHandler;
import org.springframework.web.bind.annotation.RestControllerAdvice;
import org.springframework.web.context.request.WebRequest;
import org.springframework.web.servlet.mvc.method.annotation.ResponseEntityExceptionHandler;

@RestControllerAdvice
public class FizzBuzzExceptionHandler extends ResponseEntityExceptionHandler {

    @ExceptionHandler(FizzException.class)
    public final ResponseEntity<GlobalError> handleFizzException(Exception ex, WebRequest request) {
```

```

HttpHeaders headers = new HttpHeaders();
FizzException fe = (FizzException)ex;

return handleExceptionInternal(ex,new GlobalError(fe.getMessage(),fe.getErrorReason()),headers, HttpStatus.INTERNAL_SERVER_ERROR,
request);
}

@ExceptionHandler(BuzzException.class)
public final ResponseEntity<GlobalError> handleBuzzException(Exception ex, WebRequest request) {
    HttpHeaders headers = new HttpHeaders();
    BuzzException be = (BuzzException)ex;

    return handleExceptionInternal(ex,new GlobalError(be.getMessage(),be.getErrorReason()),headers,HttpStatus.BAD_REQUEST,request);
}

@ExceptionHandler(FizzBuzzException.class)
public final ResponseEntity<GlobalError> handleFizzBuzzException(Exception ex, WebRequest request) {
    HttpHeaders headers = new HttpHeaders();
    FizzBuzzException fbe = (FizzBuzzException) ex;
    return handleExceptionInternal(ex,new GlobalError(fbe.getMessage(),fbe.getErrorReason()),headers,HttpStatus.INSUFFICIENT_STORAGE,r
equest);
}

protected ResponseEntity<GlobalError> handleExceptionInternal(Exception ex, GlobalError body, HttpHeaders headers, HttpStatus status,
WebRequest request) {
    return new ResponseEntity<>(body, headers, status);
}
}

```

Candidate's Submission

Testcase	Test file	Status	Score
testFizzBuzzException	TEST-com.hackerrank.restcontrolleradvice.RestControllerAdviceTests.xml	Success	12.5 / 12.5
testFizzException	TEST-com.hackerrank.restcontrolleradvice.RestControllerAdviceTests.xml	Success	12.5 / 12.5
testFizzBuzzResponse	TEST-com.hackerrank.restcontrolleradvice.RestControllerAdviceTests.xml	Success	12.5 / 12.5
testBuzzException	TEST-com.hackerrank.restcontrolleradvice.RestControllerAdviceTests.xml	Success	12.5 / 12.5

Review logs: [output log](#)

[View candidate code](#)

 No comments.

5. Spring Boot: Custom Request Validator

 Correct

[Back-end Developer](#) [Spring Boot](#) [Easy](#) [Request Validation](#)

Question description

There is a tiny employee information system built using Spring Boot. Currently, the system accepts employee information as Employee objects from the client requests, but it lacks the validation of the Employee object attributes that checks for correctness. The application owner doesn't want invalid data to be saved in the system, meaning the employee information should be validated according to the given constraints. The REST API request is validated by using the `@Valid` request Bean Validation or programmatically by implementing a custom request validator. This question deals with setting up a custom request validator in order to validate a RESTful API request.

The given project has all the classes defined for accepting requests from clients and saving employee information into the database. It also uses a custom request validator `EmployeeValidator` to validate each `Employee` request object before saving it into the database. However, the validator currently does nothing, meaning it doesn't report any errors upon receiving invalid data. Your task is to complete the implementation of this custom request validator class `EmployeeValidator` so that it reports errors.

The validation constraints are given below:

1. `fullName`:

- validation: check if it's null or empty
- message: The `fullName` is a mandatory field

2. `mobileNumber`:

- validation: check if it's null or not of 10 digits
- message: The `mobileNumber` is a mandatory field

3. `emailId`:

- validation: check if it's null or empty
- message: The `emailId` is a mandatory field
- validation: check if it doesn't contain the @ sign
- message: The `emailId` should be in a valid email format

4. `emailId`:

- validation: check if it's null or empty
- message: The `dateOfBirth` is a mandatory field
- validation: check if it's not in YYYY-MM-DD format
- message: The `dateOfBirth` should be in YYYY-MM-DD format

NOTE: All the validation error messages must be reported in the same order as the corresponding field declaration order.

Here is an example of a valid employee data JSON object:

```
{  
  "fullName": "Foo Bar",  
  "mobileNumber": 9837465792,  
  "emailId": "test@gmail.com",  
  "dateOfBirth": "1990-01-01"  
}
```

There is a single REST API endpoint exposed for receiving employee information.

POST request to `/employee`:

- accepts an `Employee` object as a request body
- calls employee validator
- if there are no errors, then it returns status code 200
- if there are any errors, then `EmployeeValidationErrorHandler` returns a list of validation error messages `List<FieldValidationMessage>` with status code 400

Your task is to complete the given project so that it passes all the test cases when running the provided *unit* tests.

▼ EXAMPLE REQUESTS AND RESPONSES

POST request to /employee

Request body:

```
{  
  "fullName": null,  
  "mobileNumber": 0,  
  "emailId": null,  
  "dateOfBirth": null  
}
```

The response code is 400, and when converted to JSON, the response body is:

```
[  
  {  
    "message": "The fullName is a mandatory field"  
  },  
  {  
    "message": "The mobileNumber is a mandatory field"  
  },  
  {  
    "message": "The emailId is a mandatory field"  
  },  
  {  
    "message": "The dateOfBirth is a mandatory field"  
  }  
]
```

POST request to /employee

Request body:

```
{  
  "fullName": "",  
  "mobileNumber": 0,  
  "emailId": "",  
  "dateOfBirth": ""  
}
```

The response code is 400, and when converted to JSON, the response body is:

```
[  
  {  
    "message": "The fullName is a mandatory field"  
  },  
  {  
    "message": "The mobileNumber is a mandatory field"  
  },  
  {  
    "message": "The emailId is a mandatory field"  
  },  
  {  
    "message": "The dateOfBirth is a mandatory field"  
  }  
]
```

POST request to /employee

Request body:

```
{  
  "fullName": "Foo Bar",  
  "mobileNumber": 123456789,  
  "emailId": "test@gmail.com",  
  "dateOfBirth": "1990-01-01"  
}
```

The response code is 400, and when converted to JSON, the response body is:

```
[  
  {  
    "message": "The mobileNumber is a mandatory field"  
  }  
]
```

POST request to /employee

Request body:

```
{  
  "fullName": "Foo Bar",  
  "mobileNumber": 1234567891,  
  "emailId": "test-At-gmail.com",  
  "dateOfBirth": "1990-01-01"  
}
```

The response code is 400, and when converted to JSON, the response body is:

```
[  
  {  
    "message": "The emailId should be in a valid email format"  
  }  
]
```

POST request to /employee

Request body:

```
{  
  "fullName": "Foo Bar",  
  "mobileNumber": 1234567891,  
  "emailId": "test@gmail.com",  
  "dateOfBirth": "1990/01/01"  
}
```

The response code is 400, and when converted to JSON, the response body is:

```
[  
  {  
    "message": "The dateOfBirth should be in YYYY-MM-DD format"  
  }  
]
```

POST request to /employee

Request body:

```
{  
  "fullName": "Foo Bar",
```

```
"mobileNumber": 1234567891,
"emailId": "test@gmail.com",
"dateOfBirth": "1990-01-01"
}
```

The response code is 200. This adds a new object to the database with the given properties and id 1.

Candidate's Submission

Testcase	Test file	Status	Score
testEmptyEmployee	TEST-com.hackerrank.validator.EmployeeValidationTests.xml	Success	10.0 / 10.0
testInvalidMobileNumber	TEST-com.hackerrank.validator.EmployeeValidationTests.xml	Success	10.0 / 10.0
testInvalidEmailId	TEST-com.hackerrank.validator.EmployeeValidationTests.xml	Success	10.0 / 10.0
testInvalidDob	TEST-com.hackerrank.validator.EmployeeValidationTests.xml	Success	10.0 / 10.0
testNullEmployee	TEST-com.hackerrank.validator.EmployeeValidationTests.xml	Success	10.0 / 10.0

Review logs: [output log](#)

[View candidate code](#)

No comments.

6. MySQL: Column Deletion

Correct

Multiple Choice MySQL Easy

Question description

Choose the expression that deletes a column.

Candidate's Solution

Options: (Expected answer indicated with a tick)

DELETE status FROM queue

ALTER TABLE queue DROP COLUMN status

DELETE COLUMN status FROM queue ALTER TABLE queue DROP status COLUMN

ⓘ No comments.

7. MySQL: Self Join

✓ Correct

Multiple Choice MySQL Easy

Question description

Select an expression that demonstrates a self join type.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT * FROM users users, users clients

✓

 SELECT * FROM users SELF JOIN users AS clients SELECT * FROM users JOIN users AS clients None of the above, a self join type does not exist in MySQL

ⓘ No comments.

8. MySQL: Sorting Direction

✓ Correct

Multiple Choice MySQL Easy

Question description

Select the extraneous expression (not the same as the others).

Select all that apply.

Candidate's Solution**Options:** (Expected answer indicated with a tick) SELECT * FROM categories ORDER BY id SELECT * FROM categories ORDER BY id ASC SELECT * FROM categories ORDER BY id DESC (✓) None of the above, all expressions are the same.(i) No comments.**9. MySQL: Comma In From Clause**(✓) Correct

Multiple Choice MySQL Easy

Question description

Choose the correct explanation of the next query:

SELECT * FROM users, clients

Candidate's Solution**Options:** (Expected answer indicated with a tick) Selects everything in the "users" table, then adds columns from the "clients" table. (✓) If the "users" table exists, selects everything from there. Otherwise, queries the "clients" table as a fallback. Selects everything in the "users" table, then assigns the "clients" alias.

- Selects everything in the “users” table, then adds rows from the “clients” table.

① No comments.

10. MySQL: Space In From Clause

✓ Correct

Multiple Choice MySQL Easy

Question description

Choose the correct explanation of the next query:

Select all that apply.

```
SELECT * FROM users clients
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

- Selects everything in the “users” table, then adds columns from the “clients” table.

- If the “users” table exists, selects everything from there. Otherwise, queries the “clients” table as a fallback.

- Selects everything in the “users” table, then assigns the “clients” alias.

✓

- Selects everything in the “users” table, then adds rows from the “clients” table.

① No comments.

11. MySQL: Combining Tables

✓ Correct

Multiple Choice MySQL Easy

Question description

Select the expressions that cause a MySQL error.

Candidate's Solution**Options:** (Expected answer indicated with a tick) SELECT * FROM logs l1 JOIN logs l2 ON l1.id = l2.id SELECT * FROM logs l1 AND FROM logs l2 ON l1.id = l2.id (✓) SELECT * FROM logs l1 UNION logs l2 ON l1.id = l2.id (✓) SELECT * FROM logs l1 LEFT JOIN logs l2 ON l1.id = l2.id(i) No comments.**12. MySQL: Result Limit Offset**(✓) Correct

Multiple Choice MySQL Easy

Question description

Select the expression with the correct syntax.

Candidate's Solution**Options:** (Expected answer indicated with a tick) SELECT * FROM logs LIMIT 3, 5 (✓) SELECT * FROM logs LIMIT 3 - 5 SELECT * FROM logs LIMIT 3 TO 5 SELECT * FROM logs LIMIT 3 FOR 5(i) No comments.

13. MySQL: Rounding Numbers

Correct

Multiple Choice MySQL Easy

Question description

Choose an expression that returns 0.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT CEIL(.4) SELECT ROUND(.5) SELECT FLOOR(.6) None of the above, all expressions return 1

ⓘ No comments.

14. MySQL: Field Selection

Correct

Multiple Choice MySQL Easy

Question description

Select the expression that causes a MySQL error.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT 1, 2, 3 SELECT 1 2 3

SELECT '1 2 3'; None of the above, all expressions are correct

ⓘ No comments.

15. MySQL: Result Set Combine Operator

✓ Correct

Multiple Choice Easy MySQL

Question description

This operator is used to combine the result set of two or more SELECT statements.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 FIND_IN_SET GROUP BY UNION COMBINE

ⓘ No comments.

16. MySQL: Condition Operators

✓ Correct

Multiple Choice Easy Database

Question description

Which expression causes a MySQL error?

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT IF(1 < 2, 'yes', 'no')

SELECT IFNULL(NULL, 10)

SELECT CASE WHEN 1>0 THEN 'true' ELSE 'false' END

SELECT IFNOT('true', FALSE)

SELECT NULLIF(1, 1)

 No comments.

17. MySQL: GROUP BY Statement

 Correct

Multiple Choice MySQL Easy

Question description

Select the expression that is not correct.

Candidate's Solution

Options: (Expected answer indicated with a tick)

The GROUP BY statement groups rows with the same value into total rows.

Aggregate functions (COUNT(), MAX(), MIN(), etc.) can be used only with an explicit GROUP BY statement.

You can apply an additional condition after the grouping using the HAVING clause.

None of the above, all expressions are correct.

① No comments.

18. MySQL: Joins

✓ Correct

Multiple Choice MySQL Easy

Question description

Which expression is not correct?

Candidate's Solution

Options: (Expected answer indicated with a tick)

MySQL joins are used to join rows from two or more tables based on the associated column between them.

The INNER JOIN keyword selects records that have matching values in both tables.

A self-join is just a normal join, but the table joins itself.

Using the RIGHT JOIN keyword returns only records that are joined in the right way.

✓

① No comments.

19. MySQL: NULL Constraint

✓ Correct

Multiple Choice MySQL Easy Constraints

Question description

Which of the following SQL CREATE TABLE statements differs from the others in terms of the NULL constraint?

Interviewer guidelines

Option 3 places a NOT NULL constraint. The first option implicitly and the second explicitly allows NULLs.

Candidate's Solution

Options: (Expected answer indicated with a tick)

CREATE TABLE users (id INT) CREATE TABLE users (id INT NULL) CREATE TABLE users (id INT NOT NULL) None of the above, all expressions are the same.

ⓘ No comments.

20. MySQL: Deleting a Database

Correct

Multiple Choice Easy

Question description

Which expression has the correct syntax?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 REMOVE DATABASE users DELETE DATABASE users DROP DATABASE users DESTROY DATABASE users

ⓘ No comments.

21. MySQL: Creating a Database

Correct

Multiple Choice Easy MySQL

Question description

Select the expression with the correct syntax.

Candidate's Solution

Options: (Expected answer indicated with a tick)

CREATE DATABASE WITH NAME users

CREATE DB WITH NAME users

CREATE DB users

CREATE DATABASE users



! No comments.

22. MySQL: Comment Types

✓ Correct

Multiple Choice MySQL Easy

Question description

Which of the following are MySQL comments?

Candidate's Solution

Options: (Expected answer indicated with a tick)

this is the comment



-- this is the comment



/* this is the comment */



<!-- this is the comment -->

ⓘ No comments.

23. MySQL: Deleting a Table

Correct

Multiple Choice MySQL Easy

Question description

Select the expression(s) with the correct syntax.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 DROP TABLE IF EXISTS users **DELETE TABLE IF EXISTS users** **DROP TABLE users** **DESTROY TABLE users**

ⓘ No comments.

24. MySQL: Join Type That Left Then Right

Correct

Multiple Choice MySQL Easy

Question description

Which of these MySQL join types return all records from the left table and the matched records from the right table?
Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

LEFT JOIN LEFT INNER JOIN LEFT RIGHT JOIN LEFT OUTER JOIN

ⓘ No comments.

25. MySQL: String Comparison

Correct

Multiple Choice MySQL Easy

Question description

Select the expression that causes a MySQL error.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT * FROM transactions WHERE flag IN('A', 'B', 'C') SELECT * FROM transactions WHERE flag BETWEEN 'A' AND 'C'; SELECT * FROM transactions WHERE flag >= 'A' AND flag <= 'C'; none of the above, all expressions are correct

ⓘ No comments.

26. MySQL: Join Type That Matching Values in Both Tables

Correct

Multiple Choice MySQL Easy

Question description

Which MySQL join type returns records that have matching values in both tables?
Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

OUTER JOIN

INNER JOIN

CROSS JOIN

FULL JOIN

ⓘ No comments.

27. MySQL: Results Order

Correct

Multiple Choice MySQL Easy

Question description

Select the expression that causes a MySQL error.
Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT id, name FROM customers ORDER BY name ASC

SELECT id, name FROM customers ORDER BY name

SELECT id, name FROM customers ORDER BY 2 none of the above, all expressions are correct

ⓘ No comments.

28. MySQL: White Space in Field Alias

Correct

Multiple Choice MySQL Easy

Question description

Select the expressions with correct syntax.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT name AS "customer name" FROM customers SELECT name AS 'customer name' FROM customers SELECT name AS `customer name` FROM customers SELECT name AS customer\ name FROM customers

ⓘ No comments.

29. MySQL: Join Types

Correct

Multiple Choice MySQL Easy

Question description

Which of the following are valid MySQL join types?

Select all that apply.

Candidate's Solution**Options:** (Expected answer indicated with a tick) LEFT CROSS RIGHT TOPⓘ No comments.**30. Student Result**

Correct

Multiple Choice SQL Easy

Question description

Consider the table below:

Table Student

ID	SCORE
1	2
2	5
3	5
4	6
5	9

How many tuples does the result of the following SQL query contain where result = 'Supplementary'?

```
SELECT id,
CASE
WHEN score<=2 THEN 'Fail'
WHEN score<6 THEN 'Supplementary'
ELSE 'Distinction'
```

END as result
FROM student

Candidate's Solution

Options: (Expected answer indicated with a tick)



2



3



0



1

No comments.

31. Common Students

Correct

Multiple Choice SQL Easy

Question description

Consider the following tables:

Table s1

column	description
id	unique identifier
name	student name

Table s2

column	description
id	unique identifier
name	student name

Which of the following SQL queries will result in students' names common to both tables having the same id, sorted alphabetically? Multiple students can have the same name but their ids will be unique.

Candidate's Solution

Options: (Expected answer indicated with a tick)

select s1.name from s1 INNER JOIN s2 ON s1.id=s2.id ORDER BY s1.name



select name from s1 OUTER JOIN s2 ON s1.id=s2.id ORDER BY id

select s1.name from s1 LEFT JOIN s2 ON s1.id=s2.id ORDER BY name

select name from s1 LEFT JOIN s2 ON s1.id>s2.id

No comments.

32. MySQL: Results Limit

Correct

Multiple Choice MySQL Easy

Question description

Select expressions with correct syntax.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT * FROM customers LIMIT 5 OFFSET 10



SELECT * FROM customers LIMIT 5 + 10

SELECT * FROM customers LIMIT 5 TO 10

SELECT * FROM customers LIMIT 5, 10



ⓘ No comments.

33. MySQL: Like Expression Pattern

Correct

Multiple Choice MySQL Easy

Question description

Select all ID values that will NOT be matched by the following query

Select all that apply.

SELECT id FROM customers WHERE id LIKE '_a%'

Candidate's Solution

Options: (Expected answer indicated with a tick)

_a%

fa23345f-ad73-404d-8988-72f1385e3aeb

_a466d3

none of the above, all values will be matched



ⓘ No comments.

34. Output Rows

Correct

Multiple Choice SQL Easy

Question description

Consider the following tables:

Table A

ID	Name	Salary
101	John	1500
102	Steve	1500
103	Remo	500
104	Alan	2000
105	Maverick	1000
106	Glen	2000
107	Jacob	2000

Table B

ID	Department
101	Sales
102	Finance
103	Finance
104	HR
105	HR
106	Sales
107	IT

How many tuples does the following SQL query return?

```
SELECT * FROM (SELECT b.department,
Avg(a.salary) AS avg_Salary
FROM a
LEFT JOIN b
ON a.id = b.id
GROUP BY b.department) AS C
WHERE C.avg_salary > 1500
```

Candidate's Solution

Options: (Expected answer indicated with a tick)



0



1



2



3

No comments.

35. SQL Order of Operations

Correct

 Multiple Choice SQL Easy

Question description

Which is the correct order of execution of operations in SQL?

Candidate's Solution

Options: (Expected answer indicated with a tick)



SELECT, FROM, JOIN, WHERE, GROUP BY, HAVING, ORDER BY



SELECT, FROM, GROUP BY, WHERE, HAVING, ORDER BY



FROM, GROUP BY, WHERE, ORDER BY, HAVING, SELECT



SELECT, FROM, GROUP BY, HAVING, WHERE, ORDER BY

No comments.

36. Select Statements

Correct

 Multiple Choice SQL Easy Database

Question description

Which of the following SELECT statements prints the string 56? Choose all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`SELECT SUBSTR ('123456',5) FROM DUAL ;`



`SELECT SUBSTR ('123456',-2) FROM DUAL ;`



`SELECT SUBSTR ('123456',5,2) FROM DUAL ;`



`SELECT SUBSTR ('123456',-2,2) FROM DUAL`



No comments.

37. Which command?

Correct

Multiple Choice SQL Easy Database

Question description

There are multiple records in a table and some are duplicates. Which command will fetch only one copy of the duplicate records?

Candidate's Solution

Options: (Expected answer indicated with a tick)

`SELECT DISTINCT`



`SELECT UNIQUE`

`SELECT DIFFERENT`

All of the above

① No comments.

38. SQL ROUND

Correct

Multiple Choice SQL Easy Database

Question description

The SQL statement

```
SELECT ROUND(45.926, -2) FROM DUAL ;
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

is illegal

prints garbage

prints 45.92

prints 0



① No comments.

39. Print the Domain Name

Correct

Multiple Choice SQL Easy Database

Question description

The email has the value of an email ID. Fill in the blanks of the following SQL statements so that it prints the domain name. The domain name of `nyname@abcd.com` is `abcd.com`.

```
SELECT SUBSTR (email,INSTR (email,_____)FROM DUAL ;
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

 '@',1)+1 '@',1)) '@',1)-1) none of these

① No comments.

40. Which command is behaving incorrectly?

Correct

Multiple Choice SQL Database Easy

Question description

What command should you try if DBMS_OUTPUT.PUT_LINE is not doing what it is supposed to do?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SET ECHO ON SET DISPLAY ON SET TERMOUT ON SET SERVEROUTPUT ON

① No comments.

41. MySQL: Search In Specific Range Of Values

Correct

Multiple Choice MySQL Easy

Question description

Select the expression with the correct syntax.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT * FROM logs WHERE priority IN ('high', 'medium')

Correct

SELECT * FROM logs WHERE priority VALUES IN ('high', 'medium')

SELECT * FROM logs WHERE priority IN VALUES ('high', 'medium')

SELECT * FROM logs WHERE priority IN SET ('high', 'medium')

! No comments.

42. MySQL: PRIMARY KEY Constraint

Correct

Multiple Choice Easy MySQL

Question description

Which expression is not correct?

Candidate's Solution

Options: (Expected answer indicated with a tick)

The primary key uniquely identifies each record in the table.

The primary key must contain unique values.

The primary key can contain NULL values, but this is highly undesirable for performance reasons.



A table can have only one primary key.

! No comments.

43. MySQL: Null Value Comparison

Correct

Multiple Choice MySQL Medium

Question description

Choose the expressions that are not correct.

Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT * FROM categories WHERE id < NULL



SELECT * FROM categories WHERE id != NULL



SELECT * FROM categories WHERE id IS NULL

SELECT * FROM categories WHERE id IS NOT NULL

! No comments.

44. MySQL: Group By Clause

Correct

Multiple Choice MySQL Medium

Question description

Select the expression that causes a MySQL error.

Select all that apply.

Interviewer guidelines

Correct Answer:

- Option [D] – None of the above, all expressions are correct
- Explanation: All the SQL queries given are syntactically valid in MySQL and will run without errors.

Incorrect Answers:

- Option [A] – `SELECT AVG(id) FROM categories`
- Explanation: This query correctly calculates the average of the `id` column in the `categories` table. No issue here.
- Option [B] – `SELECT AVG(id) FROM categories GROUP BY type`
- Explanation: This query correctly groups the data by the `type` column and then calculates the average of `id` for each group.
- Option [C] – `SELECT 'average', AVG(id) FROM categories GROUP BY 1`
- Explanation: The string '`'average'`' is treated as a constant, and `GROUP BY 1` groups by the first column in the `SELECT` list. Since it's constant, the entire result is one group, making the query valid.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`SELECT AVG(id) FROM categories`

`SELECT AVG(id) FROM categories GROUP BY type`

`SELECT 'average', AVG(id) FROM categories GROUP BY 1`

None of the above, all expressions are correct



No comments.

45. MySQL: Nested Comments

Correct

Multiple Choice MySQL Medium

Question description

Select the expressions that cause a MySQL error.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`SELECT * FROM /* # */ categories`

SELECT * FROM /* /* # */ categories SELECT * FROM /* # */ /* categories SELECT * FROM /* /* # */ /* categories

ⓘ No comments.

46. MySQL: Ampersand in Select Clause

ⓘ Correct

Multiple Choice MySQL Medium

Question description

Select the expression that causes a MySQL error.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT level & depth FROM Categories SELECT level && depth FROM Categories SELECT level '''''''' depth FROM Categories SELECT level ''''''''& depth FROM Categories None of the above, all expressions are correct.

ⓘ No comments.

47. MySQL: Pipe In Select Clause

ⓘ Correct

Multiple Choice MySQL Medium

Question description

Select the expression that causes a MySQL error.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT level | depth FROM Categories

SELECT level || depth FROM Categories

SELECT level ||| depth FROM Categories (✓)

SELECT level |'| depth FROM Categories

! No comments.

48. MySQL: String Trimming

(✓) Correct

Multiple Choice Medium MySQL

Question description

Choose the expression that retrieves the base domain "domain.com".

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT LTRIM('www.domain.com', 'www.')

SELECT TRIM(LEADING 'www.' FROM 'www.domain.com') (✓)

SELECT TRIM(LEFT 'www.' FROM 'www.domain.com')

All expressions are correct

① No comments.

49. MySQL: Substring Extraction

✖ Incorrect

Multiple Choice MySQL Medium

Question description

Choose the expression that retrieves the base domain "domain.com".

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT SUBSTRING_INDEX('my.subdomain.domain.com', '.', -2) SELECT SUBSTRING_INDEX('my.subdomain.domain.com', 'my.subdomain.', 1) SELECT SUBSTRING_INDEX('my.subdomain.domain.com', '.', 2, 2) All expressions are correct

① No comments.

50. MySQL: Substring Function

✓ Correct

Multiple Choice MySQL Medium

Question description

Select the MySQL expression that returns a different value from the others.

Interviewer guidelines

All expressions return @

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT SUBSTR('user@domain.com', 5, 1)

SELECT SUBSTR('user@domain.com', 5 FOR 1)

SELECT SUBSTR('user@domain.com', -11 FOR 1)

None of the above, all expressions return the same value.



No comments.

51. MySQL: Comparing Types

Correct

Multiple Choice MySQL Medium

Question description

Choose the expression that returns 0.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT '0' = 0

SELECT 0 IS FALSE

SELECT '0' IS FALSE

SELECT STRCMP('0', 0)



No comments.

52. MySQL: Repeating Strings

Correct

Multiple Choice MySQL Medium

Question description

Select the expression that causes a MySQL error.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT STRREPEAT(';', 10) SELECT SPACE(10) SELECT REPEAT(';', 10) None of the above, all expressions are correct.

No comments.

53. MySQL: ANY and ALL Operators

Correct

Multiple Choice MySQL Medium

Question description

Select the expression that is not correct.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 The ANY and ALL operators allow the comparison of a value in one column to a range of other values. The ANY operator returns the first available record as the result of a query, while the ALL operator returns a subset only if the entire query condition is true.

The ALL operator returns TRUE if all sub-query values satisfy the condition.

The ANY operator returns TRUE if any of the sub-query values meet the condition.

 No comments.

54. MySQL: AUTO_INCREMENT Attribute

 Correct

Multiple Choice Medium MySQL

Question description

Which expression is not correct?

Candidate's Solution

Options: (Expected answer indicated with a tick)

If the column is declared NOT NULL, it is possible to assign NULL to the column to generate sequence numbers.

Updating an existing AUTO_INCREMENT column value resets the AUTO_INCREMENT sequence.

The initial value for AUTO_INCREMENT is fixed and always equal to 1. It will increase by 1 for each new entry.



When the column reaches the upper limit of the data type, the next attempt to generate a sequence number fails.

 No comments.

55. MySQL: DEFAULT Constraint

 Correct

Multiple Choice MySQL Medium

Question description

Select the expressions that cause a MySQL error.

Candidate's Solution

Options: (Expected answer indicated with a tick)

CREATE TABLE users (user VARCHAR(255) DEFAULT 'test')

CREATE TABLE users (status VARCHAR(255) DEFAULT NULL)

CREATE TABLE users (id VARCHAR(255) DEFAULT NOT NULL)



CREATE TABLE users (id VARCHAR(255) DEFAULT RAND())



No comments.

56. MySQL: FOREIGN KEY Constraint

Correct

Multiple Choice MySQL Medium Constraints

Question description

Which expression is not correct?

Interviewer guidelines

From the [MySQL Reference Manual](#) for foreign key constraints:

- MySQL supports foreign key references between one column and another within a table.
- A column cannot have a foreign key reference to itself.
- Corresponding columns in the foreign key and the referenced key must have similar data types.

Candidate's Solution

Options: (Expected answer indicated with a tick)

A column might have a foreign key reference to itself.



MySQL supports foreign key references between one column and another within a table.

Corresponding columns in the foreign key and the referenced key must have similar data types.

- None of the above, all expressions are correct.

① No comments.

57. MySQL: UNIQUE Constraint

Correct

Multiple Choice MySQL Medium

Question description

Which expression causes a MySQL error?

Candidate's Solution

Options: (Expected answer indicated with a tick)

CREATE TABLE users (first_name VARCHAR(255), last_name VARCHAR(255), CONSTRAINT unique_name UNIQUE (first_name, last_name))

CREATE TABLE users (first_name VARCHAR(255) UNIQUE, last_name VARCHAR(255) UNIQUE)

CREATE TABLE users (first_name VARCHAR(255), last_name VARCHAR(255), UNIQUE (first_name, last_name))

None of the above, all expressions are correct.

① No comments.

58. MySQL: Table Constraints

Correct

Multiple Choice MySQL Medium

Question description

Select an expression that is not a table constraint definition.

Candidate's Solution

Options: (Expected answer indicated with a tick)

PRIMARY KEY FOREIGN KEY CHECK None of the above. ⓘ No comments.

59. MySQL: Creating a Table

Correct

Multiple Choice MySQL Medium

Question description

Which expression causes a MySQL error?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 CREATE TABLE users (id INT PRIMARY KEY) CREATE TABLE IF NOT EXISTS users_backup LIKE users CREATE TABLE IF NOT EXISTS users_backup AS SELECT * FROM users None of the above, all expressions are correct. ⓘ No comments.

60. MySQL: Group By Condition

Correct

Multiple Choice MySQL Medium

Question description

Select the expressions that cause a MySQL error.

Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT customer_id, COUNT(*) FROM transactions GROUP BY customer_id HAVING COUNT(*) > 10

SELECT customer_id, COUNT(*) AS transactions FROM transactions GROUP BY customer_id HAVING transactions > 10

SELECT customer_id, COUNT(*) AS transactions FROM transactions WHERE transactions > 10 GROUP BY customer_id (✓)

SELECT customer_id, COUNT(*) AS transactions FROM transactions GROUP BY 1 HAVING transactions > 10

(i) No comments.

61. MySQL: Group Field

(✓) Correct

Multiple Choice MySQL Medium

Question description

Select the expression that causes a MySQL error.

Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT customer_id, ANY_VALUE(amount) FROM transactions GROUP BY customer_id

SELECT customer_id, RAND(amount) FROM transactions GROUP BY customer_id (✓)

SELECT customer_id, SUBSTRING_INDEX(GROUP_CONCAT(amount ORDER BY RAND()), ',', 1) FROM transactions GROUP BY customer_id

none of the above, all expressions are correct

 No comments.

62. MySQL: Group By Having

 Correct

Multiple Choice MySQL Medium

Question description

Select the expression(s) that will cause a MySQL error.
Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT customer_id, COUNT(*) FROM transactions GROUP BY customer_id HAVING COUNT(*) > 10

SELECT customer_id, COUNT(*) AS transactions FROM transactions GROUP BY customer_id HAVING transactions > 10

SELECT customer_id, COUNT(*) FROM transactions GROUP BY customer_id HAVING COUNT(customer_id) > 10

SELECT customer_id, COUNT(*) FROM transactions GROUP BY 1 HAVING COUNT(*) > 10

none of the above, all expressions are correct



 No comments.

63. MySQL: Group By Order

 Correct

Multiple Choice MySQL Medium

Question description

Which expression causes a MySQL error?

Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT is_active, COUNT(*) FROM transactions GROUP BY is_active ORDER BY 2

SELECT is_active, COUNT(*) FROM transactions GROUP BY is_active ORDER BY COUNT(*)

SELECT is_active, COUNT(*) AS transactions FROM transactions GROUP BY is_active ORDER BY transactions

none of the above, all expressions are correct



No comments.

64. MySQL: Group Variations

Correct

Multiple Choice MySQL Medium

Question description

Select any expression(s) with the correct syntax.

Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT customer_id, MAX(is_active) FROM transactions GROUP BY customer_id HAVING MAX(is_active)



SELECT customer_id, is_active FROM transactions GROUP BY customer_id HAVING MAX(is_active)

SELECT customer_id, DISTINCT is_active FROM transactions GROUP BY customer_id HAVING MAX(is_active)

SELECT customer_id, MAX(is_active) AS is_active FROM transactions GROUP BY customer_id HAVING is_active



No comments.

65. MySQL: Distinct Select Multiple Tables

Correct

Multiple Choice MySQL Medium

Question description

Select any expression(s) with the correct syntax.

Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT DISTINCT id FROM customers, customers

SELECT a.id, DISTINCT b.id FROM customers a, customers b

SELECT DISTINCT a.id, DISTINCT b.id FROM customers a, customers b

SELECT DISTINCT a.id, b.id FROM customers a, customers b



No comments.

66. MySQL: Substring Function

Correct

Multiple Choice MySQL Medium

Question description

Select the expression(s) with the correct syntax.

Candidate's Solution

Options: (Expected answer indicated with a tick)

SELECT SUBSTRING(status, 2, 5) FROM customers (✓) SELECT SUBSTRING(status FROM 2 FOR 5) FROM customers (✓) SELECT SUBSTRING(status FROM 2 TO 5) FROM customers SELECT SUBSTRING(status WITH 2 TO 5) FROM customers

ⓘ No comments.

67. MySQL: Select Multiple Tables

(✓) Correct

Multiple Choice MySQL Medium

Question description

Select the expressions that cause a MySQL error.

Select all that apply.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 SELECT a.id, b.id FROM customers a, customers b SELECT id, id FROM customers, customers (✓) SELECT id FROM customers, customers (✓) SELECT a.id, id FROM customers a, customers (✓)

ⓘ No comments.

68. SQL Statements

(✓) Correct

Multiple Choice SQL Easy

Question description

Which of the following statement(s) are **NOT** correct:

Candidate's Solution

Options: (Expected answer indicated with a tick)

The PRIMARY KEY must be unique and not null for each table.

The DROP command is used to remove the table definition and its contents whereas the TRUNCATE command is used to delete all the rows from the table.

DELETE command is a DDL command whereas DROP is a DML command. (Correct)

ACID properties in databases refer to Atomicity, Complexity, Isolation, and Duplication. (Correct)

(1) No comments.

69. MySQL: Table Alteration

(Correct)

Multiple Choice Medium

Question description

Select the expressions that are correct.

Interviewer guidelines

Why option 3 is invalid:

`TRUNCATE TABLE table_name;` is generally used to quickly delete all rows from a table.

It is possible to use `ALTER TABLE` to delete all data in a table, but it is not common.

`ALTER TABLE table_name DISCARD TABLESPACE;`

- This removes the table's data and tablespace, effectively clearing all data.
- However, you need to recreate the tablespace using: `ALTER TABLE table_name IMPORT TABLESPACE;` (requires an existing backup of the tablespace).

Thus, while `ALTER TABLE` can technically clear all data using `DISCARD TABLESPACE`, it is not the usual or recommended way.

Why option 4 is invalid:

ALTER TABLE old_table RENAME new_table; is the equivalent of RENAME old_table TO new_table;

Candidate's Solution

Options: (Expected answer indicated with a tick)

The ALTER TABLE statement is used to add, remove, or change existing columns in a table. (Correct)

The ALTER TABLE statement is used to add and remove various constraints in a table. (Correct)

The ALTER TABLE statement is the preferred method to delete all data in a table.

The ALTER TABLE statement cannot be used to rename a table.

(1) No comments.

70. Query Based Question 3

(Correct)

Multiple Choice React Easy

Question description

Consider the following code.

```
import React from "react";

class App extends React.Component {
state = {
name: "",
email: "",
contact: ""
};

setValue = (event) => {};

render() {
const { name, email, contact } = this.state;
return (

```

```
<React.Fragment>
  <p>Name = {name}</p>    <p>Email = {email}</p>    {" "}
  <p>Contact = {contact}</p>
  <input name="name" onChange={this.setValue} />
  <input name="email" onChange={this.setValue} />
  <input name="contact" onChange={this.setValue} />    {" "}
</React.Fragment>
);
}
}
}

export default App;
```

There is a common `setValue` function that is used to update all the states on change. Which of the following options provides that functionality?

Interviewer guidelines

This is the correct method to pass a dynamic key to an object. As the names of the inputs are the same as the state variable name so we will fetch the name and value from the event.target object while on change event and pass it dynamically to the `setState` function

Candidate's Solution

Options: (Expected answer indicated with a tick)

`setValue = (event) => { this.setState({ [event.target.name]: event.target.value }); };`



`setValue = (event) => { this.setState({event.target.name: event.target.value}); };`

`setValue = (event) => { this.setState({ [event.name]: event.value }); };`

None of the above

① No comments.

71. Class Component Initial Rendering

Correct

Multiple Choice React Class Components Easy

Question description

Consider the following code.

```
import React from "react";
class App extends React.Component {
```

```
constructor(props) {
  super(props);
  this.state = {
    Number: 0
  };
}

componentDidMount() {
  this.increment()
  this.increment()
  this.increment()
}

componentWillUnmount(){
  this.increment()
}

increment = () => {
  this.setState({
    Number: this.state.Number + 1
  });
};

render() {
  return (
    <div>
      <p>Number: {this.state.Number}</p>
      <button onClick={this.increment}>Increment</button>
    </div>
  );
}

export default App;
```

While first rendered, what is displayed in the *p* tag?

Interviewer guidelines

We are using set state for incrementing the number and we know that setState works in an asynchronous way so the next increment function will not affect immediately so the console will print 1 only.

Candidate's Solution

Options: (Expected answer indicated with a tick)



0



1



3

Undefined! No comments.

72. React Class Component State

Correct

Multiple Choice React Class Components Easy

Question description

What is the output?

```
import React from "react"

class App extends React.Component {
  constructor(props) {
    super(props);
    this.state = { Number: 0 };
  }

  componentDidMount() {
    this.setState({ Number: 1 });
    console.log(this.state.Number);
    this.setState({ Number: 2 });
    console.log(this.state.Number);
    this.setState({ Number: 3 }, () => {
      console.log(this.state.Number);
    });
  }

  render() {
    return <div>{this.state.Number}</div>;
  }
}

export default App;
```

Interviewer guidelines

setState function runs in an asynchronous way so the first two calls will not update it immediately

Candidate's Solution

Options: (Expected answer indicated with a tick)

 0,0,0

1,1,1 1,2,3 0,0,3

No comments.

73. State Update

Incorrect

Multiple Choice React React Hooks Functional Components Easy

Question description

Consider the following code.

```
import React, { useState } from "react";

const App = () => {
  const [student, setStudent] = useState({
    Name: "Abc",
    Roll: "123",
    Presence: 0,
  });

  const update = (Presence) => {
  };

  return (
    <>
      <p>{student.Presence}</p>
      <button onClick={() => update(student.Presence + 1)}>
        Update Student
      </button>
    </>
  );
};

export default App;
```

Which option increments the student presence by 1?

Interviewer guidelines

This is the correct way to make use of the spread operator for updating an object's values.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 this.setState({Presence}); setStudent(pre=>{...pre,Presence}); setStudent({ ...student, Presence }); None of the above

① No comments.

74. Initial Rendering

Correct

Multiple Choice React Easy Functional Components State Management

Question description

What is the output of the following code?

```
import React, { useState } from "react";

const App = () => {
  const [number, setNumber] = useState(0);
  console.log(number); //output
  return (
    <>
    <p>{number}</p>
    <button onClick={setNumber((pre) => pre + 1)}>increment</button>
    </>
  );
}

export default App;
```

Interviewer guidelines

Initially, the number state is having a value of 0, but the setNumber function is being called incorrectly on the click event, so it will take the process to an infinite loop, which will then ultimately consider an Error.

Candidate's Solution

Options: (Expected answer indicated with a tick)

0 1 undefined Error

No comments.

75. State Management

Correct

Multiple Choice State Management Easy

Question description

Which change to the following code will cause it to increment *count* every second.

```
function Counter() {
  let [count, setCount] = useState(0);
  useEffect(() => {
    let id=setInterval(() => {
      setCount(count + 1);
    }, 1000);
    return () => clearInterval(id);
  }, []);
  return <h1>{count}</h1>;
}
```

Interviewer guidelines

Answer: D

Explanation: The reason is that the function passed to setInterval() remains the same as when it was passed, so the variables in it also do not change.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Replace line 5 with setCount(++count);

Replace line 5 with setCount(prevCount+ 1); Replace line 5 with setCount(count++); Replace line 5 with setCount(prevCount > prevCount+ 1); (✓) None of the above(1) No comments.

76. Event

(✓) Correct[Multiple Choice](#) [Event Handlers](#) [Easy](#)

Question description

Which React code snippet returns the mouse position?

Interviewer guidelines

Correct Answer: A

Explanation: We need to use the "mousemove" event to capture the position of mouse. And in useEffect a callback that removes the event should also be present for cleanup.

Candidate's Solution

Options: (Expected answer indicated with a tick)

```
<pre> <code class="language-javascript">useEffect (() => { const setFromEvent = (e) => setPosition({ x: e.clientX, y: e.clientY }); window.addEventListener("mousemove", setFromEvent); return () => { window.removeEventListener("mousemove", setFromEvent); }; }, []);</code></pre>
```

(✓)

```
<pre> <code class="language-javascript">useEffect (() => { const setFromEvent = (e) => setPosition({ x: e.clientX, y: e.clientY }); window.addEventListener("mousemove", setFromEvent); }, []);</code></pre>
```

<p>Both of the snippets above will provide the functionality required.</p>

<pre> <code class="language-javascript">useCallback(() => { const setFromEvent = (e) => setPosition({ x: e.clientX, y: e.clientY }); window.addEventListener("mousemove", setFromEvent); return () => { window.removeEventListener("mousemove", setFromEvent); }; }, [])</code></pre>

<p>None of the above</p>

 No comments.

77. React: True statements

 Partially correct

Multiple Choice React Front-End Development Easy

Question description

Which of the following statement(s) is true about ReactJS?

1. Only one root element can be returned per component.
2. Both arguments of the useEffect hook are compulsory.
3. The useState hook returns an object.
4. The useState hook cannot be used outside of a functional component.

Interviewer guidelines

1. We can return only one root element in react. (True)
2. The second argument of useEffect hook i.e the dependency is not compulsory.
3. useState hook returns an **array**.
4. We cannot use useEffect hook outside the functional component (True)

Candidate's Solution

Options: (Expected answer indicated with a tick)

1



2

3

4

! No comments.

78. React: Route

Correct

Multiple Choice React Front-End Development Router Easy

Question description

```
import React from 'react';
import {BrowserRouter as Router, Switch, Route} from "react-router-dom";
import Home from "./Home";
import About from "./About";

function App() {
  return (
    <Router>
      <Switch>
        <Route path="/" component={Home} />
        <Route path="/about" exact component={About} />
      </Switch>
    </Router>
  )
}

export default App
```

What component will get rendered if the URL is "http://localhost:3000/about"?

Interviewer guidelines

The router stops searching for a path after it has found the matching **Switch**. Here the path="/" does not have an **exact** attribute, so it'll render the **Home** component in all the paths starting from '/', e.g., /home, /, /about/, /xyz, /home/about, and will never move to the next switch.

There are two possible fixes:

1. Use the **exact** attribute with the '/' route. (preferred method: explicit and maintainable)
2. Reorder the statements so the '/' route is last.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<Home />



<About />

<Home /> <About /> No output

ⓘ No comments.

79. React: Children

✓ Correct

Multiple Choice React Front-End Development Props Easy

Question description

What is the output?

```
import React from 'react'

function Test (props) {
  return (
    <div>
      <p>Hello {props.name}</p>
      <p>{props.children}</p>
    </div>
  );
}
export default function App() {
  return (
    <Test name="candidate" children="Frontend">
      <p>Welcome to Hackerrank!</p>
    </Test>
  )
}
```

Interviewer guidelines

In JSX expressions that contain both an opening tag and a closing tag, the content between those tags is passed as a special prop: `props.children`. `props.children` is a special prop, automatically passed to every component, that can be used to render the content included between the opening and closing tags when invoking a component.

A component is allowed to have a prop named `children` passed to it. If the component is written as a self-closing tag, then the `props.children` will be the value of the `children` prop. But if there is some content between the opening and closing tag of the component, then that content will override the `children` prop that is explicitly passed (as in this question)

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Hello candidate</p> <p>Frontend</p> <p>Hello candidate</p> <p>Welcome to Hackerrank!</p> <p>Hello candidate</p> <p>undefined</p> <p>Error</p>

ⓘ No comments.

80. React: Check statements

 Correct[Multiple Choice](#) [React](#) [Front-End Development](#) [Props](#) [Easy](#)

Question description

```
import React from 'react';
function Sample(props) {
  return (
    <>
    <div>
      <p>{props.name}</p> /* Statement 1 */
      <p>{props[designation]}</p> /* Statement 2 */
    </div>

    <div>
      <p>{props[0]}</p> /* Statement 3 */
      <p>{props['designation']}</p> /* Statement 4 */
    </div>
  </>
)
}
export default Sample;
```

Which of the statement(s) will not generate an error? ('name' and 'designation' are the props passed to the <Sample /> from the App component)

Interviewer guidelines

props are passed as an object (key-value pair) in Javascript.

1. The properties (or keys) of the objects can be accessed using the (.) dot operator.
2. The alphanumeric keys in the object are taken as a string, so to access the keys of an object using the [] index operator, the correct way is (in the above example) `props['designation']`.
3. There's no key in the prop passed as `0`. Also, the numbered keys in the objects cannot be accessed using the dot operator and are not considered a string. (`obj [123] = obj ['123']`).

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Statement 1 Statement 2 Statement 3 Statements 4

ⓘ No comments.

81. React: Add class

Correct

Multiple Choice Front-End Development React Classes Easy

Question description

Which of the following code snippets can be used to dynamically add a class to a tag in ReactJS? Assume all imports and exports are there.

S1:

```
function App() {
  const [state, setState] = useState(false);
  return (
    <div>
      <button onClick={() => setState(!state)}>Click me!</button>
      <h1 className={state && "red-color"}>Hello</h1>
    </div>
  );
}
```

S2:

```
function App() {
  const [state, setState] = useState(false);
  const color = "red-color";
  return (
    <div>
      <button onClick={() => setState(!state)}>Change color</button>
      <h1 className={color}>Hello</h1>
    </div>
  );
}
```

S3:

```
function App() {  
  const [state, setState] = useState(false);  
  return (  
    <div>  
      <button onClick={() => setState(!state)}>Click me!</button>  
      <h1 className={state ? "red-color": "blue-color"}>Hello</h1>  
    </div>  
  );  
}
```

S4:

```
function App() {  
  const [state, setState] = useState(false);  
  return (  
    <div>  
      <button onClick={() => setState(!state)}>Click me!</button>  
      <h1 className="red-color">Hello</h1>  
    </div>  
  );  
}
```

Interviewer guidelines

Dynamically adding the class means that based on the state variable, we are adding or removing the styles to our component.

Candidate's Solution

Options: (Expected answer indicated with a tick)



S1



S2



S3



S4

ⓘ No comments.

82. React: Styling in JavaScript

Correct

Question description

Select the appropriate option to generate inline styles equivalent to the CSS stylesheet.

```
.my-style{  
background-color: blue;  
color: red;  
font-size: large;  
border: solid 10px black;  
}
```

Interviewer guidelines

To style an element with the inline style attribute, the value must be a JavaScript object. Since the inline CSS is written in a JavaScript object, properties with two names, like 'background-color' , must be written with camel case syntax i.e. 'backgroundColor'.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<pre> <code>const MyComponent = () => { return (<div style="background-color: blue; color:red; font-size:large; border:solid 10px black;"> My CSS Div </div>) };</code></pre>`

`<pre> <code>const MyComponent = () => { return (<div style={{background-color: "blue", color:"red", font-size:"large", border:"solid 10px black"}}> My CSS Div </div>) };</code></pre>`

`<pre> <code class="language-javascript">const MyComponent = () => { return (<div style={{background-color: "blue", color:"red", fontSize:"large", border: "solid 10px black"}}> My CSS Div </div>) };</code></pre>`

`<pre> <code class="language-javascript">const MyComponent = () => { return (<div style={{'background-color': "blue", 'color': "red", 'fontSize': "large", 'border': "solid 10px black"}}> My CSS Div </div>) };</code></pre>`

 No comments.

83. React: Hooks and Their Applications

 Correct

Question description

Match the commonly used React hooks and their applications.

Hook	Application
1. useState	a. Perform side effects on updates
2. useEffect	b. Returns memorized values
3. useContext	c. Used to track state
4. useMemo	d. Manage state globally

Interviewer guidelines

The useState hook is used to track state

The useEffect hook is used to perform side effects on updates

The useContext hook is used to manage state globally

The useMemo hook is used to return memorized values

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>1.b</p> <p>2.c</p> <p>3.d</p> <p>4.a</p>

<p>1.c</p> <p>2.a</p> <p>3.d</p> <p>4.b</p>

<p>1.d</p> <p>2.c</p> <p>3.a</p> <p>4.b</p>

<p>1.b</p> <p>2.d</p> <p>3.a</p> <p>4.c</p>

① No comments.

84. React: Welcome

Correct

Multiple Choice React Front-End Development Easy

Question description

```
import React from "react";
function App() {
```

```
return (  
  <div>  
    <p>Hi</p>  
    <p>Welcome to Hackerrank</p>  
  </div>  
  <div>  
    <p>This is a react problem!</p>  
  </div>  
)  
}  
export default App;
```

What is the output of the code snippet?

Interviewer guidelines

We can return only one root element per component in react.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Hi</p> <p>Welcome to Hackerrank</p>

<p>Hi</p> <p>Welcome to Hackerrank</p> <p>This is a react problem!</p>

<p>This is a react problem!</p>

<p>This code will generate an error.</p>



! No comments.

85. React: Components and Routes

✓ Correct

Multiple Choice React Easy React Router Routes

Question description

Which component will load when the Route '/signin' is requested from this React Router?

```
<BrowserRouter>  
  <Routes>  
    <Route path="/" element={<LandingPage />} />  
    <Route path="/home" element={<HomePage />} />
```

```
<Route path="/about" element={<AboutPage />} />
<Route path="/contact" element={<ContactPage />} />
<Route path="/login" element={<LoginPage />} />
<Route path="/signup" element={<SignupPage />} />
<Route path="/" element={<NotFoundPage />} />
</Routes>
</BrowserRouter>
```

Interviewer guidelines

As the '/signin' route does not exist for the given react-router, the default component to be rendered here is 'NotFoundPage'

Candidate's Solution

Options: (Expected answer indicated with a tick)

 LoginPage SignupPage NotFoundPage HomePage

ⓘ No comments.



86. React: Counter

ⓘ Correct

Multiple Choice React Hooks Easy

Question description

```
const Counter = () => {
  const [number, setNumber] = React.useState(0);
  const incrementNumber = () => {
    setNumber(number + 1);
  };
  React.useEffect(() => setNumber(10), [number]);
  return (
    <div>
      Count: {number}
      <button onClick={() => incrementNumber()}>Increment Counter</button>
    </div>
  )
}
```

```
};  
export default Counter;
```

The ReactJS Counter component is rendered as shown. The value of `{numberr}` is 10. What will be the value of `{number}` after clicking "Increment Counter" 3 times?

Count: 10

Increment Counter

Interviewer guidelines

Due to the useEffect hook applied on variable number, the value of the number will be '10' even after incrementing it.

Candidate's Solution

Options: (Expected answer indicated with a tick)



15



13



10



0

① No comments.

87. React: Functional Components

Correct

Multiple Choice React Easy Syntax

Question description

Which is the functional component that is equivalent to this React Class component?

```
class Hello extends React.Component{
  render(){
    const {name, age} = this.props;
    return(
      <div>
        Hello {name} is {age} years old.
      </div>
    )
  }
}

Hello.propTypes = {
  name: PropTypes.string,
  age: PropTypes.number
}

Hello.defaultProps = {
  name: 'David'
}

export default Hello;
```

Interviewer guidelines

Using basic JavaScript rules to convert a class component to a functional component by using default values in variable declaration.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<pre> <code class="language-javascript">function Hello({ name = 'David', age }) { return (<div> <p>Hello {name} is {age} years old</p> </div>); } Hello.propTypes = { name: PropTypes.string, age: PropTypes.number.isRequired }; export default Hello;</code></pre>`



`<pre> <code class="language-javascript">function Hello({ name, age }) { return (<div> <p>Hello {name} is {age} years old</p> </div>); } Hello.propTypes = { name: PropTypes.string, age: PropTypes.number.isRequired }; export default Hello;</code></pre>`

`<pre> <code class="language-javascript">function Hello({ name = 'David', age }) { return (<div> <p>Hello {name} is {age} years old</p> </div>) } Hello.propTypes = { name: PropTypes.string, age: PropTypes.number.isRequired }; export default Hello;</code></pre>`

The Class component cannot be converted into a functional component.

 No comments.

88. React: States and Props

 Correct

Multiple Choice React Component State Management State Management Easy

Question description

Consider these React components as rendered below.

ScoreBoard.js

```
const ScoreBoard = () => {
  const [score, setScore] = React.useState(0);
  const [goal, setGoal] = React.useState(0);

  const newScore = (event) => {
    setScore(score + 1);
    setGoal(goal + 1);
  }
  return (
    <div>
      <p>Score: {score}</p>
      <p>Goal: {goal}</p>
      <ScoreManager newScore={newScore} score={score} goal={goal} />
    </div>
  )
}

export default ScoreBoard;
```

ScoreManager.js

```
const ScoreManager = (props, { score, goal }) => {
  const resetScore = (event) => {
    score = 0
    goal = 0
  }
  return (
    <div>
      <button onClick={props.newScore}> Add Score </button>
      <button onClick={resetScore}> Reset Score </button>
    </div>
  )
}
```

```
};  
export default ScoreManager;
```

Output:

Score: 0

Goal: 0

Add Score

Reset Score

What will be the values of Score and Goal printed after clicking the 'Add Score' button 5 times and then clicking the 'Reset Score' button

Interviewer guidelines

On clicking the Add Score button 5 times, the Score and Goal variable will be incremented to 5. But when clicked on the 'Reset Score' button, the resetScore function is not getting called properly, hence it will not be reset to 0 and will continue to hold the previous values.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Score: 5</p> <p>Goal: 5</p>

<p>Score: 0</p> <p>Goal: 0</p>

<p>Score: 4</p> <p>Goal: 4</p>

<p>Score: 5</p> <p>Goal: 0</p>

 No comments.

89. React: Events

 Correct

Multiple Choice Easy Event Listener React

Question description

```
import React from 'react';
import PropTypes from 'prop-types';
import './Question2.css';

const GoalComponent = () => {
  const shoot = (message, event) => console.log(message);
  return (
    <div className="Question2">
      <div className='main-div' onClick={(event) => shoot("No Goal", event)}>
        <button onClick={(event) => shoot("Goal", event)}>
          Click Me
        </button>
      </div>
    </div>
  )
}

export default GoalComponent;
```

The given React component renders as shown below.



Click Me

What is logged to the console when "Click Me" is clicked?

Interviewer guidelines

The events being nested, Event Bubbling will take place in the given component. Hence the onClick event listener of the parent component for the button will also get triggered.

Hence, the following sentences will be logged to the console.

Goal

No Goal

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Goal</p>

<p>No Goal</p>



<p>Goal</p> <p>No Goal</p>



<p>No Goal</p> <p>Goal</p>

No comments.

90. Render Function

Correct

Multiple Choice Easy React React Component Lifecycle

Question description

Which of the following functions gets invoked after the render() function when `state` or `props` is updated?

Candidate's Solution

Options: (Expected answer indicated with a tick)



componentWillMount()



componentDidMount()



componentWillReceiveProps()



componentDidUpdate()



No comments.

91. Wrap Code

Correct

Multiple Choice Easy React

Question description

Assuming options state values are given in the constructor, which code should wrap the components that are going to have access to the context inside a class component?

Interviewer guidelines

The React Context API is a way for a React app to effectively produce global variables that can be passed around. This can be achieved by using 'value' keyword.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<NotesContext.Provider value={this.state.notes}> //code </NotesContext.Provider>

<NotesContext value={this.state.notes}> //code </Notes.Provider>

<NotesContext.Provider value={this.state.notes}> //code <Notes.Provider/>

<NotesContext.Provider value={this.state.notes}/> //code <Notes.Provider>

 No comments.

92. Hooks

 Correct

Multiple Choice Easy React

Question description

Which is the equivalent code using hooks?

```
import React, { Component } from 'react'
export default class SampleComponent extends Component {
  componentDidMount() {
    //
  }
  render() {
    return (<div>Hello</div>)
  }
}
```

Interviewer guidelines

useEffect are similar to componentDidMount and componentDidUpdate and hence can be used here.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<p>import React, { useEffect } from 'react';
 const SampleComponent = () => {
 useEffect(() => {
 //
 }, [this]);
 return ('Hello');
 }
/> export Component</p>`

`<p>import React, { useEffect } from 'react';</p> <p>Default const SampleComponent= () => { Effect(() => { {...} }, []); return ('Hello') } export SampleComponent</p>`

`<p>import React, { useEffect } from 'react';</p> <p>const SampleComponent = () => {</p> <p> useEffect(() => { // }, []); return ('Hello');</p> <p>} export SampleComponent</p>`

`<p>None above</p>`

 No comments.

93. Click 3

 Correct

Multiple Choice Easy React

Question description

What is displayed in H1 when after a user clicks the button 3 times?

```
import React, { useState } from 'react';
export default function App() {
  const [clicked, setClicked] = useState(3);
  return (
    <div className="App">
      <button onClick={() => setClicked((clicked - 1) * 2)}>
        Click Me
      </button>
      <h1>{clicked}</h1>
    </div>
  );
}
```

Interviewer guidelines

After each clicks if the value of clicked is n, then it is increasing to $(n-1)*2$. The initial value of n is 3. So after the first click, it will become 4. After a second click, it will become 6. And after the third click, it will become 10.

Candidate's Solution

Options: (Expected answer indicated with a tick)

5

6

14

10



No comments.

94. Method Search

Correct

Multiple Choice Easy React React Component Lifecycle

Question description

Which of the following methods is/are invoked when there is an error during rendering in the React lifecycle?

Interviewer guidelines

The getDerivedStateFromError() and componentDidCatch() method is invoked if some error occurs during the rendering phase of any lifecycle methods

Candidate's Solution

Options: (Expected answer indicated with a tick)

getDerivedStateFromError()

componentDidCatch()

Both A and B.



- None of the above

① No comments.

95. Science Project

Correct

Multiple Choice Easy React

Question description

Which of the following is a valid syntax to use the variable inside a component?

```
const SkyColor = "Blue";
```

Interviewer guidelines

Variables in react are used inside {} brackets.

Candidate's Solution

Options: (Expected answer indicated with a tick)

- <Uppersky className="Space_Details">\${Skycolor}</Uppersky>

- <Uppersky className="Space_Details"><Skycolor></Skycolor> </Uppersky>

- <Uppersky className="Space_Details" class="SkyColor"></Uppersky>

- <Uppersky className="Space_Details">{SkyColor}</Uppersky>

① No comments.

96. Submit

Correct

Multiple Choice Easy React

Question description

What element type does this render?

```
function Music() {  
  return <span>Tiesto - Surrounded by Light</span>;  
}  
  
ReactDOM.render(<Music/>, document.getElementById('root'));
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

 div span Component None above

① No comments.

97. Hello

Correct

Multiple Choice React React Component Easy

Question description

What is the output generated by the App component?

App.js

```
import Component from "./Component";  
function App() {  
  return(  
    <>  
    <Component title = "Hello"/>  
    <Component title = "Everyone"/>  
    <Component title = "Good Morning"/>  
    </>  
  );  
}  
export default App;
```

Component.js

```
export default function Component(props){  
  return(  
    <div>  
      <h1>{props.title}</h1>  
    </div>  
  );  
}
```

Interviewer guidelines

Each Component Calls ones with a different title hence Option B.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Hello</p> <p>Hello</p> <p>Hello</p>

<p>Hello</p> <p>Everyone</p> <p>Good Morning</p>

<p>This code wouldn't compile</p>

<p>Hello</p> <p>Exception thrown</p>

 No comments.

98. React State

 Correct

Multiple Choice React Easy

Question description

Which option replaces "//insert code" to update the state of a component multiple times with `newState` function calls?

```
export default class Game extends React.Component{  
  constructor(props){  
    super(props);  
    this.state = { name : "Peter" };  
    this.newState = this.newState.bind(this)  
  }
```

```
newState(){  
  //insert code  
}  
}
```

Interviewer guidelines

Whenever the state changes, React re-renders the component to the browser. ... It ensures that the component has been updated and calls for re-rendering of the component. Syntax: We can use `setState()` to change the state of the component directly as well as through an arrow function.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 this.setState="David"; this.setChangeState({name:"David"}) this.setState({name:"David"}) Both A and B

① No comments.

99. Name

Correct

Multiple Choice React React Component Easy

Question description

Assuming this component is imported and used on a page, what is its output?

```
import React, { Component } from 'react';  
class App extends Component {  
  constructor(){  
    super();  
    this.state={name:"peter"}  
  }  
  render(){  
    return (  
      <div>  
        {this.state.name}  
      </div>  
    )  
  }  
}
```

```
)  
}  
} export default App
```

Interviewer guidelines

Here name is peter only it will become on the o/p Screen

Candidate's Solution

Options: (Expected answer indicated with a tick)

This code will not compile.

Error

Peter

peter



No comments.

100. Leap Year

Correct

Multiple Choice Easy React

Question description

The parameter `year` is passed as a prop. What code replaces "`//CODE HERE`" to complete the function?

```
let LeapYear=(props)=>{  
//CODE HERE  
if((year % 4 === 0 && year % 100 !== 0) || year % 400 === 0){  
  return <p>{year} is a leap year.</p>  
}else{  
  return <p>{year} is not a leap year.</p>  
}  
}  
export default LeapYear
```

Candidate's Solution**Options:** (Expected answer indicated with a tick) let year; let year = props.year; year = props.year; let props.year;

No comments.

**101. Attribute Access**

Correct

Multiple Choice Easy React

Question description

Which option will access attributes of the CSS file at "./mystyle.module.css"?

```
.TextDesign {  
    colour: Blue;  
    padding: 40px;  
    font-family: Arial;  
    text-align: centre;  
}
```

Candidate's Solution**Options:** (Expected answer indicated with a tick)

```
<p>import React from &#39;react&#39;;</p> <p>import ReactDOM from &#39;react-dom&#39;;</p> <p>import styles from  
&#39;./mystyle.module.css&#39;;</p> <p>class TextColor extends React.Component {</p> <p>&nbsp; &nbsp;render() {</p>  
<p>&nbsp; &nbsp; &nbsp;return &lt;h1 className=styles&gt;Hello I am a text!&lt;/h1&gt; ;</p> <p>}</p> <p>export default  
TextColor;</p>
```

<p>import React from 'react';</p> <p>import ReactDOM from 'react-dom';</p> <p>import styles from './mystyle.module.css';</p> <p>class TextColor extends React.Component {</p> <p> render() {</p> <p> return <h1 id={styles.color}>Hello I am a text!</h1>;</p> <p> }</p> <p>}</p> <p>export default TextColor;</p>

<p>import React from 'react';</p> <p>import ReactDOM from 'react-dom';</p> <p>import styles from './mystyle.module.css';</p> <p>class TextColor extends React.Component {</p> <p> render() {</p> <p> return <h1 className={Textdesign.color}>Hello I am a text!</h1>;</p> <p> }</p> <p>}</p> <p>export default TextColor;</p>

<p>import React from 'react';</p> <p>import ReactDOM from 'react-dom';</p> <p>import styles from './mystyle.module.css';</p> <p>class TextColor extends React.Component {</p> <p> render() {</p> <p> return <h1 className={styles.TextDesign}>Hello I am a text!</h1>;</p> <p> }</p> <p>}</p> <p>export default TextColor;</p>

No comments.

102. Array Functions

 Correct

Multiple Choice React Array Functions Easy

Question description

Consider the following code snippet.

```
import React from "react";

function App( ) {
    const data = [ { Name: "Ranjit", Roll: 122 }, { Name: "Ron", Roll: 122 } ];
    const display = () => {
        let result;
        return (
            <div>
                <h1>{result.Name}</h1>
                <h1>{result.Roll}</h1>
            </div>
        );
    };
    return <div>{display()}</div>;
}

export default App;
```

Which is the preferred method to initialize the result variable to fetch an object named *Ranjit*?

Interviewer guidelines

According to the given code, we need an object for showing the name and roll. filter and map method will return an array, but find will return the first object matching the given condition

Candidate's Solution

Options: (Expected answer indicated with a tick)

let result= data.map((data) => data.name=="Ranjit");

let result= data.filter((data) => data.name=="Ranjit");

let result= data.find((data) => data.name=="Ranjit");

None of the above

 No comments.

103. Components

 Correct

Multiple Choice Easy Class Components

Question description

This code is part of a React application.

```
const Home = () => {
  const [isLoading, setLoading] = useState(true);
  if(isLoading) {
    return <Loader />;
  }
  useEffect(() => { //fetchData }, []);
}
```

Which of the following statements is correct?

Interviewer guidelines

Correct Answer: D

Explanation: React components are just like javascript functions. And hooks add functionality to react components. In our case we are returning before the useEffect hook is executed so our fetch will never be called.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>The isLoading state has been initialized to TRUE, but it should be FALSE initially.</p>

<p>An error will be thrown as the useEffect hook is called conditionally.</p>

<p>The Loader component will always be shown, and the useEffect hook will not be executed.</p>

<p>None of the above</p>

 No comments.

104. React: Valid Routes

 Correct

Multiple Choice React React Router Routes Easy

Question description

Which route is not valid for this React Router component?

```
<Routes>
  <Route path='/' element={<Home />} />
  <Route path='/user/:id' element={<User />} />
  <Route path='/user/:id/edit' element={<UserEdit />} />
  <Route path='/post/:id' element={<Post />} />
  <Route path='/posts' element={<Posts />} />
</Routes>
```

Interviewer guidelines

The route '/post' requires a post id associated with it. i.e. '/post/1' is valid route whereas '/post' is not allowed.

Candidate's Solution

Options: (Expected answer indicated with a tick)

/user/1/edit

/post/10 /post /profile/12

No comments.

105. Clock

Correct

[Multiple Choice](#) [Easy](#) [React](#) [React Component Lifecycle](#)

Question description

This component is used on a page that has a div tag with a root ID. What happens when this code runs?

```
import React from 'react';
import ReactDOM from 'react-dom';
export default class Clock extends React.Component {
  constructor(props){
    super(props);
    this.state = { time : new Date() };
  }
  render(){
    return (
      <div><h1>{ this.props.title } !</h1>
      <h2>{this.state.time}</h2></div>
    )
  }
}
ReactDOM.render(
  <Clock title="ThisisMyClock" />,
  document.getElementById('root')
);
```

Interviewer guidelines

The code will throw a runtime error:

Error: Objects are not valid as a React child (found: [object Date])

To fix the issue, convert the date object to a string.

Candidate's Solution

Options: (Expected answer indicated with a tick)

{CurrentTimeInFormat}ThisIsMyClock is displayed.

There is a runtime exception.



ThisIsMyClock{CurrentTimeInFormat} is displayed.

None of the above

No comments.

106. React Hooks

Correct

Multiple Choice React React Hooks Medium

Question description

Which `useEffect` runs infinitely when the page is loaded?

- A) `useEffect(() => { console.log("updated 1"); });`
- B) `useEffect(() => { console.log("updated 2"); },[]);`

Interviewer guidelines

Both the a and b options will call only once

Candidate's Solution

Options: (Expected answer indicated with a tick)

A

B

Both A and B



None of the above

! No comments.

107. Query Based Question 2

✓ CorrectMultiple Choice React Medium Class Components

Question description

```
import { object } from "prop-types"
import React from "react";

class App extends React.Component {
  state = {
    count: 0,
  };
  add = () => {
    const { count } = this.state;
    this.setState({ count: count + 1 });
    console.log("Count is incremented", this.state.count);
  };

  render() {
    return (
      <React.Fragment>
        <button onClick={this.add}>Add</button>
      </React.Fragment>
    );
  }
}

export default App;
```

Which of the options will print the updated count state while calling the *add* function?

Interviewer guidelines

We are using the callback functionality of the `setState` function which will call only after the state is changed

Candidate's Solution

Options: (Expected answer indicated with a tick)



```
add() { const { count } = this.state; await this.setState({ count: count + 1 }); console.log("Count is incremented", this.state.count); }
```

`async add() { const { count } = this.state; this.setState({ count: count + 1 }); console.log("Count is incremented"); this.setState(count); }`

`add() { const { count } = this.state; this.setState({ count: count + 1 }, () =>{ console.log("Count is incremented"); this.setState(count); })};`

None of the above

 No comments.

108. Query Based Question

 Correct

Multiple Choice React React Hooks Medium

Question description

```
import React, { useState } from "react";

const App = () => {
  const [number, setNumber] = useState(0);

  const incrementNumber = () => {
    setNumber(number++);
  };

  return (
    <div>
      <p>Number: {number}</p>
      <button onClick={incrementNumber}>Increment Number</button>
    </div>
  );
};

export default App;
```

Which of the following is true about the code snippet?

Interviewer guidelines

We can not use increment signs on a const variable, so it will consider an error

Candidate's Solution

Options: (Expected answer indicated with a tick)

The incrementNumber function increments the number by one.

The incrementNumber function decrements the number by one.

The incrementNumber function updates the value of the number to undefined.

The incrementNumber function throws an error.



No comments.

109. React Component

Correct

Multiple Choice React React Hooks Medium

Question description

```
import React, { useState } from "react";

const app = () => {
  const [number, setNumber] = useState(12);
  return (
    <div>
      <p>Number:- {number}</p>
      <button onClick={() => setNumber(number + 1)}>+</button>
    </div>
  );
};

export default app;
```

Which of the following statements is true about this code snippet?

Interviewer guidelines

While using JSX, React Classes are capitalized to make XML compatible, so that it is not mistaken for an HTML tag. If the react classes are not capitalized, it is an HTML tag as pre-defined JSX syntax.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>The setNumber function is called incorrectly.</p>

<p>A React functional component should have a capitalized name.</p>

<p>The code is correct.</p>

<p>setNumber is not declared correctly.</p>

① No comments.

110. HOC

Correct

Multiple Choice HOC React Medium

Question description

Which value of the parameter *test* will cause the message *hello* to be displayed?

```
const withHOC = (C, test = 'hello') =>
  test ? ({ message }) => <C message={message + test} /> : C;

const HoicedC = withHOC(
  ({ message = 'hello' }) => <div>{message}</div>,
  /* value of test here */
);

const MyApp = () => <HoicedC message='hello' />;
```

Interviewer guidelines

Correct Answer: B

Explanation: In this question higher order component *withHOC* is used which takes a component and a text in props and return conditionally the component that is being passed based on the test value.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 null



&#39;hellohello&#39;

 undefined any string value

No comments.

111. Reducer

Correct

[Multiple Choice](#) [Reducer](#) [React](#) [Medium](#)

Question description

What will be the value of the *counter* after the button is clicked?

```
const reducer = (state, action) => {
  switch (action.type) {
    case 'increment': {
      return state + 1;
    }
    case 'double': {
      return state * 2;
    }
    default: {
      return state;
    }
  };
};

const MyComponent = () => {
  const [counter, dispatch] = useReducer(reducer, 0);
  const fire = () => [
    'increment', 'double', 'reset', 'increment'
  ].forEach((type) => dispatch({ type }));
  return <button onClick={fire}>{counter}</button>;
};
```

Interviewer guidelines

Answer: C

Explanation: Initially the state is 0. After dispatching the action "increment" the state will be 1. After double the state will be 2. After reset the state will remain same because no such function exist. After increment the state will be 3.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>0</p> <p>1</p> <p>3</p> <p>undefined</p>

 No comments.

112. React - Components 2

 Correct

Multiple Choice

Functional Components

Medium

Question description

A `<BankDashboard/>` component includes a function `calculateEmi()` which does expensive calculations using financial data. The function performs its heavy calculation on every re-render which happens due to state changes inside the component. It causes the dashboard to load a bit slowly.

What change should be made to optimize the component's performance?

Interviewer guidelines

Answer: D

Explanation: To fix the performance issue, we should use the `useMemo` Hook to memoize the `calculateEmi` function. This will cause the function to only run when needed.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 <p>Use StrictMode as it activates additional checks and warnings for its descendants.</p> <p>Wrap the component with the `React.memo` higher-order component.</p> <p>Wrap the `calculateEmi()` function with the `useContext` hook.</p>



<p>Wrap the calculateEmi() function with the useMemo hook.</p>



<p>Implement lazy loading for the component.</p>

No comments.

113. Hooks 2

Correct

Multiple Choice React Hooks Medium

Question description

A developer is struggling to resolve a warning with the following function in the repository.

```
function List (props) {  
  const [counter, setCounter] = useState(0);  
  
  useEffect (() => {  
    setCounter(counter)  
  }, []);  
  
  return <div>Counter: {counter}</div>;  
}
```

Which of the following is true about the warning?

Interviewer guidelines

Answer: E

Explanation: React projects use eslint-plugin-react-hooks to warn users about any misuse of react hooks which can be very time taking and painful to detect as the project grows

Candidate's Solution

Options: (Expected answer indicated with a tick)



<p>The warning can be resolved by adding the counter in the dependency array which is passed as a second argument to the useEffect().</p>

<p>The warning can be resolved by removing the dependency array which is passed as a second argument to the useEffect() function.</p>

<p>The warning can be suppressed by adding // eslint-disable-line react-hooks/exhaustive-deps after the useEffect().</p>

<p>The warning is about useEffect(). There is a counter inside the useEffect() function with an empty dependency array as a second argument.</p>

<p>All of the above</p>



! No comments.

114. Hooks

Correct

Multiple Choice Hooks React Hooks Medium

Question description

```
function App() {
  const counterFn = () => {
    const [counter, setCounter] = useState(0);
    setCounter(counter++)
  }

  return (
    <>
    <div>
      <button onClick={counterFn}>Incr Counter</button>
    </div>
    </>
  )
}
```

What is the problem with this code?

Interviewer guidelines

Correct Answer: B

Explanation: React hooks are used to add functionality to react functional components. And they can only be used in the main scope of the function.

Candidate's Solution

Options: (Expected answer indicated with a tick)

The setCounter() function cannot be passed a variable with an operator. A static value should be passed instead.

This will result in the error "React hooks must be called in a React function component or a custom React hook function".

The code has a compile time exception and React cannot build the project.

This causes an unhandled exception.

 No comments.

115. React Props

 Correct

Multiple Choice Data Passing React Props Medium

Question description

How can the component *MyChild1* access the *test* variable without using props?

```
const MyChild1 = () => {
  return <div>{test}</div>;
};
```

```
const MyParent = () => {
  const test = 'my value';
  return <MyChild1 />;
};
```

Interviewer guidelines

Correct Answer: B

Explanation: We used React context API through which we can access state without props in the whole application

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>It is not possible with React; we need to use props.</p>

```
<pre><code>const Context = React.createContext(); const MyChild1 = ()=> { const test = useContext(Context); return &lt;div&ampgt{test}&lt;/div&ampgt; }; const MyParent = () const test = 'my value' return ( &lt;Context.Provider value={test}&gt; &lt;Mychild1 /&gt; &lt;/Context.Provider&gt; ); };</code></pre>
```

<pre><code>const MyParent = () => { const test = 'my value'; return (<React.Context value={test}> <MyChild1 /> </React.Context>); };</code></pre>

```
<pre><code class="language-javascript">const MyChild1 = (props, {test}) => { return <div>{test}</div>; }; const MyParent = () => { const test = 'my value'; React.createContext(test) return ( <MyChild1 /> ); };</code></pre>
```



116. Infinity



Multiple Choice Medium React

Question description

Which of the following options will display values from 1 to 10 ([1,10]) infinitely?

Interviewer guidelines

We can directly update the DOM elements using `useEffect`.

<https://reactjs.org/docs/hooks-effect.html#:~:text=What%20does%20useEffect%20do%3F,after%20performing%20the%20DOM%20updates.>

Candidate's Solution

Options: (Expected answer indicated with a tick)

```
<p>import React, { useState, useEffect } from &#39;react&#39;;</p> <p>export default function App() {</p> <p>&nbsp; const [a, change_a] = useState(1);</p> <p>&nbsp; useEffect(() => {</p> <p>&nbsp; &nbsp; setTimeout(() => {</p> <p>&nbsp;&nbsp; &nbsp; change_a((a) => a + 1); }, 1000);</p> <p>&nbsp; &nbsp; if(a>10){</p> <p>&nbsp;&nbsp; &nbsp; change_a((a) => 1);}</p> <p>&nbsp;&nbsp; &nbsp; } );</p> <p>&nbsp; return ({a});</p> <p>}</p>
```

```
<p>import React, { useState, useEffect } from &#39;react&#39;;</p> <p>export default function App() {</p> <p>&nbsp; const [a,  
change, a] = useState(1);</p> <p>&nbsp; &nbsp; useEffect(() => {</p> <p>&nbsp; &nbsp; &nbsp; setTimeout(() => {</p>
```

```
change_a((a) => a + 1); }, 1000);</p> <p>&nbsp; &nbsp; if(a>11){</p> <p>&nbsp; &nbsp; &nbsp; change_a((a) => 1);</p>
<p>&nbsp; &nbsp; }</p> <p>&nbsp; });</p> <p>&nbsp; return ({a});</p> <p>}</p>
```

`<p>import React, { useState, useEffect } from 'react';</p> <p>export default function App() {</p> <p> const [a,
change_a] = useState(1);</p> <p> useState(() => {</p> <p> setTimeout(() => { change_a((a) => a +
1); },</p> <p> 1000);</p> <p> if(a>10){</p> <p> change_a((a) => 1);
</p> <p> }</p> <p> });</p> <p> return ({a});</p> <p>}</p>`

`<p>None above</p>`

No comments.

117. Snippet

✖ Incorrect

Multiple Choice Medium React React Component Lifecycle

Question description

What is the output of this component?

```
export default class Clock extends React.Component {
  constructor(){
    this.setState({time: new Date()});
  }
  componentDidMount() {
    this.setState({ time : "Time never changes"});
  }
  render() {
    return <h1>Look at the time: {this.state.time}</h1>;
  }
}
```

Interviewer guidelines

ComponentDidMount() is invoked immediately after a component is mounted (inserted into the tree). But code wouldn't compile because you can pass objects to state. this.setState({time: new Date()}); passes new date object to state.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`{CurrentDateTime}`



Time never changes



This code will not compile



None of above

! No comments.

118. Data

Correct

Multiple Choice Medium React

Question description

The component "Data.js" is imported and used with "App.js" and used on a page. What is the output of the "App" component?

App.js

```
import Data from "./Data";
function App() {
  return (
    <>
    <h1> The data is shown below </h1>
    <Data/>
    </>
  );
}

export default App;
```

Data.js

```
export default function Data (props) {
  return (
    <div>
      <h1>I am an H1 title</h1>
      <p> I am a paragraph. </p>
      <h1>{props.title}</h1>
    </div>
  );
}
Data.defaultProps={
  title:"I am the default"
};
```

Interviewer guidelines

Default props is shown when there is no property of such name exist.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>I am an H1 title</p> <p>I am a paragraph.</p>

<p> </p> <p>I am an H1 title</p> <p>I am a paragraph.</p> <p>I am the default</p>

<p> </p> <p>I am a paragraph</p> <p>I am the default</p>

<p>This code will not compile.</p>

 No comments.

119. React: Hooks

 Correct

Multiple Choice React Front-End Development Medium Front-End Frameworks JavaScript

Question description

```
import { useEffect, useState } from "react";
export default function App() {
  const [noOfChocolates, setChocolates] = useState(1);
  const [chocolatePrice, setChocolatePrice] = useState(1);
  const addChocolates = function(){
    setChocolatePrice(num2=>num2+1)
  }
  useEffect(() => {
    setChocolates(1);
    setChocolatePrice(1);
  });
  return (
    <div className="my-app">
      <h1>Chocolates = {noOfChocolates}</h1>
      <h2>Price = {chocolatePrice}</h2>
      <button onClick={addChocolates}>Add More Chocolates</button>
    </div>
  );
}
```

The react component for a chocolate shop renders as shown below.

Chocolates = 2

Price = 4

Add More Chocolates

What are the values of *Chocolates* and *Price* after the "Add More Chocolates" button is clicked 5 times?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 <p>Chocolates = 7</p> <p>Price = 4</p> <p>Chocolates = 7</p> <p>Price = 9</p> <p>Chocolates = 2</p> <p>Price = 9</p> <p>Chocolates = 2</p> <p>Price = 4</p>

 No comments.

120. React: Hooks I Correct

Multiple Choice React Front-End Development Medium JavaScript

Question description

```
import { useEffect, useState } from "react";
export default function App() {
  const [noOfChocolates, setChocolates] = useState(1);
  const [chocolatePrice, setChocolatePrice] = useState(1);
  const addChocolates = function(){
    setChocolatePrice(num2=>num2+1)
  }
  useEffect(() => {
    setChocolates(1);
    setChocolatePrice(1);
  });
  return (
    <div className="my-app">
      <h1>Chocolates = {noOfChocolates}</h1>
      <h2>Price = {chocolatePrice}</h2>
      <button onClick={addChocolates}>Add More Chocolates</button>
    </div>
  );
}
```

The react component for a chocolate shop renders as shown below.

Chocolates = 1

Price = 1

Add More Chocolates

What are the values of *Chocolates* and *Price* after the "Add More Chocolates" button is clicked 5 times?

Candidate's Solution

Options: (Expected answer indicated with a tick)



<p>Chocolates =&nbs;p;1</p> <p>Price =&nbs;p;1</p>



<p>Chocolates = 6</p> <p>Price = 6</p>

<p>Chocolates =&nbs;1</p> <p>Price = 6</p>

<p>Chocolates = 6</p> <p>Price =&nbs;1</p>

 No comments.

121. Error Handling in AWS Lambdas

 Correct

Multiple Choice AWS Lambda Function Error Handling Easy Node.js

Question description

```
const AWS = require('aws-sdk');
const s3 = new AWS.S3();

exports.handler = async (event, context) => {
  const { Records } = event;
  const promises = Records.map(async (record) => {
    const { s3: { bucket, object } } = record;
    const params = {
      Bucket: bucket.name,
      Key: object.key,
    };

    try {
      const data = await s3.getObject(params).promise();
      console.log(`Successfully retrieved object: ${object.key}`);
      return data;
    } catch (error) {
      console.error(`Error retrieving object: ${object.key}`);
      throw error;
    }
  });
}

try {
  const results = await Promise.all(promises);
  return { statusCode: 200, body: JSON.stringify(results) };
} catch (error) {
  return { statusCode: 500, body: `Error: ${error.message}` };
}
```

Which of the following statements is true about this AWS Lambda function written in Node.js?

Interviewer guidelines

Answer: C

A: This statement is false. The function logs errors encountered when retrieving objects but also throws the error, allowing it to be handled in the outer try-catch block and return a 500 status code to the caller.

B: This statement is false under all conditions. When an error occurs while retrieving one of the S3 objects, the catch block inside the map function will throw the error. Since the Lambda function uses the `Promise.all()` method, if any of the promises in the array reject (due to an error), the entire `Promise.all()` call will reject immediately, and the remaining S3 object processing will be halted. The outer catch block will then handle the error, and the Lambda function will return a 500 status code with an error message in the body.

C: The Lambda function uses the `Promise.all()` method to process all S3 objects in parallel and waits for all promises to resolve or reject. The promises array contains promises for each S3 object retrieval, and `Promise.all()` is used to wait for all of them to complete.

D: This statement is false. The Lambda function processes the S3 objects in parallel, not sequentially, using the `Promise.all()` method.

Candidate's Solution

Options: (Expected answer indicated with a tick)

The function will only log errors encountered when retrieving objects and will not return an error status code to the caller.

The Lambda function will continue processing the remaining S3 objects even if an error occurs while retrieving one of the objects.

The Lambda function uses the `Promise.all()` method to process all S3 objects in parallel and waits for all promises to resolve or reject. (✓)

The Lambda function processes the S3 objects sequentially, one after another.

① No comments.

122. Clustered Express Middleware

(✗) Incorrect

Multiple Choice ExpressJS Middleware Easy Node.js

Question description

```
const cluster = require('cluster');
const os = require('os');
const express = require('express');

if (cluster.isMaster) {
  const numCPUs = os.cpus().length;

  for (let i = 0; i < numCPUs; i++) {
    cluster.fork();
  }
}
```

```
cluster.on('exit', (worker, code, signal) => {
  console.log(`Worker ${worker.process.pid} died`);
  cluster.fork();
});
} else {
  const app = express();
  const port = 3000;

  app.get('/', (req, res) => {
    res.send('Hello from the clustered Express server!');
  });

  app.listen(port, () => {
    console.log(`Worker ${process.pid} listening on port ${port}`);
  });
}
```

Which statement is true regarding this snippet?

Interviewer guidelines

Answer: A

A: The application forks a new worker process for each available CPU core. The number of available CPU cores is determined using the `os.cpus().length` method, and a new worker is forked for each core using a for loop and the `cluster.fork()` method.

B: This statement is false. Each worker process listens for incoming requests on the same port. In the code snippet, the `app.listen` method is called within each worker process with the same port number (3000).

C: This statement is false. The `cluster.isMaster` property is used to determine whether the current process is the master process or a worker process. It is not related to the operating system.

D: This statement is false. If a worker process dies, it will be automatically replaced by a new worker process. The master process listens for the 'exit' event on the `cluster` object and forks a new worker process when an existing worker dies.

Candidate's Solution

Options: (Expected answer indicated with a tick)

The application forks a new worker process for each available CPU core. ✓

The master process listens for incoming requests on a different port than the worker processes.

The `cluster.isMaster` property is used to determine whether the current process is running on a Windows system or not.

If a worker process dies, it will not be replaced by a new worker process.

① No comments.

123. Mocking Beans

Correct

Multiple Choice Spring Test Easy Mockito Spring Mocking

Question description

Given the following implementation of *DataService* which uses *ApiClient* component to call external APIs:

```
@Component
public class ApiClient {
    public void call() {
        //not relevant code
    }
}

@Service
public class DataService {
    @Autowired
    private ApiClient apiClient;
    public void collectData() {
        apiClient.call();
    }
}
```

The requirement is to implement the test and don't call external API during the test execution. The following code has been implemented:

```
@SpringBootTest
class DataServiceTest {
    <CODE HERE>
    @Autowired
    DataService dataService;
    @Test
    void collectData() {
        dataService.collectData();
        //test code
    }
}
```

What should be inserted instead of *<CODE HERE>* to achieve the goal?

Interviewer guidelines

A is incorrect

@Mock is annotation defined by Mockito, not by Spring boot test framework. It will not replace the bean in the spring context.

B is incorrect

`@InjectMocks` creates an instance of the class and injects the mocks that are created with the `@Mock` (or `@Spy`) annotations into this instance.

C is correct

`@MockBean` is used to add mock objects to the Spring application context. The mock will replace any existing bean of the same type in the application context.

D is incorrect

E is incorrect

@SpyBean is used to add mock objects to the Spring application context, however if individual mocking rules are not provided it delegates calls to real implementation. Therefore calls to external API will still be made.

Candidate's Solution

Options: (Expected answer indicated with a tick)

@Mock ApiClient apiClient; @InjectMocks

@InjectMocks

@MockBean ApiClient apiClient;



@Captor ApiClient apiClient;

@SpyBean ApiClient apiClient;

No comments.

124. Secure Method

Correct

Multiple Choice Easy Spring Expression Language Spring Security

Question description

Given the following controller method, assume that `usersService` is correctly implemented and autowired.

```
<CODE_HERE>
@GetMapping("/users/{id}")
public ResponseEntity<UserResponse> get(@PathVariable @NotNull UUID id) {
    return ResponseEntity.ok(usersService.get(id));
}
```

The requirement is to make sure that only users with any of `ROLE_ADMIN` or `ROLE_USER_MANAGER` roles assigned will be able to execute this method. What can be put in place of '`<CODE_HERE>`' to implement this requirement using Spring Security?

Interviewer guidelines

A is incorrect

`@PostAuthorize` - Annotation for specifying a method access-control expression which will be evaluated after a method has been invoked.

B is correct

@PreAuthorize is executed before method and also supports SpEL. In this case SpEL correctly writes expression describing that user should have one of the 2 roles.

C is incorrect:

The @Secured annotation is used to specify a list of roles on a method. However, it doesn't support SpEL, therefore provided expression will not be executed.

D is incorrect:

@PreAuthorize is executed before method and also supports SpEL. However, SpEL expression evaluates to TRUE only if user has both roles: "ROLE_ADMIN" and "ROLE_USER_MANAGER".

E is correct:

@RolesAllowed specifies the list of roles permitted to access method(s) in an application. The value of the RolesAllowed annotation is a list of security role names. This annotation can be specified on a class or on method(s). It doesn't support SpEL.

Candidate's Solution

Options: (Expected answer indicated with a tick)

@PostAuthorize("hasRole('ROLE_ADMIN') or hasRole('ROLE_USER_MANAGER')")

@PreAuthorize("hasAnyRole('ROLE_ADMIN', 'ROLE_USER_MANAGER')")

@Secured("hasRole('ROLE_ADMIN') or hasRole('ROLE_USER_MANAGER')")

@PreAuthorize("hasRole('ROLE_ADMIN') and hasRole('ROLE_USER_MANAGER')")

 No comments.

125. Bean Scopes

 Correct

Multiple Choice Starter Parent Easy Spring Scope

Question description

Consider the following code.

```
<CODE HERE>
public class Processor {
    public void process() {
        /* not relevant code */
    }
}
```

```
@RestController  
public class ProcessController {  
    @Autowired  
    private Processor processor;  
    @GetMapping("/process")  
    public void process() {  
        processor.process();  
    }  
}
```

What should be inserted in place of <CODE HERE> to have a new instance of processor created every time the /process endpoint is called?

Interviewer guidelines

The latest version of the Spring framework defines 6 types of scopes:

- singleton
- prototype
- request
- session
- application
- websocket

The last four scopes mentioned, *request*, *session*, *application* and *websocket*, are only available in a web-aware application.

A bean with the *prototype* scope will return a different instance every time it is requested from the container. It is defined by setting the value *prototype* to the `@Scope` annotation in the bean definition:

```
@Scope("prototype")  
@Scope(ConfigurableBeanFactory.SCOPE_PROTOTYPE)
```

Also, to achieve the requested functionality prototype scoped bean should specify a Proxy, this means that instead of the bean proxy will be inserted. Therefore correct option is: C.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`@Scope("prototype") @Component`

`@Prototype`

`@Component @Scope(scopeName = "prototype", proxyMode= ScopedProxyMode.TARGET_CLASS)`

`@Component(`autowireCandidate=true`)`

`@Service(alwaysNew=true)`

 No comments.

126. Spring Circular Bean Trap

Correct

Multiple Choice · Spring · Spring Boot · Easy

Question description

Consider the following code.

Circular.java

```
package spring.circular;

public interface Circular {
    void doCircularThings();
}
```

CircularBeanA.java

```
package spring.circular;
import org.springframework.stereotype.Component;
import javax.annotation.PostConstruct;

//X
@Component
public class CircularBeanA implements Circular {
    private Circular circularBeanB;

    public CircularBeanA(
        //Y
        Circular circularBeanB) {
        this.circularBeanB = circularBeanB;
    }

    @Override
    public void doCircularThings() {
        System.out.println("CircularBeanA: did bad things");
    }

    @PostConstruct
    private void init() {
        System.out.println("CircularBeanA: initialized");
    }
}
```

CircularBeanB.java

```
package spring.circular;

import org.springframework.context.annotation.Lazy;
import org.springframework.stereotype.Component;
import javax.annotation.PostConstruct;
```

```
@Component
public class CircularBeanB implements Circular {
    private Circular circularBeanA;

    public CircularBeanB(
        @Lazy
        //Z
        Circular circularBeanA) {
        this.circularBeanA = circularBeanA;
    }

    @Override
    public void doCircularThings() {

    }

    @PostConstruct
    public void init() {
        System.out.println("CircularBeanB: initialized");
        circularBeanA.doCircularThings();
    }
}
```

Which of the following options are true regarding this code?

Interviewer guidelines

CircularBeanA and CircularBeanB classes implement the Circular interface. And @Lazy annotation is used to prevent circular dependency problem. But when CircularBeanB's init method is called, it will try to use @Lazy annotated circularBeanA which is not initialized yet. And it will throw BeanCurrentlyInCreationException. **Option E** is right. To prevent this we can remove @PostConstruct annotation to preventing this execution and CircularBeanA can be injected into CircularBeanB bean. **Option F** is also right.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>The application runs successfully and it'll output
 CircularBeanA: initialized
 CircularBeanB: initialized
 CircularBeanA: did bad things</p>

<p>The application won't run.</p> <p>The code doesn't compile.</p>

<p>The application runs but it will throw `NoUniqueBeanDefinitionException` and it will exit.</p>

<p>If @Qualifier("circularBeanA") annotation is put on Z and @Qualifier("circularBeanB") put on Y, the application will not throw BeanCurrentlyInCreationException and runs successfully.</p>

<p>The application runs and it will write
 CircularBeanB: initialized into console then
 it will throw
org.springframework.beans.factory.BeanCurrentlyInCreationException.</p>



<p>If @PostConstruct annotation is removed in CircularBeanB, it will run successfully and will print
 CircularBeanA: initialized into console</p>



<p>if @Primary annotation is put in X place, it will run successfully.</p>

No comments.

127. Spring AOP Usage

Correct

Multiple Choice Spring Spring Boot Easy

Question description

Consider the following code.

NotifierMetricLogger.java

```
package spring.listener;

import org.aspectj.lang.annotation.Around;
import org.aspectj.lang.annotation.Aspect;
import org.aspectj.lang.annotation.Before;
import org.aspectj.lang.annotation.AdviceName;
import org.springframework.stereotype.Component;
import org.aspectj.lang.JoinPoint;
import org.aspectj.lang.ProceedingJoinPoint;
import java.util.logging.Logger;

//X
@Component
public class NotifierMetricLogger {
    private static final Logger log = Logger.getLogger(NotifierAspect.class.getName());
    //Y
    public Object beforeNotifyLogging(ProceedingJoinPoint joinPoint) throws Throwable {
        long startDate = System.currentTimeMillis();
        Object proceed = joinPoint.proceed();
        long executionTime = System.currentTimeMillis() - startDate;
        log.info("Notify process time :" + executionTime);
        return proceed;
    }
}
```

TwitterNotifier.java

```
package spring.service.impl;

import spring.service.Notifier;
import org.springframework.stereotype.Component;
import java.util.logging.Logger;

@Component
public class TwitterNotifier implements Notifier {
    private static final Logger log = Logger.getLogger(TwitterNotifier.class.getName());
    @Override
    public void notify(String message) {
        log.info("TwitterNotifier: " + message);
        //send notification to home page
    }
}
```

Notifier.java

```
package spring.service;

public interface Notifier {
    void notify(String message);
}
```

Assuming the Spring Boot application is configured to use AOP with `@EnableAspectJAutoProxy(proxyTargetClass = true)` annotation, to capture `TwitterNotifier.notify(String message)` method's process time, which of the following options should be placed in the X and Y positions in `NotifierMetricLogger.java`?

Interviewer guidelines

NotifierMetricLogger is a AOP defined class which contains performance metric capturing mechanism for given pointcut. As In method signature we can see it's accepting ProceedingJoinPoint which is has to be used with `@Around` advice. And we need to annotate this class with `@Aspect` annotation otherwise our advice & pointcut definition will not be triggered at all. And to capture TwitterNotifier's notify method we can use `execution(* spring.service.impl.*.notify(..))` and `execution(*spring.service.Notifier.notify(..))`. Answer is D which contains right description for X and Y (`@Aspect` and `@Around("execution(* spring.service.Notifier.notify(..))")`)

More info can be found here <https://docs.spring.io/spring-framework/docs/current/reference/html/core.html#aop>

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<p>X = @Aspect
Y = @Before("execution(* spring.service.impl.*.notify(..))")</p>`

`<p>X = @AdviceName("NotifierMetricLogger")
Y = @Around("execution(* spring.service.impl.*.notify(..))")</p>`



```
<p>X = @AdviceName("NotifierMetricLogger")<br /> Y = @Before("execution(*  
spring.service.impl.*.notify(..))")</p>
```



```
<p>X = @Aspect<br /> Y = @Around("execution(* spring.service.Notifier.notify(..))")</p>
```



No comments.

128. Bean definition enhancement

Correct

Multiple Choice Spring Boot Starter Parent Easy

Question description

During the startup of a Spring Boot application, it needs to read bean configuration metadata and change it before the container instantiates any beans.

How can this be achieved in an efficient and scalable way?

Interviewer guidelines

Customizing Configuration Metadata with a BeanFactoryPostProcessor

The next extension point that we look at is the `org.springframework.beans.factory.config.BeanFactoryPostProcessor`. The semantics of this interface are similar to those of the `BeanPostProcessor`, with one major difference: `BeanFactoryPostProcessor` operates on the bean configuration metadata. That is, the Spring IoC container lets a `BeanFactoryPostProcessor` read the configuration metadata and potentially change it before the container instantiates any beans other than `BeanFactoryPostProcessor` instances.

<https://docs.spring.io/spring-framework/docs/current/reference/html/core.html#beans-factory-extension-factory-postprocessors>

Candidate's Solution

Options: (Expected answer indicated with a tick)



Implement BeanPostProcessor.



Implement BeanFactoryPostProcessor.



It is not possible to change beans metadata on runtime. All beans metadata is defined at compile time.



Implement Aspect.

① No comments.

129. Transactional Tests

Correct

Multiple Choice Transaction Management Easy Spring Test

Question description

Given the following test code, which of the statements is true?

```
@ExtendWith(SpringExtension.class)
@Transactional
@ContextConfiguration
class UserRepositoryTest {
    @Test
    @Commit
    void test1() {
        /* non relevant code */
    }
    @Test
    @Rollback(false)
    void test2() {
        /* non relevant code */
    }
}
```

Interviewer guidelines

Option C is correct because transactions for both test methods will be committed. `@Commit` and `@Rollback(false)` are identical from Spring 4.2 and both of them will lead to overriding the default roll-back policy of `@Transactional`, which will lead to committing the transaction in both cases.

<https://docs.spring.io/spring-framework/docs/current/javadoc-api/org/springframework/test/annotation/Rollback.html>

<https://docs.spring.io/spring-framework/docs/current/javadoc-api/org/springframework/test/annotation/Commit.html>

Candidate's Solution

Options: (Expected answer indicated with a tick)

Only the transaction for method `test1()` will be committed.

Only the transaction for method `test2()` will be committed.

Transactions for both methods will be committed.

`@Transactional` will lead to a runtime error when running the tests.

① No comments.

130. Behavior Inheritance

Correct

Multiple Choice Spring Boot Starter Parent Easy

Question description

A Spring Boot application has the following hierarchy of classes.

```
public class Animal {  
    @PostConstruct  
    private void init() {  
        System.out.println("Animal init");  
    }  
}  
  
@Component  
public class Cat extends Animal{  
    @PostConstruct  
    public void init() {  
        System.out.println("Cat init");  
    }  
}  
  
@Lazy  
@Component  
public class Dog extends Animal{  
    @PostConstruct  
    public void init() {  
        System.out.println("Dog init");  
    }  
}
```

What is the output?

Interviewer guidelines

This question is checking knowledge of Java annotations and Spring boot behaviour. In particular:

- Java annotations are not inherited
- also since Animal.init() method is private, therefore no overriding is happening by Animal.init() method
- Spring scans all parents of Animal class and finds all Spring related annotations and processes them.

Therefore, bot init() methods are executed and ` "Animal init" followed by "Cat init" ` is a correct answer.

Candidate's Solution

Options: (Expected answer indicated with a tick)



<p>IllegalBeanDefinitionException: @PostConstruct should be applied to a public method</p>

<p>Cat init Dog init</p> <p>Animal init Cat init</p> <p>Animal init Cat init Animal init Dog init</p> <p>Animal init Cat init Dog init or Animal init Dog init Cat init</p>

 No comments.

131. Multiple Beans Definition

 Correct

Multiple Choice Spring Spring Boot Dependency Management Easy

Question description

A Spring application has an interface called *Server*, and two implementations: *ServerA* and *ServerB*. There is a class, *ServerManager*, that uses the *Server* bean as a dependency.

```
public interface Server {  
}  
  
@Service  
public class ServerA implements Server {  
}  
  
@Service  
public class ServerB extends ServerA {  
}  
  
@Service  
public class ServerManager {  
    @Autowired  
    Server server;  
}
```

Which of the following statements is true about this code?

Interviewer guidelines

A BeanFactory is basically the abstraction representing Spring's Inversion of Control container. It exposes beans internally and externally, to your application. When it cannot find or retrieve these beans, it throws a `NoSuchBeanDefinitionException`. The JavaDoc of `NoSuchBeanDefinitionException` explains:

"Exception is thrown when a BeanFactory is asked for a bean instance for which it cannot find a definition. This may point to a non-existing bean, a non-unique bean, or a manually registered singleton instance without an associated bean definition."

In this code example we are trying to autowire a bean of `Server` interface, but spring context has 2 such beans: ServerA and ServerB. therefore following exception is thrown:

NoUniqueBeanDefinitionException: No qualifying bean of type 'com.patotski.experiments.deps.Server' available: expected single matching bean but found 2: serverA,serverB

Candidate's Solution

Options: (Expected answer indicated with a tick)

The code throws `InterfaceNotInstantiableException`.

The code runs fine. A random Server implementation is injected into the `server` field.

The code throws `NoUniqueBeanDefinitionException`.



The code does not compile.

No comments.

132. Path Variable

Correct

Multiple Choice Spring Spring Boot Spring MVC Easy

Question description

In the Spring MVC controller, which of these are valid uses of the @PathVariable annotation?

Interviewer guidelines

The @PathVariable annotation can be used to handle template variables in the request URI mapping and set them as method parameters. It accepts "value" as an argument which points to name used in @RequestMapping path(e.g. @PathVariable("name")). If the value is not provided, then the parameter variable name is used for the match. In option B parameter name in path `{userId}` doesn't match "users" parameter name, therefore following exception is thrown when endpoint is hit:

org.springframework.web.bind.MissingPathVariableException: Required URI template variable 'users' for method parameter type String is not present

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>@RequestMapping(value="/users/{userId}/addresses/{addressId}") public String viewUserAddress(@PathVariable String userId, @PathVariable String addressId, Model m)</p>



<p>@RequestMapping(value="/users/{userId}") public String viewUser(@PathVariable("users") String user, Model m)</p>

<p>@RequestMapping(value="/users/{userId}") public String viewUser(@PathVariable String userId, Model m)</p>



<p>@RequestMapping(value="/users/{userId}") public String viewUser(@PathVariable("userId") String personnelId, Model m)</p>



! No comments.

133. Create a User Controller

Correct

Multiple Choice Spring Boot Spring MVC Easy

Question description

An *HTTP POST* endpoint accepts a JSON representation of a *User* object. It uses the following *User* and *UserController* classes.

```
public class User {  
    @NotEmpty  
    private String name;  
    @NotEmpty  
    private String surname;  
}  
  
@RestController  
public class UserController {  
  
    @PostMapping("/users")  
    public void create(@RequestBody User user) {  
        System.out.println("name: " + user.getName() + " surname: " + user.getSurname());  
    }  
}
```

What is the result of a call with the payload below?

```
{  
    "name": "Duke",
```

```
"surname": null  
}
```

Interviewer guidelines

In order for validation annotation to work parameters in the method should be annotated with @Valid annotation. Here there is no annotation, therefore no validation kicks in and the method just returns HTTP.OK = 200 and prints empty user:
name: Duke surname: null

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>BAD REQUEST 400 and a message that `user.surname` is validated by @NotEmpty annotation.</p>

<p>OK 200 and prints s;'name: Duke surname: null'</p>



<p>SERVER ERROR 500 because of a NullPointerException during validation of `null` string for @NotEmpty</p>

<p>OK 200 and prints s;'name: Duke surname:'</p>

No comments.

134. Spring Dependency Injection

Correct

Multiple Choice Spring Easy

Question description

```
@Service  
public ProductService {  
    private ProductRepository productRepository;  
    private ProductMapper productMapper;  
  
    @Autowired  
    public ProductService(ProductRepository productRepository,  
        ProductMapper productMapper){  
        this.productRepository = productRepository;  
        this.productMapper = productMapper;  
    }  
}
```

Which type of injection is implemented in the ProductService?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Setter

Getter

Property

Construction



No comments.

135. Query Annotation

Correct

Multiple Choice Spring Boot Easy

Question description

Which of the following annotations can be used for a specific custom query in a Spring data JPA repository method?

Candidate's Solution

Options: (Expected answer indicated with a tick)

@JpaQuery

@SqlQuery

@DataQuery

@Query



① No comments.

136. Profile

Correct

Multiple Choice Spring Boot Easy

Question description

Which command-line argument starts a Spring Boot application with the “staging” Spring profile?

Candidate's Solution

Options: (Expected answer indicated with a tick)

--spring.active.profile=staging

--profiles.active=staging

--active.profile=staging

--spring.profiles.active=staging



① No comments.

137. Property Value Injection

Correct

Multiple Choice Spring Boot Easy

Question description

Which of the following annotations can be used to inject property values into Spring Boot beans and configuration classes?

Interviewer guidelines

@Value annotation is used to inject properties defined in application.yml-application.properties files

Candidate's Solution

Options: (Expected answer indicated with a tick)

@Values @Property @Inject @Value

ⓘ No comments.

138. Dependency Injection

ⓘ Correct

Multiple Choice Spring Boot Easy

Question description

Which of the following options can be used for dependency injection in Spring Boot?

Interviewer guidelines

spring boot supports for dependency injection via @Autowired, Constructor Injection, Setter injection. There isn't such a thing as jsonConfiguration

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Setter injection jsonConfiguration Constructor injection @Autowired

ⓘ No comments.

139. Endpoints

 Correct

Multiple Choice Spring Boot Easy

Question description

Which Spring-based code snippet must fill the blank such that Actuator security rules are present, and all endpoints fetch for actuator?

```
@Bean  
public PrivacyChain demoChain(ServerHttpSecurity http) {  
    return http.authorizeExchange()  
        .pathMatchers(______).permitAll()  
        .and().build();  
}
```

Interviewer guidelines

All endpoints of actuator are present under /actuator except shutdown

Candidate's Solution

Options: (Expected answer indicated with a tick)

 /actuators/** /actuators.** /actuator/**  /actuator/info/**

 No comments.

140. Validator

 Correct

Multiple Choice Spring Boot Easy

Question description

In a RESTful application using Spring, which of the following is not used to create an object validator?

Interviewer guidelines

@Size annotation is used with numbers and doesn't trigger if the value is null. @Length annotation is to be used instead.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>@Min(value = 1)</p> <p>@Max(999999)</p> <p>private int id;</p> <p> </p> <p> </p>

<p>@Size(limit = 100)</p> <p>private String name;</p> <p> </p> <p> </p>

<p>@NotNull</p> <p>private Boolean isActive;</p> <p> </p> <p> </p>

<p>@ValidCategory(categoryType="sample")</p> <p>private String category;</p> <p> </p> <p> </p>

 No comments.

141. Rest Handle

 Correct

Multiple Choice Spring Boot Easy

Question description

When building a Spring-based RESTful application, a new resource must be created with the request URI of "/handle". Which of the following code segments is most appropriate?

Interviewer guidelines

In order to create a resource we use POST http method

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>@RestController</p> <p>public class demoHandler {</p> <p> private static Map<String, Product> dataRepo = new HashMap<>();</p> <p> @RequestMapping(value = "/handle", method = RequestMethod.POST)</p> <p> public ResponseEntity<Object> createProduct(@RequestBody Product product) {</p> <p> </p> <p> }</p> <p>}</p>

<p>@RestController</p> <p>public class demoHandler {</p> <p> private static Map<String, Product>;</p> dataRepo = new HashMap<();>();</p> <p> @RequestMapping(value = "/handle", method = RequestMethod.DELETE)</p> <p> public ResponseEntity<Object> createProduct(@RequestBody Product product) {</p> <p> </p> <p> }</p> <p>}</p>

<p>@RestController</p> <p>public class demoHandler {</p> <p> private static Map<String, Product>;</p> dataRepo = new HashMap<();>();</p> <p> @RequestMapping(value = "/handle", method = RequestMethod.CREATE)</p> <p> public ResponseEntity<Object> createProduct(@RequestBody Product product) {</p> <p> </p> <p> }</p> <p>}</p>

<p>@RestController</p> <p>public class demoHandler {</p> <p> private static Map<String, Product>;</p> dataRepo = new HashMap<();>();</p> <p> @RequestMapping(value = "/handle", method = RequestMethod.GET)</p> <p> public ResponseEntity<Object> createProduct(@RequestBody Product product) {</p> <p> </p> <p> }</p> <p>}</p>

No comments.

142. Mechanism

 Correct

Multiple Choice Spring Boot Easy

Question description

Which annotation should be used instead of <<blank>> that will allow one to use the class for data storage, update, and retrieval?

```
<<blank>>
public class DemoSession implements DemolInterface{

    @Override
    public void save(Student student) {
        ....
    }
}
```

Interviewer guidelines

“@Repository” annotation indicates that the class is used to communicate with the database to perform CRUD operations.

Candidate's Solution

Options: (Expected answer indicated with a tick)

@Service

@Repository

@Session

@Autowired

 No comments.

143. Classes Segment

 Correct

Multiple Choice · Spring Boot · Easy

Question description

A Spring application has four classes. Select the option which would contain the business logic.

Interviewer guidelines

It is good practice to create a business layer between your controllers and database to perform business logic.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>@Service public class A{ .. } </p> <p> </p>

<p>@Repository public class A{ .. }</p> <p> </p>

<p>@Primary public class A{ .. }</p> <p> </p>

<p>@Session public class A{ .. }</p> <p> </p>

① No comments.

144. Employee

Correct

Multiple Choice · Spring Boot · Easy

Question description

In the following Spring Boot code, what kind of dependency is injected by the annotation?

```
public class Employee {  
    @Autowired  
    private Roll roll;  
  
    Employee() {  
    }  
}
```

Interviewer guidelines

"@Autowire" annotation allows you to inject an object whenever needed. There are different ways in which this can be done

Candidate's Solution

Options: (Expected answer indicated with a tick)

constructor based

setter bean

field based

Spring IOC

① No comments.

145. Actuator

Correct

Multiple Choice Spring Boot Easy

Question description

A dependency has been added to pom.xml in a Spring application as follows.

```
<dependency>
<groupId>org.springframework.boot</groupId>
<artifactId>spring-boot-starter-actuator</artifactId>
</dependency>
```

What is the starter used for?

Interviewer guidelines

Actuator is mainly used to expose operational information about the running application – health, metrics, info, dump, env, etc

Candidate's Solution

Options: (Expected answer indicated with a tick)

application analysis



creation of an application

automation of an application

production of application instances

① No comments.

146. Spring Annotation

Correct

Multiple Choice Spring Boot Easy

Question description

What does the annotation in this Spring-based code segment do?

```
@Component  
public class ComponentExample {  
    int x;  
    public void show(){  
        System.out.println("Hello");  
    }  
}
```

Interviewer guidelines

"@Component" annotation marks the class as a bean in Spring so that whenever an object of that class is required Spring can inject it.

Candidate's Solution

Options: (Expected answer indicated with a tick)

It allows Spring to create containers.

It allows Spring to create components.

It allows Spring to collect bean instances.

It allows Spring to detect custom beans automatically.



No comments.

147. Book

Correct

Multiple Choice Easy Spring Boot

Question description

```
@Entity  
public class Book {  
  
    @Id  
    Long id;  
    String author;  
    String year;
```

```
....  
}
```

For this model, which option is a valid derived query method for its corresponding JpaRepository?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 findAuthorById findByAuthor findByAuthorAndIdAndYear findBook

 No comments.

148. RESTful

 Correct

Multiple Choice Easy Spring Boot

Question description

In Spring's approach to building RESTful web services, how are the HTTP requests handled?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 They are handled by a controller and identified by the @RestController annotation. They are handled by an object. They are handled by a class.

- They are handled by a controller and identified by the @GreetingController annotation.

 No comments.

149. FooBar

 Correct

Multiple Choice Easy Spring Boot

Question description

Which link will hit the following method, where the application context is '/home'?

```
@RequestMapping(value = {"/ex/basic/bar", "/ex/basic/foo"}, method = RequestMethod.GET)
public String getPath() {
    return "FooBar";
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

- "GET request http://localhost:8080/home/ex/basic/bar"



- "GET request http://localhost:8080/home/ex/basic"

- "POST Request http://localhost:8080/home/ex/basic/bar"

- Two routes cannot be mapped to one resource.

 No comments.

150. Postgres Specific Service

 Correct

Multiple Choice Starter Parent Spring Configuration Easy

Question description

The requirement is to implement a Spring Boot `@Service` that should be loaded to the spring context only if the `org.postgresql.Driver` class is present on the classpath, and the `application.properties` file contains the property `database.vendor=postgres`.

```
<CODE HERE>
@Service
public class PostgresSpecificService {
    /* not relevant code*/
}
```

Which of the following annotation options can replace `<CODE HERE>` to achieve this?

Interviewer guidelines

`@Conditional*` - annotation that only matches when beans meeting all the specified requirements are already contained in the BeanFactory. All the requirements must be met for the condition to match, but they do not have to be met by the same bean.

`@ConditionalOnClass` - is an annotation which matches when the classpath contains all classes by name. It accepts the string name of the class.

`@ConditionalOnProperty` - is an annotation which matches property. The name of property is concatenation of "prefix" and "name" attributes (value attribute is alias for name). Value of property to check is to be passed in `'havingValue'` attribute.

A is incorrect:

The class conditional is correct, however, the value attribute is an alias for the name, therefore the value of the property is not checked.

Therefore B is the correct answer.

`@ConditionalOnClass(name = "org.postgresql.Driver")` - matches correct class

`@ConditionalOnProperty(prefix = "database", name = "vendor", havingValue = "postgres")` - matches correct property and it's value.

C is incorrect:

`@ConditionalOnMissingBean` - checks for bean of given class, however DB driver is not a bean and therefore it's wrong match

D is incorrect

`@ConditionalOnBean` - checks for bean in context, however DB driver is not a bean and therefore it's wrong match

E is incorrect, because B is correct.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`@ConditionalOnProperty(name = "database.vendor", value = "postgres") @ConditionalOnClass(name = "org.postgresql.Driver")`

`@ConditionalOnProperty(prefix = "database", name = "vendor", havingValue = "postgres") @ConditionalOnClass(name = "org.postgresql.Driver")`

`@ConditionalOnProperty(name = "database.vendor", havingValue = "postgres") @ConditionalOnMissingBean(org.postgresql.Driver.class)`

- @ConditionalOnProperty(prefix = "database", name = "vendor", havingValue = "postgres")
 @ConditionalOnBean(name = "org.postgresql.Driver")

- None of the above

① No comments.

151. Component Dependency

Correct

Multiple Choice Spring Spring Boot Configuration Easy

Question description

The following @Configuration contains definitions for 2 beans: ServiceA and ServiceB. Imports are omitted.

```
@Configuration  
public class ServiceConfiguration {  
    @Bean  
    public ServiceA serviceA(ServiceB serviceB) {  
        return new ServiceA(serviceB);  
    }  
    @Bean  
    public ServiceB serviceB(ServiceC serviceC) {  
        return new ServiceB(serviceC);  
    }  
    @Bean  
    public ServiceC serviceC(ServiceA serviceA) {  
        return new ServiceC(serviceA);  
    }  
}
```

Which of the following statements is true?

Interviewer guidelines

ServiceA requires ServiceB, and ServiceB requires ServiceA - this creates a circular dependency exception. This code throws: BeanCurrentlyInCreationException at DefaultSingletonBeanRegistry.java. Full Exceptions trace on Spring Boot 3.0.4 looks like:
java.lang.IllegalStateException at DefaultCacheAwareContextLoaderDelegate.java:142

Caused by: org.springframework.beans.factory.UnsatisfiedDependencyException at ConstructorResolver.java:798
Caused by: org.springframework.beans.factory.UnsatisfiedDependencyException at ConstructorResolver.java:798
Caused by: org.springframework.beans.factory.BeanCurrentlyInCreationException at DefaultSingletonBeanRegistry.java:355

Candidate's Solution

Options: (Expected answer indicated with a tick)

- This code does not compile.

This code runs fine and creates 3 Beans: `ServiceA`, `ServiceB` and `ServiceC`.

The code throws `BeanCurrentlyInCreationException` when run.

The code throws `StackoverflowError` when run.

 No comments.

152. Application Properties Override

 Correct

Multiple Choice Spring Boot Application Properties Easy

Question description

In the classpath of a Spring Boot application, there are 2 files with properties *application.properties* and *application-prod.properties*. It is required to always load properties from *application.properties* and override with values in the *application-prod.properties* file only when the application is deployed on the production server.

What should the value of the environment be to achieve this on the production server?

Interviewer guidelines

Spring loads **profile-specific application properties** packaged inside your classpath ([application-{profile}.properties](#) and YAML variants). One of the ways to set an active profile is to set "spring.profiles.active" environment variable. Therefore, setting environment variable `spring.profiles.active=prod` is the correct answer.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`spring.properties=application-prod.properties`

`spring.profiles.active=application-prod`

`spring.profiles.active=prod`

`environment=prod`

No comments.

153. Testing a Spring Application

Correct

Multiple Choice Spring Spring Boot Spring Test Easy

Question description

There is a Spring boot web application that uses a relational database for data storage. The `org.springframework.boot:spring-boot-starter-data-jdbc` starter is used in the implementation of the data access layer. Now tests are needed that cover the functionality of the data layer in isolation.

What Spring test annotation is recommended when constructing the test context?

Interviewer guidelines

`@DataJdbcTest` is recommended for sliced tests that use Spring Data JDBC repositories.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`@DataJpaTest`

`@DataJdbcTest`

`@SpringBootTest`

`@WebMvcTest`

No comments.

154. Spring Data Repository Type

Correct

Multiple Choice Spring Data Spring Boot Medium

Question description

Consider the following code.

Admin.java

```
@Entity
@SequenceGenerator(name = "default_gen", sequenceName = "SEQ_ADMIN")
public class Admin {

    @Id
    @GeneratedValue(strategy = GenerationType.SEQUENCE, generator = "default_gen")
    @Column(name = "id")
    private String name;
    private String password;
    private String locale;
    private String email;
    //getter & setters
}
```

Admin Repository.java

```
@Repository
public interface AdminRepository extends X<Admin, Long> {

    Page<Admin> findAllByLocaleOrderByName(String locale, Pageable pageable);
}
```

To run the `findAllByLocaleOrderByName` method with pagination ability, which of the following options can be used in place of `X` in the `AdminRepository` interface?

Interviewer guidelines

Spring Data provides CrudRepository, PagingAndSortingRepository and JpaRepository interfaces. PagingAndSortingRepository provides pagination and JpaRepository extends it. So JpaRepository and PagingAndSortingRepository can be used in place of "X". So answer is B,D. More detail can be found in <https://docs.spring.io/spring-data/jpa/docs/current/reference/html/#repositories>

Candidate's Solution

Options: (Expected answer indicated with a tick)

CrudRepository

JpaRepository

PagingRepository

PagingAndSortingRepository

ⓘ No comments.

155. Event Bus Handler

Incorrect

[Multiple Choice](#) [Medium](#) [Event Handlers](#) [Node.js](#)**Question description**

```
const EventEmitter = require('events');

class MyEmitter extends EventEmitter {}

const myEmitter = new MyEmitter();

myEmitter.on('eventA', () => {
  console.log('Event A has been triggered');
});

myEmitter.on('eventB', () => {
  console.log('Event B has been triggered');
});

myEmitter.emit('eventA');
myEmitter.emit('eventB');
```

Which of the following statements is true about this code?

Interviewer guidelines

Answer: A

A: The script will output the following messages in order: "Event A has been triggered" and "Event B has been triggered". The emit() method is called to trigger 'eventA' and 'eventB' sequentially, resulting in the corresponding messages being logged to the console.

B: This statement is false. The messages are not output simultaneously but are logged sequentially as the events are emitted one after another.

C: This statement is false. The script does not wait for each event to complete before triggering the next one. The events are emitted synchronously, but their listeners are called asynchronously.

D: This statement is false. The EventEmitter class can be used to handle custom events, as shown in the code snippet. In this case, the custom events are 'eventA' and 'eventB'.

Candidate's Solution

Options: (Expected answer indicated with a tick)



The script will output the following messages in order: "Event A has been triggered" and "Event B has been triggered".



The script will output the following messages simultaneously: "Event A has been triggered" and "Event B has been triggered".

The script uses the EventEmitter class to handle events sequentially, waiting for each event to complete before triggering the next one.

The script will throw an error, as the EventEmitter class cannot be used to handle custom events.

 No comments.

156. Controller Correct Definition Problem

 Correct

Multiple Choice Spring REST API Spring MVC Medium

Question description

Given the following controller code, which of the statements are true?

```
@RestController  
public class ScoreController {  
    @RequestMapping("/myScore/{id}")  
    public void myScore(@PathVariable("id") int id, @RequestParam Optional<String> name) {  
    }  
}
```

Note: Assume that application is running on <http://localhost:8080>

Interviewer guidelines

this method is identical to

```
public void myScore(@PathVariable("id") int id, @RequestParam Optional<String> name) {
```

Starting from Java8 Optional can be used to substitute the "required" attribute in @RequestParam.

Thus, the parameter is not required - B is correct, C is correct because the String argument name is marked as not required and the given URI will map to the method myScore but the value of the argument String name will be null.

Candidate's Solution

Options: (Expected answer indicated with a tick)

The method is fine and <http://localhost:8080/myScore/id?name=Adam> maps to the method myScore.

The method is fine, and <http://localhost:8080/myScore/1?name=Adam> maps to the method myScore.



The method is fine, and `http://localhost:8080/myScore/23?surname=Adamson` maps to the method `myScore`.



The mapping of the request param is invalid because `Optional` can't be used for mapping.

The path param definition is invalid.

No comments.

157. Spring Data Repositories

Correct

Multiple Choice

Medium

Transaction Management

Spring Data JPA

Question description

Given the `users` table that contains the following columns,

```
id: integer  
name: varchar(50)  
age: integer
```

and the following spring data JPA code,

```
@Entity  
@Table(name = "users")  
public class User {  
    @Id  
    private int id;  
    private String name;  
    private String surname;  
    private int age;  
    //getters and setters  
}
```

```
public interface UserRepository extends JpaRepository<User, Integer> {  
    //<CODE 1>  
    @Query("update User u set u.age = ?2 where u.id = ?1")  
    void setAge(int id, int age);  
}
```

```
@Service  
@Transactional(readOnly = true)  
public class UserService {  
  
    @Autowired  
    private UserRepository userRepository;  
    //<CODE 2>
```

```
public void setUserAge(int id, int age) {  
    userRepository.setAge(id, age);  
}  
}
```

which of the statements are true?

Interviewer guidelines

A. is incorrect because the exception is thrown by code when `setUserAge` is called.

B is correct

Repository code throws `org.springframework.dao.InvalidDataAccessApiUsageException` Expecting a SELECT query : `update User u set u.age = ?? where u.id = ?1` when executed

C is incorrect (see explanation D)

D is correct

In order to fix code we need to:

- make transaction not read-only (@Transactional(readOnly = false))
- Mark repository method and @Modifying

E is incorrect (see explanation D)

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>`setUserAge` method runs fine and sets user matching `id` age to the specified `age` value.</p>

<p>`setUserAge` throws `InvalidDataAccessApiUsageException` when executed</p>

<p>`setUserAge` method runs fine and sets the user matching `id` age to the specified `age` value if `@Transactional(readOnly = false)` is inserted instead of <CODE 2></p>

<p>`setUserAge` method runs fine and sets the user matching `id` age to the specified `age` value if `@Modifying` is inserted instead of <CODE 1> and `@Transactional(readOnly = false)` is inserted instead of <CODE 2></p>

<p>`setUserAge` method runs fine and sets the user matching `id` age to the specified `age` value if `@Transactional(readOnly = false)` is inserted instead of <CODE 1></p>

① No comments.

158. Pointcut Expressions

Correct

Multiple Choice Spring AOP Aspect-Oriented Programming Easy

Question description

Given the following service:

```
package com.example.service.aop;  
  
import org.springframework.stereotype.Service;  
  
@Service  
public class MyService {  
    public void process(String inputStringParam) throws Exception {  
        /** not relevant code*/  
    }  
}
```

The requirement is to implement aspect which will be executed before the *process* method. To do this the following aspect class was implemented:

```
package com.example.service.aop;  
import org.aspectj.lang.JoinPoint;  
import org.aspectj.lang.annotation.Aspect;  
import org.aspectj.lang.annotation.Before;  
import org.springframework.stereotype.Component;  
  
@Aspect  
@Component  
public class MyAspect {  
    /** INSERT CODE */  
    public void beforeMethod(JoinPoint joinPoint) {  
        /** not relevant code*/  
        System.out.println("beforeMethod Aspect");  
    }  
}
```

What code can be inserted instead of the */** INSERT CODE */* statement to make the aspect work correctly?

Interviewer guidelines

Correct options A and D.

A is the correct answer:

execution: For matching method execution join points. This is the primary pointcut designator to use when working with Spring AOP.

B is incorrect:

args: Limits matching to join points (the execution of methods when using Spring AOP) where the arguments are instances of the given types.

However in the answer option match is not on Type, but on argument name.

C is incorrect:

within: Limits matching to join points within certain types (the execution of a method declared within a matching type when using Spring AOP).

However it doesn't allow specifying Exceptions thrown.

D is correct:

'execution` syntax allows omitting parts of the matching pattern and therefore skipping full package specification and writing just method part still works.

<https://docs.spring.io/spring-framework/docs/6.0.x/reference/html/core.html#aop-api>

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>@Before("execution(* com.example.service.aop.MyService.process(String))")</p>



<p>@Before("args(inputStringParam)")</p>

<p>@Before("within (com.example.service.aop.MyService throws Exception)")</p>

<p>@Before("execution(void com..MyService.pro*(String))")</p>



! No comments.

159. Spring Data Transactional

Correct

Multiple Choice Spring Spring Boot JPA Spring Data Transactional Medium

Question description

Given the following code, what happens when *StudentRepositoryTest* runs?

Lesson.java

```
@Entity  
public class Lesson {  
    @Id  
    private Long id;  
    private String name;  
    private Integer courseLength;  
    private Integer courseLevel;  
    @JsonBackReference  
    @ManyToOne(fetch = FetchType.LAZY)  
    @JoinColumn(name = "student_id")  
    private Student student;  
    private boolean inProgress;  
    //getter & setters  
}
```

Student.java

```
@Entity  
public class Student {  
    @Id  
    private Long id;  
    private String name;  
    private String surname;  
    @JsonManagedReference  
    @OneToMany(mappedBy = "student", fetch = FetchType.EAGER, cascade = {CascadeType.PERSIST, CascadeType.REFRESH})  
    private List<Lesson> lessons;
```

```
//getter & setters  
}
```

StudentRepository.java

```
@Repository  
public interface StudentRepository extends JpaRepository<Student, Long>{  
    //Y  
    Optional<Student> findById(Long id);  
}
```

LessonRepository.java

```
@Repository  
public interface LessonRepository extends JpaRepository<Lesson, Long> {  
}
```

StudentService.java

```
@Service  
public class StudentService{  
    private StudentRepository studentRepository;  
    public StudentService(StudentRepository studentRepository, LessonRepository lessonRepository) {  
        this.studentRepository = studentRepository;  
        this.lessonRepository = lessonRepository;  
    }  
  
    public void save(Student student) {  
        studentRepository.save(student);  
    }  
  
    //other crud metods  
  
    //X  
    public void deleteStudentWithLessons(Long id) throws SQLException {  
        Student student =  
            studentRepository.findById(id).orElseThrow(() -> new RuntimeException("Student not found"));  
        List<Lesson> lessons = student.getLessons();  
        lessons.stream().forEach(lesson -> lesson.setStudent(null));  
        studentRepository.delete(student);  
  
        boolean inProgress = lessons.stream()  
            .map(Lesson::isInProgress)  
            .filter(progress -> progress == true)  
            .findFirst()  
            .orElseGet(() -> false);  
        if (inProgress) {  
            throw new SQLException("Cannot delete all Lessons. There are lessons in progress state");  
        }  
        lessonRepository.deleteAll(lessons);  
    }  
}
```

StudentRepositoryTest.java

```
@SpringBootTest
class StudentRepositoryTest {
    @Autowired
    StudentRepository studentRepository;
    @Autowired
    StudentService studentService;
    @Autowired
    LessonRepository lessonRepository;
    Student student;
    @BeforeEach
    public void init() {
        student = Student.builder().name("Jorn").surname("Deynhoven").build();
        studentRepository.save(student);
        lessonRepository.saveAll(List.of(
            Lesson.builder().name("Music").courseLength(10).student(student).courseLevel(123).build(),
            Lesson.builder().name("Art").courseLength(20).courseLevel(123).student(student).build(),
            Lesson.builder().name("Trance").courseLength(30).courseLevel(123).student(student).inProgress(true).build()
        ));
    }
    @Test
    void deleteStudentWithLessonsTest() throws SQLException {
        studentService.deleteStudentWithLessons(student.getId());
    }
}
```

Interviewer guidelines

Candidate has to know how to use spring data in any spring application which uses spring data. If an entity wanted to remove from database without removing the child attributes, then first relation between them should be removed. Without doing this, spring will throw DataIntegrityViolationException to keep database consistent. To achieve that without changing existing code, we need to annotate deleteStudentWithLessons(Long id) method with @Transactional annotation. With this spring will update the database states of child entities. In this case it will update Lesson attributes to have student as null. Then student will be removed in the next line.

After this there is an inProgress check for existing lessons. It will throw SQLException which is a checked exception. @Transactional annotation by default only rolls back for unchecked exception such as RuntimeException. So all changes will be reflected to database.

Option A and E is right. More info can be found in <https://docs.spring.io/spring-framework/docs/current/javadoc-api/org/springframework/transaction/annotation/Transactional.html>

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>It will try to delete the student then the DataIntegrityViolationException will be thrown.</p>



<p>It will delete the student successfully then an SQLException will be thrown with the message "Cannot delete all Lessons. There are lessons in progress state".</p>

<p>If @Transactional annotation is put in place of X (StudentServer.java), after saving the student and lessons, it will update lessons and remove the student. Then it will throw an SQLException and all database changes will be rolled back.</p>

<p>It will throw a RuntimeException with the message "Student not found".</p>

<p>If @Transactional annotation is put in place of X (StudentServer.java), after saving the student and lessons, it will update lessons and remove the student. Then it will throw an SQLException.</p>

 No comments.

160. Configuration Properties

 Correct

Multiple Choice Spring Spring Boot Application Properties Annotations Medium

Question description

An *application.properties* file contains the following properties:

```
app.prop1 = value1  
app.prop2 = value2
```

You decided to create a class to hold this configuration. To protect it, the class is defined as final.

```
@Configuration  
@ConfigurationProperties(prefix = "app")  
public final class AppConfigration {  
    String prop1;  
    String prop2;  
  
    public String getProp1() {  
        return prop1;  
    }  
  
    public void setProp1(String prop1) {  
        this.prop1 = prop1;  
    }  
  
    public String getProp2() {  
        return prop2;  
    }  
  
    public void setProp2(String prop2) {  
        this.prop2 = prop2;  
    }
```

```
}
```

What is the result of running the Spring application with this class?

Interviewer guidelines

Spring creates dynamic proxies for classes annotated with `@Configuration` classes. Spring uses CGLIB to extend your class to create proxy. Hence, configuration classes cannot be final. When running the code Spring throws `BeanDefinitionParsingException` and this is the correct option.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>The application runs, the configuration bean is created. and the properties are initialized correctly (prop1=value1, prop2=value2).</p>

<p>The application runs, and a configuration bean is created, but properties are set to null (prop1=null, prop2=null).</p>

<p>A BeanDefinitionParsingException is thrown because the @Configuration bean cannot be marked as final.</p> ✓

<p>An IllegalStateException is thrown because the @Configuration bean cannot have an @ConfigurationProperties annotation.</p>

<p>A NoSuchMethodException is thrown because the @Configuration bean needs a default constructor.</p>

! No comments.

161. Spring Bean Initialization

✓ Correct

Multiple Choice Java Spring Medium Exception Handling

Question description

What will be the output of the following code?

Vehicle.java

```
public class Vehicle
{
    public String name;
    public String getName()
```

```
{  
    return name;  
}  
  
public void setName(String name)  
{  
    this.name = name;  
}  
}
```

BeanConfiguration.java

```
@Configuration  
public class BeanConfiguration  
{  
    @Bean  
    Vehicle vehicle1()  
    {  
        var veh = new Vehicle();  
        veh.setName("Honda");  
        return veh;  
    }  
  
    @Bean  
    Vehicle vehicle2()  
    {  
        var veh2 = new Vehicle();  
        veh2.setName("Volvo");  
        return veh2;  
    }  
}
```

Example.java

```
@Component  
@Slf4j  
public class Example implements CommandLineRunner  
{  
    @Override  
    public void run(String... args) throws Exception  
    {  
        var context = new AnnotationConfigApplicationContext(BeanConfiguration.class);  
        Vehicle vehicle = context.getBean(Vehicle.class);  
        log.info("Vehicle name: {}", vehicle.getName());  
    }  
}
```

Interviewer guidelines

Spring context register classes name by default. Vehicle object doesn't registered to spring context by default and registered with method name and it's registered as "vehicle1" and "vehicle2". When context.getBean(Vehicle.class) code block runs, it will throw NoUniqueBeanDefinitionException on runtime.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Volvo</p> <p>Honda</p> <p>Honda</p> <p>Volvo</p> <p>throws org.springframework.beans.factory.NoUniqueBeanDefinitionException on runtime</p>

① No comments.

162. Spring Transactional

Correct

Multiple Choice Spring Spring Boot Medium

Question description

```
@Transactional(propagation= Propagation.REQUIRED)
public void saveProduct(Product product) {
    productService.save(product);
    try{
        saveProductToLogService(product);
    }catch (Exception ex){
        logExceptionUtils.getStackTrace(ex);
    }
}
@Transactional(propagation=Propagation.REQUIRES_NEW)
public void saveProductToLogService(Product account) {
    productLogService.save(product);
}
```

Which of the following options describes the given code functionality with @Transactional annotation?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 saveProductToLogService will use the saveProduct's transaction to save the product. saveProductToLogService will use a new transaction for productLogService.save method.

As soon as saveProduct method execution is done, saveProductToLogService.save method execution will be reflected to saveProductToLogService database.

None of the above

No comments.

163. Spring Data Entity Graph

Correct

Multiple Choice · Spring Data · Spring Boot · Medium

Question description

Patient.java

```
@Entity
@Table(name = "PATIENT")
public class Patient {

    @Id
    @Column(name="ID")
    private Long id;

    @Column(name="NAME")
    private String name;

    @OneToMany(
        fetch = FetchType.LAZY,
        mappedBy = "patient"
    )
    private List<Appointment> appointmentList;
    //getter and setters
}
```

PatientRepository.java

```
@Repository
public interface PatientRepository extends JpaRepository<Patient,Long>{
    //annotation here
    List<Patient> findAllByName(String name);
}
```

What annotation can be used on the findAllByName method to retrieve patients with appointmentList attribute values?

Candidate's Solution

Options: (Expected answer indicated with a tick)

@Query(fetchType=EAGER) @EntityGraph(attributePaths={"appointmentList"},type=EntityGraph.EntityGraphType.FETCH) (✓) @EagerPath(attributePaths={"appointmentList"},type=EagerPath.EagerPathType.EAGER) None of the above(1) No comments.

164. Security Custom Login

(✓) CorrectMultiple Choice Spring Boot Medium

Question description

Which of the following options can be used to create a custom login page in Spring Security?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 protected void configure(HttpSecurity http) throws Exception { http .authorizeRequests() .anyRequest().authenticated() .and() .formLogin() .and() .httpBasic(); } protected void configure(HttpSecurity http) throws Exception { http .authorizeRequests() .anyRequest().authenticated() .and() .formLogin() .loginPage("/login"); } protected void configure(HttpSecurity http) throws Exception { http .authorizeRequests() .anyRequest().authenticated() .and() .formLogin() .loginPage("/login") .permitAll(); } (✓) None of the above(1) No comments.

165. Spring Circular Dependency

Correct

Multiple Choice Spring Boot Medium

Question description

When two beans depend on each other, there is said to be a circular dependency. Which of the following options can be used on either of the beans to prevent circular dependency?

Candidate's Solution

Options: (Expected answer indicated with a tick)

@Eager

@Proxy

@Lazy

None of the above

① No comments.

166. Spring Data Repository

Correct

Multiple Choice Spring Boot Medium Spring Data

Question description

To use Spring data repositories within another jar module and to use them in a Spring Boot application, what annotation should be used in Spring Boot configuration/ SpringBootApplication classes?

Candidate's Solution

Options: (Expected answer indicated with a tick)

@EnableJpaRepositories(basePackages = {repositoryPackageOfjarModule})

`@EnableRepositories(basePackages = {repositoryPackageOfjarModule})` `@EnableEntities(basePackages = {repositoryPackageOfjarModule})` `@EnableHibernateRepositories(basePackages = {repositoryPackageOfjarModule})`

⌚ No comments.

167. Spring Boot Localization

 Correct

Multiple Choice Spring Boot Medium

Question description

Which of the following options can be used for internationalization in Spring Boot?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 `MessageResource`  `ParameterResource` `ResourceBundle`  None of the above

⌚ No comments.

168. Spring IOC Container

 Correct

Multiple Choice Spring Medium

Question description

Which of the following options act as a Spring IOC Container?

Interviewer guidelines

ApplicationContext and BeanFactory interfaces are act as Spring IOC Container

<https://docs.spring.io/spring-framework/docs/4.3.12.RELEASE/spring-framework-reference/html/overview.html>

<https://www.baeldung.com/spring-application-context>

Candidate's Solution

Options: (Expected answer indicated with a tick)

<input checked="" type="checkbox"/> ApplicationContext	
<input type="checkbox"/> DispatcherServlet	
<input type="checkbox"/> SpringRunner	
<input checked="" type="checkbox"/> BeanFactory	
<input type="checkbox"/> None of the above	

No comments.

169. Dispatcher Servlet

Correct

Multiple Choice Spring Boot Medium

Question description

What is the purpose of Dispatcher Servlet in Spring Boot ?

Interviewer guidelines

Dispatcher Servlet is work like a gate keeper. It checks coming request paths and redirect these request to related @RequestMapping annotated controller methods and send backs the responses.

Candidate's Solution

Options: (Expected answer indicated with a tick)

It is used for transaction management.

It is used for database connection pool management.

It is used to handle all HTTP requests and responses.



It is used heavily for dependency injection.

No comments.

170. CSRF

Correct

Multiple Choice · Spring Boot · Medium

Question description

Which Java Spring-based code segment correctly configures CSRF?

Interviewer guidelines

CSRF Protection makes sure that server is not bombarded with unwanted calls. Spring Security enables some features by default like CSRF and Form based authentication.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>private void manage(HttpSecurity http) {</p> <p> http.csrf().allowed()</p> <p>}</p> <p> </p>

<p>private void manage(HttpSecurity http) {</p> <p> http.csrf()</p> <p>}</p> <p> </p>

<p>private void manage(HttpSecurity http) {</p> <p> http.csrf().enable()</p> <p>}</p> <p> </p>

<p>None of the above. CSRF is configured by default when Spring Security Dependency is added.</p>



No comments.

171. Spring Scopes

Correct

Multiple Choice Medium Spring

Question description

Which of the following statements is/are true about @Scope("request") and @Scope("prototype") annotations?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Both are used to define the scope of spring beans.



@Scope("request") creates a bean instance for a single HTTP request.



@RequestScope can be used instead of @Scope("request").



@Scope("prototype") will return a different instance every time it is requested from the container.



No comments.

172. Spring MVC RestController

Correct

Multiple Choice Spring Spring Boot Medium

Question description

```
@RestController
@RequestMapping("/api/product/categories")
public class ProductCategoryController{
    @Autowired
    private CategoryService categoryService;

    @GetMapping("/{id}/{locale}")
    public ResponseEntity<CategoryDto> getByIdAndLocale(@PathVariable("id") Long id,
                                                       @PathVariable("locale") String locale {
        CategoryDto dto = categoryService.getByIdAndLocale(id, locale);
        return new ResponseEntity<>(dto, HttpStatus.OK);
    }
}
```

Which of the following options are true about the given controller method?

Candidate's Solution

Options: (Expected answer indicated with a tick)

getBIdAndLocale endpoint can return the response in JSON format (Correct)

getBIdAndLocale endpoint does not accept GET request

getBIdAndLocale endpoint does not accept POST request (Correct)

getBIdAndLocale endpoint is not accessible without providing id and locale variables (Correct)

① No comments.

173. Endpoint Security

(Correct)

Multiple Choice Spring Boot Medium

Question description

In Spring Boot Security, the option to enable secure endpoints with @PreAuthorize annotation is:

Interviewer guidelines

@EnableGlobalMethodSecurity by default doesn't enable this feature. To enable this prePostEnabled=true value must be set

Candidate's Solution

Options: (Expected answer indicated with a tick)

Configuration class annotated with @EnableGlobalMethodSecurity

Configuration class annotated with @EnableGlobalMethodSecurity(securedEnabled = true)

Configuration class annotated with @EnableGlobalMethodSecurity(prePostEnabled = true) (Correct)

-
- None above

① No comments.

174. DemoHandler

Correct

Multiple Choice Spring Boot Medium

Question description

```
@CrossOrigin(origins = "http://actualfile.com", maxmarks = 100)
@RestController
@RequestMapping("/account")
public class demoHandler {

    @GetMapping("/{roll}")
    public Account retrieve(@PathVariable Long roll) {
        // ...
    }

    @DeleteMapping("/{roll}")
    public void remove(@PathVariable Long roll) {
        // ...
    }
}
```

What kind of support is depicted in this Spring-based code segment?

Interviewer guidelines

CORS enables other applications to access the endpoints of your application.

Candidate's Solution

Options: (Expected answer indicated with a tick)

-
- JWT Support

-
- OAUTH2 Support

-
- CSRF support



CORS Support

(1) No comments.

175. Security

(✓) Correct

Multiple Choice Spring Boot Medium

Question description

```
@Configuration  
public class filterSecure extends WebSecurityConfigurerAdapter {  
  
    @Override  
    protected void configure(HttpSecurity http) throws Exception {  
        http.cors()  
            .and()  
            .authorizeRequests()  
                .antMatchers(HttpMethod.GET, "/log/detail", "/data/app/**")  
                .hasAuthority("SCOPE_read")  
            .authenticated()  
            .and()  
    }  
}
```

In this Spring-based code segment, the class is to be made Resource Server and a JWT format token access is needed. What is the missing code?

Interviewer guidelines

Spring Security enables us to use different modes to authenticate one of which is using JWT. Other ways are form login.

Candidate's Solution

Options: (Expected answer indicated with a tick)



<p>.oauthServer()</p> <p>.jwt();</p> <p> </p>



<p>.oauth2ResourceServer()</p> <p>.jwt();</p> <p> </p>



<p>.jwt()</p> <p>.oauthServer()</p> <p> </p>

<p>.jwt()</p> <p>.oauth2ResourceServer()</p>

 No comments.

176. JWT with RSA

 Correct

Multiple Choice Spring Boot Medium

Question description

An application designed using Spring Boot has a server that needs to verify tokens so that no data quality issues are there. The public key that must be used for authentication is:

http://localhost:4000/auth/data/cont

The code segment of the Application.yml file that allows the server for such token verification is:

Interviewer guidelines

We can use 3rd party services to generate jwt tokens and use those tokens to make calls to backend server.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>security:</p> <p>oauth2:</p> <p>resourceserver:</p> <p>jwt:</p> <p>issuer-uri:
http://localhost:4000/auth/data/cont/session</p> <p>jwk-set-uri: http://localhost:4000/auth/data/cont</p> <p> </p>
<p> </p>

<p>security:</p> <p>oauth2:</p> <p>resourceserver:</p> <p>jwt:</p> <p>jwk-set-uri:
http://localhost:4000/auth/data/cont</p> <p> </p> <p> </p>

<p>security:</p> <p>oauth2:</p> <p>resourceserver:</p> <p>jwt:</p> <p>issuer-uri:
http://localhost:4000/auth/data/cont/session</p> <p> </p> <p> </p>

<p>security:</p> <p>oauth2:</p> <p>resourceserver:</p> <p>jwt:</p> <p>server-uri:
http://localhost:4000/auth/data/cont/session</p> <p>jwk-server-uri: http://localhost:4000/auth/data/cont</p> <p> </p>

ⓘ No comments.

177. Error Handling

ⓘ Correct

Multiple Choice Spring Boot Medium Exception Handling Aspect-Oriented Programming

Question description

What scenario does this 'custom error handling' block handle?

```
@ControllerAdvice  
public class CustomResourceNotFoundExceptionHandler {  
  
    @ExceptionHandler(value = { NoHandlerFoundException.class })  
    public ResponseEntity<Object> noHandlerFoundException(Exception ex) {  
  
        return ResponseEntity.status(HttpStatus.BAD_REQUEST).body("Resource Not Found");  
    }  
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

This block of code will be executed when we try to hit an API and it does not exist in the project scope.



This block of code will be executed when we try to hit an API and its execution encounters an error.

This block of code will be executed when we try to hit an API and it does not have enough data to execute.

This block of code will be executed when we try to hit an API which we are not authorized to access.

ⓘ No comments.

178. API

ⓘ Correct

Multiple Choice Medium Spring Boot

Question description

What is the console output when the following API is executed?

application.properties

```
logging.level.root=DEBUG
```

```
@GetMapping("/demo")
public String demo() {
```

```
    LOG.debug("ERROR log");
    LOG.trace("DEBUG log");
    LOG.info("TRACE log");
    LOG.error("INFO log");
```

```
    someRandomClass.longOperation();
```

```
    return "Log demo";
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>ERROR log</p> <p>DEBUG log</p> <p>TRACE log</p> <p>INFO log</p>

<p>ERROR log</p> <p>TRACE log</p> <p>INFO log</p>

<p>ERROR log</p> <p>DEBUG log</p> <p>INFO log</p>

<p>DEBUG log</p> <p>TRACE log</p> <p>INFO log</p>

 No comments.



179. Predict the Output

Correct

Multiple Choice Medium Exception Handling Spring Boot Aspect-Oriented Programming

Question description

Consider the following Snippet and predict the output.

The following API is triggered: <http://localhost:8080/add/employee?eld=123&fName=Ravi&lastName=Shekhar>

```
@Autowired  
private EService eService;  
  
@RequestMapping(value = "/add/employee", method = RequestMethod.GET)  
public com.model.Employee add(@RequestParam("eld") String eld, @RequestParam("fName") String fName, @RequestParam("lastName") String lastName)  
{  
    return eService.createEmployee(eld, fName, lastName);  
}  
  
@Aspect  
@Component  
public class EServiceAspect  
{  
    @After(value = "execution(* com.random.service.EService.*(..)) && args(eld, fName, lastName)")  
    public void afterAdvice(JoinPoint joinPoint, String eld, String fName, String lastName) {  
        System.out.println("After method:" + joinPoint.getSignature());  
        System.out.println("Creating Employee with first name - " + fName+ ", second name - " + lastName+ " and id - " + eld);  
    }  
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>After method : com.test.model.Employee addEmployee(String,String,String)</p> <p>Creating Employee with first name - Ravi , second name - Shekhar and id - 123</p> <p> </p>



<p>After method : com.test.model.Employee addEmployee(string,string,string)</p> <p>Creating Employee with first name - Ravi , second name - Shekhar and id - 123</p> <p> </p>

<p>After method : com.test.model.Employee addEmployee(emplId,firstName,secondName)</p> <p>Creating Employee with first name - Ravi , second name - Shekhar and id - 123</p> <p> </p>

<p>After method : com.test.model.Employee addEmployee(String,String,String)</p> <p>Creating Employee with first name - Shekhar, second name - Ravi and id - 123</p> <p> </p>

① No comments.

180. Transactions

Correct

Multiple Choice Microservices Easy

Question description

A payment gateway company that integrates PayPal, Stripe, and many other vendors uses microservices for their infrastructure. Whenever a user clicks on the payment button, a request to the backend is made and money is instantly deducted. Whenever a user presses the button twice, the charges are deducted twice. How can you fix this problem?

Interviewer guidelines

Option D is the correct one. Applying fixing on the frontend as well as adding Idempotency Key in the Backend helps eliminate duplicate requests.

Candidate's Solution

Options: (Expected answer indicated with a tick)

Disable the button after it is pressed one time.

Disable the transaction from the backend once it is approved one time.

Add an idempotence key to the request and add the transaction to the queue.

A and C



A and B

No comments.

181. Microservices Security

Correct

Multiple Choice Microservices Easy

Question description

A company deals has implemented the GPT-3 AI Text Generation using microservices infrastructure for handling thousands of users. The operations team receives a notification that three of their services are down. There is evidence of image pullback failure. Upon investigating, they deduced that one of their services was internet facing and was exploited. The exploited service started messaging other services with corrupted data. The team applied security patches to fix the problem.

What is the fix?

Interviewer guidelines

Option A is correct, which describes the benefits of using Service Mesh as well as initial precautionary measures when it happens.

Candidate's Solution

Options: (Expected answer indicated with a tick)

The team added mTLS and added rules for inter-service communications. After that, they pushed the internet-facing server behind a load balancer and applied JWT tokens for authentication.

The team cut off the internet-facing service from the infrastructure and applied a JWT token for each call to other services.

A and B

 No comments.

182. Conway's Law

 Correct

Multiple Choice Microservices Easy

Question description

A food retail company has an infrastructure based on microservices. While in development the various departments were isolated from each other and were provided with tight deadlines. The department leads informed their teams that if anything went wrong, they could do it over again.

According to Conway's law (the organization system design structure replicates their communication structure), the scenario should be remedied. Which of the following options correctly remedies the problems that arose in the scenario?

Interviewer guidelines

The original scenario describes isolated development teams and tight deadlines, which leads to a fragmented communication structure and, according to Conway's Law, a poorly designed microservices architecture. The phrase "if anything went wrong, they could do it over again" exacerbates this issue by encouraging a lack of coordination and a "fail-and-fix" mentality rather than a focus on correct initial design.

The solution is to use the "Inverse Conway Maneuver," where you intentionally restructure the organization to achieve the desired system architecture. For a microservices architecture, this means creating small, independent, cross-functional teams that own specific services or business domains.

This option aligns perfectly with this principle by advocating for both a restructure and the creation of independent teams. This approach:

- **Breaks down communication silos** by reorganizing teams around specific products or business capabilities.
- **Empowers teams to dictate their communication channels**, reducing the overhead and bottlenecks of inter-team dependencies and fostering a more agile and efficient development process.
- **Aligns the organizational structure with the microservices architecture** by creating a one-to-one mapping between independent teams and independent services.

Why other options are incorrect

- **"Give up features while adding more communication channels to the team and create independent teams."** Giving up features (reducing scope) is an option to manage tight deadlines, but it doesn't solve the core communication and structural problem identified by Conway's Law. Simply adding communication channels without restructuring to break down silos is often ineffective.

- "Restructure the team to report to multiple people at the same time." Having teams report to multiple people creates conflicting priorities and increases confusion, which would worsen, not remedy, the communication and organizational problems.
- "Start micro-managing a set of teams by allocating tasks more closely to make delivery effective." Micro-management would further stifle the autonomy and ownership that microservices require. This approach addresses the symptom (ineffective delivery) with a flawed solution that undermines the principles of a loosely coupled, microservices-based system.

Candidate's Solution

Options: (Expected answer indicated with a tick)

Give up features while adding more communication channels to the team and create independent teams.

Restructure the team to report to multiple people at the same time.

Start micro-managing a set of teams by allocating tasks more closely to make delivery effective.

Restructure and also create independent teams that will dictate their communication channels.



No comments.

183. Client Side Load Balancing

Correct

Multiple Choice Microservices Easy

Question description

A streaming service provider uses a microservices architecture to support its infrastructure. To ensure a seamless user experience, the service uses client-side load balancing, where the client automatically connects to different servers based on availability. However, a security flaw has been identified: the client stores sensitive data, such as server locations and authentication tokens, on the client side, making them vulnerable to exposure and misuse.

What is the most effective way to mitigate this security vulnerability?

Interviewer guidelines

Correct Answer:

Option [D] – B and C

Explanation – To mitigate the security flaw of storing sensitive data (like server locations and authentication tokens) on the client side, a combination of **additional layers of authentication and authorization** (Option B) and **mTLS certificates** (Option C) is the most effective solution.

- **Option B** – By adding more layers of authentication and authorization, the system ensures that even if the client is compromised, only authorized clients can make requests to the servers. This might involve using session tokens, OAuth, or other security mechanisms that validate client identity.
- **Option C** – Implementing **mTLS (mutual TLS)** certificates ensures that both the client and server authenticate each other, providing secure, encrypted communication. Expiring certificates after a short period (like 10 minutes) adds an extra layer of security by reducing the risk if a certificate is compromised.

Incorrect Answers:

Option [A] – Each service will need to authenticate the requests individually and cannot trust other services.

Explanation – While individual service authentication is important for service-to-service communication, it doesn't address the issue of sensitive data being exposed on the client side. The core issue is the client-side exposure of data, which can be mitigated using proper authentication/authorization and secure communication methods like mTLS.

Option [B] – Add more layers of authentication and authorization in between the servers/clients.

Explanation – This is a good approach but doesn't fully solve the problem of ensuring secure communication. Adding mTLS certificates (as in Option C) alongside authentication and authorization will provide a comprehensive solution.

Option [C] – Add mTLS certificates that expire after 10 minutes.

Explanation – While mTLS provides secure communication between the client and server, using it alone does not address the issue of client-side data exposure. The client still holds sensitive data, such as server locations and tokens, which could be exploited. Without additional authentication and authorization layers, mTLS alone wouldn't fully mitigate the security vulnerability of client-side storage.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<p>A: Each service will need to authenticate the requests individually and cannot trust other services.</p>`

`<p>B: Add more layers of authentication and authorization in between the servers/clients</p>`

`<p>C: Add mTLS certificates that expire after 10 minutes.</p>`

B and C



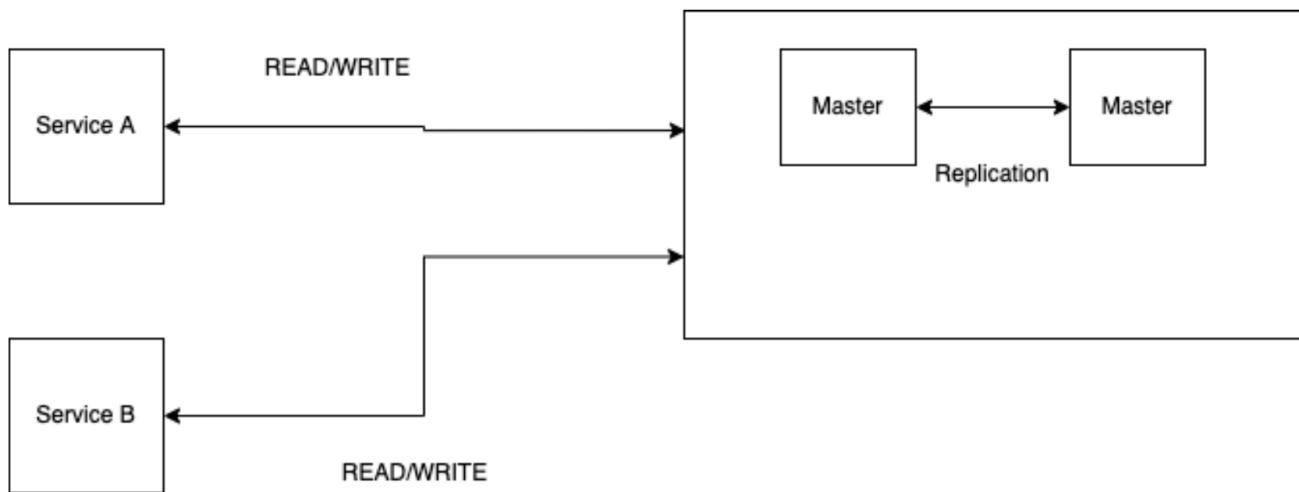
No comments.

184. Master Master Replication

Multiple Choice Microservices Medium

Question description

Consider the diagram below:



A team of developers manages Service A and Service B. The services read and write data to the Master-Master replication stateful set. What is a potential flaw in the system?

Interviewer guidelines

Option E is Correct, As this architecture will negate Eventual Consistency and ACID Model thus when increased latency, lag in writes, potential loss of data is expected.

Candidate's Solution

Options: (Expected answer indicated with a tick)

increased latency due to synchronization

volatile consistency due to lag in write

The more read slaves are added to the system, the more you have to replicate, which leads to greater replication lag.

potential loss of data if one of the masters fails

All of the above. ⓘ No comments.

185. Semantic Monitoring Drawback

Correct

Multiple Choice Easy Microservices

Question description

Semantic monitoring (a.k.a. synthetic monitoring) runs a subset of an application's automated tests against the live production system on a regular basis. What are the side effects of semantic monitoring?

Interviewer guidelines

Option B is correct because when testing with simulated test cases, there's a risk of injecting test data into production databases. This is owing to the fact that test cases are typically designed to simulate real-looking dummy data in a production environment, which ideally looks like production data itself.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 extra load on the services There is a probability that tests will inject test data into production. There is a possibility that semantic monitoring provides false positives. All of the above ⓘ No comments.

186. Tests in Production

Correct

Multiple Choice Microservices Easy

Question description

Semantic monitoring (a.k.a. synthetic monitoring) runs a subset of an application's automated tests against the live production system on a regular basis. Which of the following options is the most appropriate and actionable benefit of semantic monitoring?

Interviewer guidelines

Option A is the correct one as the whole purpose of Semantic Monitoring is to reduce average downtime.

Candidate's Solution

Options: (Expected answer indicated with a tick)

decrease in average downtime as we can pinpoint which service is at fault (checkmark)

detailed monitoring about production environment

consistent health checks about different services

① No comments.

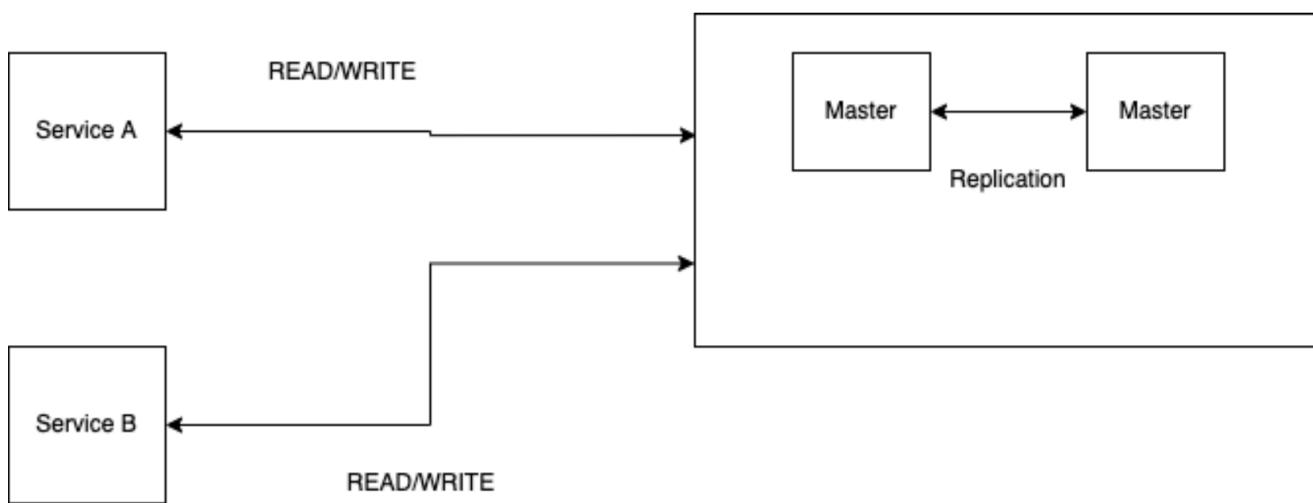
187. Master Master Replication 3

(checkmark) Correct

Multiple Choice Microservices Medium

Question description

Consider the diagram below.



A team of developers has successfully refactored the system to resolve problems in consistency, latency, and lag. They would like to test the environment before going to production.

How should the following steps be organized to conduct the tests?

1. Perform E2E (end-to-end) tests first and identify the key differences.
2. Divert some production traffic to the test environment to see how it works i.e.
A/B Testing.
3. Perform unit testing.

Interviewer guidelines

Option C is correct. Unit testing is the first kind of test that is performed upon the code as it doesn't test interdependencies. All the other tests can be performed on top of it. The last test should be to send more traffic through to production when the first two pass.

Candidate's Solution

Options: (Expected answer indicated with a tick)

1 -> 2 -> 3

2 -> 3 -> 1

3 -> 2 -> 1



No comments.

188. Microservices Reliability

Correct

Multiple Choice Microservices Medium

Question description

A chat-based app like Whatsapp is using microservices to connect thousands of real-time users together. They have a flaw in the design of the microservices that all the reads and writes go through one service, "Service A". Service A provides them a great deal of volatility and unpredictability. The company would like to refactor the codebase to address the unpredictability of the system.

Which of the following decisions should they go with?

Interviewer guidelines

The Answer is Option 1 and Option 2. First the team needs to separate the read and write APIs, then add queue / cache to the system for improved performance, robustness and consistency.

Candidate's Solution

Options: (Expected answer indicated with a tick)

Separate the read and write APIs into separate services.



Add a queue to the write API and a cache on the read API so the system can efficiently handle messages.



Add redundancy to Service A.

No comments.

189. Disaster Recovery

Correct

Multiple Choice Microservices Medium

Question description

A common cause of failure in microservices is downstream services. Downstream services are the services that are impure. That is, they have dependencies such as database connections, queues, etc. How would you mitigate the failure of these services?

Interviewer guidelines

Options 1 and 2 are correct. Adding a master/worker node that uses Round Robin will add disaster redundancy to the system.

Reference:

<https://12factor.net/>

Candidate's Solution

Options: (Expected answer indicated with a tick)

Add redundancy to the downstream services.



Add master/worker nodes to the downstream services.

Add more services to downstream services for better logging and error handling.

None of the above

No comments.

190. Service Discovery

Correct

Multiple Choice Service Mesh Microservices Easy

Question description

On March 8, 2022, a music provider detected a global outage in its services. Their system is based on microservices. For microservices to be able to find each other, they utilize service discovery technologies like Google Traffic Detector. The incident happened due to a bug within Google Traffic Detector.

Since this issue was from a third-party provider, what is the likely solution to this problem?

Interviewer guidelines

Option C is the correct answer i.e. by adding multiple Service Discovery options in the infrastructure to ensure that we don't have a single point of failure in the system, we can toggle in-between anyone depending on the circumstances.

Reference:

<https://engineering.at spotify.com/2022/03/incident-report-spotify-outage-on-march-8/>

Candidate's Solution

Options: (Expected answer indicated with a tick)

Migrate service discovery to other vendors, e.g. AWS, and Azure.

Migrate microservices back to monolith.

Add multiple service discovery options in the infrastructure.



Ask the vendor to fix the problem and wait for the fix.

! No comments.

191. Distributed System Characteristics

Correct

Multiple Choice Microservices Medium Distributed Systems

Question description

Which of the following are advantages of a distributed system?

Candidate's Solution**Options:** (Expected answer indicated with a tick) If one component fails in a distributed system, the remaining components may be able to continue operating.  It is less difficult to implement a distributed database system because of its low cost of installation. The amount of processing overhead is less than with a monolithic architecture. It overcomes bottlenecks of the processing pipeline easier than with a centralized system.  No comments.**192. Understanding Microservice** Correct

Multiple Choice Medium Distributed Systems Microservices

Question description

Which of the following statements describe the properties of a microservice?

Candidate's Solution**Options:** (Expected answer indicated with a tick) <p>Focuses on a single responsibility principle
</p>  <p>Too large and complex to fully understand and make changes fast and correctly.
</p> <p>Responsible for its own task and communicates with other services through simple APIs to solve a larger complex business problem
</p>  <p>Should implement a fully testable end-to-end business use-case
</p>

ⓘ No comments.

193. Communication Methods

ⓘ Correct

Multiple Choice Distributed Systems HTTP JSON Easy

Question description

Which of these is a method of communication between microservices in a larger application?

Candidate's Solution

Options: (Expected answer indicated with a tick)

HTTP Protocol

Event-driven or Message-driven

SOAP

All of these

ⓘ

ⓘ No comments.

194. Microservices Usage

ⓘ Correct

Multiple Choice Microservices Easy

Question description

A services-based company is building an AI tooling system that can help their client streamline their training and inference data set using AWS Fargate. However Fargate does not provide GPU access to users, and it is expensive for the client. The team decided to implement a custom solution that can scale and train custom models of users. Given the short time span, they have two options:

1. Build the custom Solution using Microservices, LinkerD, MicroK8s.
2. Use an existing system like KubeFlow and build custom features on top of it.

Which of the following is the best way forward?

Interviewer guidelines

Option A is the correct one, implementing custom solution micro services takes time and this team was short on schedule, so using KubeFlow was a good decision by the team.

Candidate's Solution

Options: (Expected answer indicated with a tick)

Try 2 then 1.



Try and test 1.

Try 1 and then 2.

! No comments.

195. Master Master Replication 2

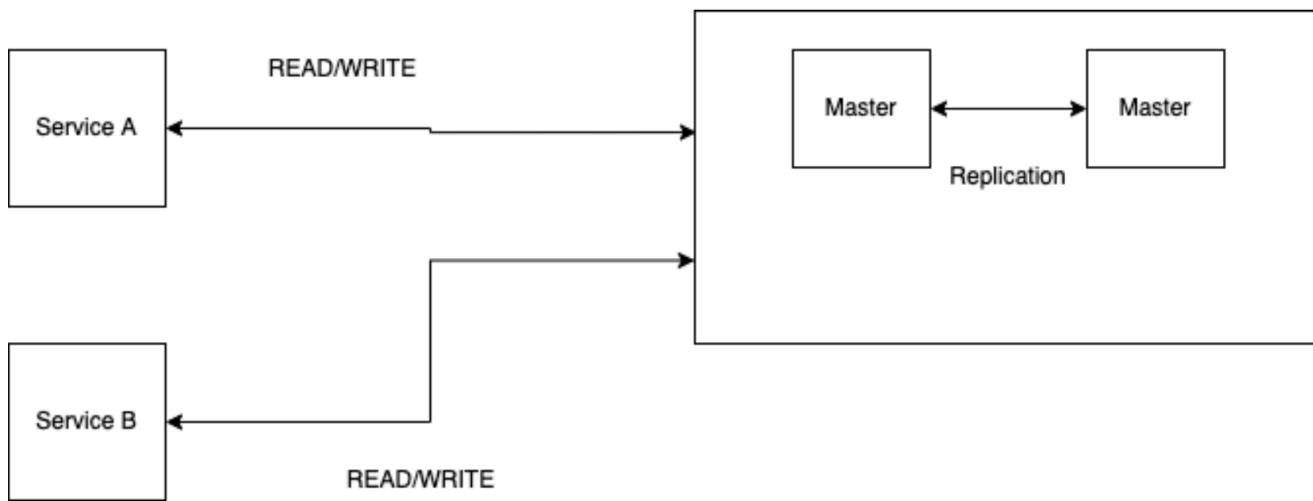
✓ Correct

Multiple Choice Microservices Medium

Question description

The team has identified the issues of increased latency, volatile consistency, greater replication lag, and potential for data loss of data in the architecture diagram below. How should the steps be organized to mitigate these issues?

1. Create a separate test environment.
2. Start adding queues and caches.
3. Start refactoring the database.



Interviewer guidelines

The Answer is B, Creating a separate test environment should be first priority and database refactoring; Lastly they can prioritise adding queues and cache.

Candidate's Solution

Options: (Expected answer indicated with a tick)

3 -> 2 -> 1

1 -> 3 -> 2

1 -> 2 -> 3

2 -> 1 -> 3

 No comments.

196. RBAC: User Entry Client Certificate Auth

 Incorrect

DevOps DevOps Easy RBAC Kubernetes

Question description

There is an existing SSL certificate "certificate.crt" and a private key "private.key" in "/home/ubuntu/1171565-kubernetes-rbac-user-entry-client-certificate-auth".

Complete the file stub "/home/ubuntu/1171565-kubernetes-rbac-user-entry-client-certificate-auth/script.sh" with one or more steps that do the following:

- Create a new User entry named "deployer" in Kubeconfig using "certificate.crt" and "private.key" in "/home/ubuntu/1171565-kubernetes-rbac-user-entry-client-certificate-auth".
- Create a new Context entry named "deployer" in Kubeconfig for the recently created User "deployer".

Note:

- The completed solution will be evaluated in a new, clean environment. ANY CHANGES MADE MANUALLY WILL BE LOST. ONLY CHANGES TO THE "script.sh" FILE IN "/home/ubuntu/1171565-kubernetes-rbac-user-entry-client-certificate-auth" WILL BE CARRIED TO THE NEW ENVIRONMENT.
- The result of "sudo solve", invoked from the question directory, should solve the task.
- You have sudo privileges, if needed.

Candidate's Solution

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 No comments.

197. CronJob: Basic Implementation

 Incorrect

DevOps Kubernetes DevOps Easy CI/CD

Question description

There is an existing Namespace "hacker-company".

There is a source file of an application to build at "/home/ubuntu/1171986-kubernetes-cronjob-basic-implementation/src/main.c"

Complete the file stub "/home/ubuntu/1171986-kubernetes-cronjob-basic-implementation/definition.yml" with one or more steps that do the following:

- create a new cron job named "build" within the namespace "hacker-company", which:
 - executes every minute
 - disallows concurrent execution
 - creates a new container using "gcc" image at "latest" tag
 - mounts a host directory "/home/ubuntu/1171986-kubernetes-cronjob-basic-implementation/src" as a volume in "/mnt/src"
 - executes the command "gcc -o build main.c" in the directory "/mnt/src"

As the result of the "build" Cron Job execution, a binary file "/home/ubuntu/1171986-kubernetes-cronjob-basic-implementation/src/build" should be built and executable.

Note:

- The completed solution will be evaluated in a new, clean environment. ANY CHANGES MADE MANUALLY WILL BE LOST. ONLY CHANGES TO THE "definition.yml" FILE IN "/home/ubuntu/1171986-kubernetes-cronjob-basic-implementation" WILL BE CARRIED TO THE NEW ENVIRONMENT.
- The result of "sudo solve", invoked from the question directory, should solve the task.
- You have sudo privileges, if needed.

Candidate's Solution

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 No comments.

198. StatefulSet: Basic Implementation

 Incorrect

DevOps Kubernetes StatefulSet DevOps Easy

Question description

There is a Kubernetes namespace called "hacker-company" with a Service, "nginx", that is defined as follows.

```
apiVersion: v1
kind: Service
metadata:
  name: nginx
  namespace: hacker-company
  labels:
    role: frontend
spec:
  ports:
  - port: 80
    name: nginx
  clusterIP: None
  selector:
    role: frontend
```

Complete the file stub "/home/ubuntu/1171641-kubernetes-statefulset-basic-implementation/definition.yml" with one or more steps that do the following:

- Implement a Stateful Set skeleton named "frontend" within the "hacker-company" namespace with a container named "nginx" of "nginx" image at "latest" tag using the following requirements:
 - The Service "nginx" should be on a forwarded port "80" of the "nginx" container via proper selector implementation.
 - The number of replicas should be "2".

Note:

- The completed solution will be evaluated in a new, clean environment. ANY CHANGES MADE MANUALLY WILL BE LOST. ONLY CHANGES TO THE "definition.yml" FILE IN "/home/ubuntu/1171641-kubernetes-statefulset-basic-implementation" WILL BE CARRIED TO THE NEW ENVIRONMENT.
- The result of "sudo solve", invoked from the question directory, should solve the task.
- You have sudo privileges, if needed.

Candidate's Solution

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 No comments.

199. StatefulSet: Basic Performance Optimization

 Incorrect

[DevOps](#) [Easy](#) [DevOps](#) [StatefulSet](#) [Kubernetes](#)

Question description

There is a namespace called "hacker-company" that contains a Stateful Set, "cache".

Complete the file stub "/home/ubuntu/1171639-kubernetes-statefulset-basic-performance-optimization/script.sh" with one or more steps that do the following:

- Scale the existing StatefulSet "cache" to 3 replicas.
- Set the CPU requests for the "redis" container in the StatefulSet "cache" to **25% (250m)**.
- Set the memory requests for the "redis" container in the StatefulSet "cache" to **64MB (64Mi)**.
- Set the CPU limits for the "redis" container in the StatefulSet "cache" to **25% (250m)**.
- Set the memory limits for the "redis" container in the StatefulSet "cache" to **64MB (64Mi)**.

Note:

- The completed solution will be evaluated in a new, clean environment. ANY CHANGES MADE MANUALLY WILL BE LOST. ONLY CHANGES TO THE "script.sh" FILE IN "/home/ubuntu/1171639-kubernetes-statefulset-basic-performance-optimization" WILL BE CARRIED TO THE NEW ENVIRONMENT.
- The result of "sudo solve", invoked from the question directory, should solve the task.
- You have sudo privileges, if needed.

Candidate's Solution

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 No comments.

200. Kubernetes Two or More Instructions

 Correct

Multiple Choice Easy Kubernetes

Question description

You are composing a Kubernetes scenario file in YAML format. You want to put more than one instruction inside one file. How can this be achieved?

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p># namespace creation instruction</p> <p>(one or more space)</p> <p># pod creation instruction</p>

<p># namespace creation instruction</p> <p>---</p> <p># pod creation instruction</p>

<p># namespace creation instruction</p> <p># pod creation instruction</p>

<p>There is no way to put more than one instruction per file.</p>

 No comments.

201. Kubernetes Pod Logs

 Correct

Multiple Choice Easy Kubernetes

Question description

After a rollback to the previous deployment of a Kubernetes service, you need to fetch the last log entries of all the pods marked with a specific "publisher" label. What is the correct way to do this?

Candidate's Solution

Options: (Expected answer indicated with a tick)

kubectl logs --last=10 -l publisher=hacker-company

kubectl get logs --count=10 --selector="publisher=hacker-company";

kubectl logs --tail=10 -l publisher=hacker-company

kubectl get logs --count=-10 -l publisher=hacker-company

 No comments.

202. HPA: Basic Autoscaling

 Incorrect

DevOps DevOps Easy HPA Kubernetes

Question description

There is a Kubernetes namespace, "hacker-company", and within that namespace, there is a Deployment called "application".

Complete the file stub "/home/ubuntu/1171529-kubernetes-hpa-basic-autoscaling/script.sh" with one or more steps that do the following:

- Autoscale the existing Deployment "application" horizontally.
- Set the number of replicas to between "2" and "5".

Note:

- The completed solution will be evaluated in a new, clean environment. ANY CHANGES MADE MANUALLY WILL BE LOST. ONLY CHANGES TO THE "script.sh" FILE IN "/home/ubuntu/1171529-kubernetes-hpa-basic-autoscaling" WILL BE CARRIED TO THE NEW ENVIRONMENT.
- The result of "sudo solve", invoked from the question directory, should solve the task.
- You have sudo privileges, if needed.

Candidate's Solution

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 No comments.

203. StatefulSet: Update Strategy Change

 Incorrect

[DevOps](#) [Easy](#) [Kubernetes](#) [StatefulSet](#) [DevOps](#)

Question description

There is an existing Namespace called "hacker-company" that contains the Stateful Set "builder".

Complete the file stub "/home/ubuntu/1171929-kubernetes-update-strategy-change/script.sh" with one or more steps that do the following.

- Tell the controller of the Stateful Set "builder" to switch an update strategy to the "RollingUpdate" with an unlimited number of Pods that can be unavailable during the update process.

Note:

- The completed solution will be evaluated in a new, clean environment. ANY CHANGES MADE MANUALLY WILL BE LOST. ONLY CHANGES TO THE "script.sh" FILE IN "/home/ubuntu/1171929-kubernetes-update-strategy-change" WILL BE CARRIED TO THE NEW ENVIRONMENT.
- The result of "sudo solve", invoked from the question directory, should solve the task.
- You have sudo privileges, if needed.

Candidate's Solution

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 No comments.

204. Kubernetes Run Command

 Correct

[Multiple Choice](#) [Easy](#) [Kubernetes](#)

Question description

After setting up a Kubernetes cluster, you want to run the package manager update process in a particular pod. How this can be achieved?

Candidate's Solution

Options: (Expected answer indicated with a tick)

`kubectl run pod/frontend-controller-01 --cmd="apt-get update";`

`kubectl exec pod/frontend-controller-01 --cmd="apt-get update";`

`kubectl run pod/frontend-controller-01 -- apt-get update`

`kubectl exec pod/frontend-controller-01 -- apt-get update`



No comments.

205. Kubernetes Find Documentation

Correct

Multiple Choice Easy Kubernetes

Question description

While refactoring an existing Kubernetes cluster, you want to create a new service but you have forgotten the resource schema. How can you get a short explanation of a specific resource definition?

Candidate's Solution

Options: (Expected answer indicated with a tick)

`kubectl explain service`



`kubectl help service`

`kubectl describe service`

kubectl expose service

① No comments.

206. Kubernetes Pods Query

Correct

Multiple Choice Easy Kubernetes

Question description

As part of your Kubernetes cluster maintenance process, you need to find out all the pods working in the staging environment. You know each pod has a specific label named "environment" which refers to a particular environment name. How can you get all the pods with the label "environment=staging"?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 kubectl get pods --label environment=staging kubectl get pods --selector=environment=staging

Correct

 kubectl label environment=staging kubectl expose pods environment=staging

① No comments.

207. Kubernetes Basic Pod

Correct

Multiple Choice Kubernetes Easy

Question description

As the next part of your Kubernetes cluster maintenance, you want to test that everything still works properly. For a quick check, you want to execute a test image run. What is the right command?

Candidate's Solution

Options: (Expected answer indicated with a tick)

kubectl exec --image=hello-world test

kubectl exec --rm -i --image=hello-world --restart=Never test

kubectl create image hello-world

kubectl run --rm -i --image=hello-world --restart=Never test



No comments.

208. Kubernetes Pods Status

Correct

Multiple Choice Easy Kubernetes

Question description

You are working on one of your company's existing Kubernetes clusters. You want to retrieve information about all the pods you have for a specific namespace. Which of these commands will achieve this?

Candidate's Solution

Options: (Expected answer indicated with a tick)

kubectl explain pods hacker-company

kubectl explain pods -n hacker-company

kubectl get pods -n hacker-company



kubectl expose pods -n hacker-company

No comments.

209. Kubernetes: Secrets

Incorrect

DevOps Easy DevOps Kubernetes

Question description

A web application built on Kubernetes must be deployed. Complete the file stub "/home/ubuntu/924270-kubernetes-secrets/script.sh" with one or more steps that do the following:

- Create a new generic secret "application" with the key "checksum" and the value from the host's environment variable "APPLICATION_CHECKSUM", in the "hacker-company" namespace.
- Create a new generic secret "deployment" with the key "ssh_key" and the value from the host's ssh private key "/id_rsa.pub", in the "hacker-company" namespace.

Note

- The completed solution will be evaluated in a new, clean environment. Be sure everything is in the "/home/ubuntu/924270-kubernetes-secrets" folder.
- All the tasks should be done within a simple "sudo solve" execution invoked from the question directory.
- You have sudo access.

Grading

- The execution result of "sudo solve" invoked from the question directory solves the task.

Candidate's Solution

Review logs: [output log](#)

[Download candidate submission](#)

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<https://www.hackerrank.com/x/tests/2273776/candidates/82906384/report/detailed/924270>

No comments.

210. Kubernetes Get Deployment Information

Correct

Multiple Choice Easy Kubernetes

Question description

While optimizing an existing Kubernetes cluster, you need to get extended information about the deployment named "hacker-application". How can you do this?

Candidate's Solution

Options: (Expected answer indicated with a tick)

`kubectl describe deployment hacker-application`

kubectl expose deployment hacker-application kubectl explain deployment hacker-application none of the above

No comments.

211. Kubernetes Labels & Annotations

Correct

Multiple Choice Easy Kubernetes

Question description

You are replicating an existing production deployment on staging. As part of this process, you have decided to attach an environment-oriented label and set annotation. How can you do this?

Candidate's Solution

Options: (Expected answer indicated with a tick)

```
<p>kubectl attach label deployment hacker-application environment=staging</p> <p>kubectl set annotation deployment
hacker-application url="https://staging.hacker-company.com"</p>
```

```
<p>kubectl set label deployment hacker-application environment=staging</p> <p>kubectl set annotation deployment hacker-
application url="https://staging.hacker-company.com"</p>
```

```
<p>kubectl label deployment hacker-application environment=staging</p> <p>kubectl annotate deployment hacker-
application url="https://staging.hacker-company.com"</p>
```

```
<p>kubectl create label deployment hacker-application environment=staging</p> <p>kubectl create annotation deployment
hacker-application url="https://staging.hacker-company.com"</p>
```

No comments.

212. Kubernetes Deployment Scale

Correct

Multiple Choice Kubernetes Easy

Question description

While maintaining your company's Kubernetes cluster, you found that Redis deployment should be scaled according to the metrics you see. What command should be executed to scale operation up to 3 (increase the number of ReplicaSets)?

Candidate's Solution

Options: (Expected answer indicated with a tick)

`kubectl scale --replicas=3 -n hacker-company ReplicaSet/redis`



`kubectl scale --number=3 -n hacker-company ReplicaSet/redis`

`kubectl scale --to=3 -n hacker-company ReplicaSet/redis`

`kubectl patch --set="replicas=3" -n hacker-company ReplicaSet/redis`

No comments.

213. Kubernetes: Resources Limits

Incorrect

DevOps Easy DevOps Kubernetes

Question description

A web application built on Kubernetes must be deployed. Complete the file stub "/home/ubuntu/924672-kubernetes-resources-limits/definition.yml" with one or more steps that do the following:

- Deploy a new "nginx" image (from Dockerhub) on the latest tag as "frontend" pod, in the "hacker-company" namespace.
- Assign the CPU core limit "1" and a limit of "50" MB of memory to the "frontend" pod;

Note

- The completed solution will be evaluated in a new, clean environment. Be sure everything is in the "/home/ubuntu/924672-kubernetes-resources-limits" folder.
- All the tasks should be done within a simple "sudo solve" execution invoked from the question directory.
- You have sudo access.

Grading

- The execution result of "sudo solve" invoked from the question directory solves the task.

Candidate's Solution

Review logs: [output log](#)

[Download candidate submission](#)

Please open the report on HackerRank for Work to view the candidate's session

<https://www.hackerrank.com/x/tests/2273776/candidates/82906384/report/detailed/924672>

 No comments.

214. Kubernetes: Volume Mounting

 Incorrect

[DevOps](#) [DevOps](#) [Easy](#) [Kubernetes](#)

Question description

A web application built on Kubernetes must be deployed. Complete the file stub "/home/ubuntu/922536-kubernetes-volume-mounting/definition.yml" with one or more steps that do the following:

- Deploy a new "redis" image (from Dockerhub) on the "buster" tag as "data" pod, in the "hacker-company" namespace.
- Mount the existing hosts directory "/tmp" to the "data" pod at the "/mnt/my-mount" mount point in read-only mode.

Note

- The completed solution will be evaluated in a new, clean environment. Be sure everything is in the "/home/ubuntu/922536-kubernetes-volume-mounting" folder.
- All the tasks should be done within a simple "sudo solve" execution invoked from the question directory.
- You have sudo access.

Grading

- The execution result of "sudo solve" invoked from the question directory solves the task.

Candidate's Solution

Review logs: [output log](#)

[Download candidate submission](#)

Please open the report on HackerRank for Work to view the candidate's session

<https://www.hackerrank.com/x/tests/2273776/candidates/82906384/report/detailed/922536>

 No comments.

215. Kubernetes: Annotations and Labels

 Incorrect

[DevOps](#) [DevOps](#) [Easy](#) [Kubernetes](#)

Question description

A web application built on Kubernetes must be deployed. Complete the file stub "/home/ubuntu/922503-kubernetes-annotations-and-labels/definition.yml" with one or more steps that do the following:

- Deploy a new "nginx" image (from Dockerhub) on the "stable" tag as "frontend" pod, in the "hacker-company" namespace.
- Create an annotation "publisher" with the value "http://www.hacker-company.com" on the "frontend" pod.
- Create a label "environment" with the value "production" on the "frontend" pod.

Note

- The completed solution will be evaluated in a new, clean environment. Be sure everything is in the "/home/ubuntu/922503-kubernetes-annotations-and-labels" folder.
- All the tasks should be done within a simple "sudo solve" execution invoked from the question directory.
- You have sudo access.

Grading

- The execution result of "sudo solve" invoked from the question directory solves the task.

Candidate's Solution

Review logs: [output log](#)

Download candidate submission

Please open the report on HackerRank for Work to view the candidate's session

<https://www.hackerrank.com/x/tests/2273776/candidates/82906384/report/detailed/922503>

 No comments.

216. Kubernetes: Deployment Replication

 Incorrect

[DevOps](#) [DevOps](#) [Easy](#) [Kubernetes](#)

Question description

A web application built on Kubernetes must be deployed. Complete the file stub "/home/ubuntu/922237-kubernetes-deployment-replication/script.sh" with one or more steps that do the following:

- Create a new namespace "hacker-company".
- Deploy a new "redis" image (from Dockerhub) on the "buster" tag as "web-application" deployment, in the "hacker-company" namespace.
- Increase the pods number of the "web-application" deployment to 3 replicas.

Note

- The completed solution will be evaluated in a new, clean environment. Be sure everything is in the "/home/ubuntu/922237-kubernetes-deployment-replication" folder.
- All the tasks should be done within a simple "sudo solve" execution invoked from the question directory.
- You have sudo access.

Grading

- The execution result of "sudo solve" invoked from the question directory solves the task.

Candidate's Solution

Review logs: [output log](#)

Download candidate submission

Please open the report on HackerRank for Work to view the candidate's session

<https://www.hackerrank.com/x/tests/2273776/candidates/82906384/report/detailed/922237>

 No comments.

217. Kubernetes: Basic Redis Deployment

 Incorrect

DevOps Easy DevOps Kubernetes

Question description

A company wants to deploy a web application has built on Kubernetes. As part of that process, complete a file stub "/home/ubuntu/1091251-kubernetes-basic-redis-deployment/definition.yml" with one or more steps that do the following:

- Creates a new namespace "hacker-company".
- Deploys a new "134148934511.dkr.ecr.us-east-1.amazonaws.com/hr/redis" image on the "latest" tag as "redis" deployment, in the "hacker-company" namespace.
- Increases the pods number of the "redis" deployment up to 2 replicas.
- Exposes "6379" port of the "redis" containers.

Note

- The completed solution will be evaluated in a new, clean environment. Be sure everything is in the "/home/ubuntu/1091251-kubernetes-basic-redis-deployment" folder.
- All the tasks should be done within a simple "sudo solve" execution invoked from the question directory.
- You have sudo access.

Candidate's Solution

Review logs: [output log](#)

[Download candidate submission](#)

Please open the report on HackerRank for Work to view the candidate's session

<https://www.hackerrank.com/x/tests/2273776/candidates/82906384/report/detailed/1091251>

 No comments.

218. StatefulSet: Volume Claim Template

 Incorrect

DevOps Kubernetes Easy DevOps StatefulSet

Question description

There is Kubernetes namespace called "hacker-company" that contains the Service "redis". There is a Stateful Set "cache" definition stub in "/home/ubuntu/1171909-kubernetes-statefulset-volume-claim-template/definition.yml" with the next definition:

```
apiVersion: apps/v1
kind: StatefulSet
metadata:
  name: cache
  namespace: hacker-company
spec:
  serviceName: redis
  replicas: 1
  selector:
    matchLabels:
      role: cache
  template:
    metadata:
      labels:
        role: cache
    spec:
      containers:
        - name: redis
          image: buster:latest
          ports:
            - containerPort: 6379
          name: redis
```

Complete the file stub "/home/ubuntu/1171909-kubernetes-statefulset-volume-claim-template/definition.yml" with one or more steps that do the following:

- Specify a new Persistent Volume Claim Template named "data" that
 - uses "ReadWriteOnce" access mode.
 - has a storage request limit of "100Mb".
- Mount a Persistent Volume, "data", at "/data" path to the "redis" container of the StatefulSet "cache".

Note:

- The completed solution will be evaluated in a new, clean environment. ANY CHANGES MADE MANUALLY WILL BE LOST. ONLY CHANGES TO THE "definition.yml" FILE IN "/home/ubuntu/1171641-kubernetes-statefulset-basic-implementation" WILL BE CARRIED TO THE NEW ENVIRONMENT.
- The result of "sudo solve", invoked from the question directory, should solve the task.
- You have sudo privileges, if needed.

Candidate's Solution

Review logs: [output log](#)

Download candidate submission

Please open the report on HackerRank for Work to view the candidate's session

<https://www.hackerrank.com/x/tests/2273776/candidates/82906384/report/detailed/1171909>

 No comments.

219. git status

 Correct

Multiple Choice Git Easy

Question description

Based on the output of the 'git status' command that is shown, which of the following statements is true?

```
git status
On branch newbranch
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

    modified: README.md

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

    modified: README.md
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

- There are 2 files with the name README.md.
- `git reset --soft HEAD~` was executed and the last commit added the REAMDE.md file.
- `git reset --mixed HEAD~` was executed and the last commit added the REAMDE.md file.
- `git reset --hard HEAD~` was executed and the last commit added the REAMDE.md file.
- `git add README.md` was executed and then another change was made to the README.md file. ✓

! No comments.

220. git squash

✓ Correct

Multiple Choice Git Easy

Question description

Which command(s) will squash the last 3 commits into one commit? Pick all that apply.

Interviewer guidelines

git rebase interactive is one of the ways you can squash commits, "squash" & "fixup" are essentially the same command to squash commits inside the git rebase interactive window.

The other command to squash commits is `git reset --soft HEAD~3 && git commit`

Candidate's Solution

Options: (Expected answer indicated with a tick)

git rebase -i HEAD~3 ; In the screen that opens up, change "pick" to "squash" for the 2 commits before the latest commit. (Correct)

git rebase -i HEAD~3 ; In the screen that opens up, change "pick" to "fixup" for the 2 commits before the latest commit. (Correct)

git reset --soft HEAD~3 && git commit (Correct)

git squash 3

! No comments.

221. How Many Branches?

(Correct)

Multiple Choice Git Easy

Question description

After cloning a remote repository with 5 branches, how many branches will `git branch -a` show?

Interviewer guidelines

5 remote (or remote tracking) branches and 1 local branch for default branch master or main.

For a good explanation of local branches and remote-tracking branches please see here - <https://stackoverflow.com/questions/16408300/what-are-the-differences-between-local-branch-local-tracking-branch-remote>

Candidate's Solution

Options: (Expected answer indicated with a tick)

5

6 (Correct)

10 15

No comments.

222. Clone a Git Repo

Correct

Multiple Choice Git Easy

Question description

Which command(s) will clone a Git repository with submodules? Select all that apply.

Interviewer guidelines

Git submodules allow you to keep a git repository as a subdirectory of another git repository. Git submodules are simply a reference to another repository at a particular snapshot in time.

When you pull a git repo, the submodules will not be downloaded. To download the sub modules, you need to provide additional options to git clone or issue additional commands .

Reference

<https://www.atlassian.com/git/tutorials/git-submodule>

<https://stackoverflow.com/questions/16773642/pull-git-submodules-after-cloning-project-from-github>

Candidate's Solution

Options: (Expected answer indicated with a tick)

`git clone --recurse-submodules https://github.com/cameronmcnz/surface.git`



`git clone --recursive https://github.com/cameronmcnz/surface.git`

`git clone https://github.com/cameronmcnz/surface.git ; git submodule init; git submodule update --recursive`



`git clone https://github.com/cameronmcnz/surface.git; git fetch --all --recursive.`

git clone https://github.com/cameronmcnz/surface.git ;git submodule update --init --recursive



① No comments.

223. git describe

Correct

Multiple Choice Git Easy

Question description

`git describe <commit-id>` describes the commit against

Interviewer guidelines

git describe uses the nearest tag to describe the commit.

Candidate's Solution

Options: (Expected answer indicated with a tick)

the HEAD.

the nearest branch.

the nearest tag.



the latest commit of the main branch.

① No comments.

224. Java Mockito Usage Annotation

Correct

Multiple Choice Java JUnit Medium

Question description

PatientServiceImpl.java

```
@Service
public class PatientServiceImpl implements PatientService {

    private PatientRepository patientRepository;
    private PatientMapper patientMapper;
    private DoctorService doctorService;

    public PatientServiceImpl(PatientRepository patientRepository,
                            PatientMapper patientMapper,
                            DoctorService doctorService) {
        this.patientRepository = patientRepository;
        this.patientMapper = patientMapper;
        this.doctorService = doctorService;
    }

    @Override
    public PatientDto save(String name, boolean isPatientDoctor, Long doctorId) throws DoctorNotFoundException {
        Patient patient = new Patient();
        patient.setName(name);

        if (isPatientDoctor) {
            Doctor doctor = doctorService.getEntityById(doctorId);
            patient.setDoctor(doctor);
            patient.setPatientType(PatientType.DOCTOR);
        } else {
            patient.setPatientType(PatientType.PATIENT);
        }

        patientRepository.save(patient);
        PatientDto dto = patientMapper.entityToDto(patient);
        return dto;
    }
}
```

PatientServiceTest.java

```
<X>
public class PatientServiceTest{

    <Y>
    private PatientServiceImpl patientService;
    <Z>
    private PatientRepository patientRepository;
    <T>
    private DoctorService doctorService;
    <S>
    private PatientMapper patientMapper;

    @Test
    void givenPatient_whenSave_thenCheckIfPatientSaved() throws DoctorNotFoundException {
        //given
        String patientName = "doctor bambam";
        boolean isPatientIsDoctor = false;
        Long doctorId = Long.MIN_VALUE;
        //when
        patientService.save(patientName, true, doctorId);
        //then
        verify(patientRepository, times(1)).save(any(Patient.class));
    }
}
```

```
}
```

Which of the following X, Y, Z, and T values will result in the successful execution of the test?

Interviewer guidelines

To mock related tested objects class must be annotated with @ExtendWith(MockitoExtension.class)

And the patientService is the one used in test and all of its related constructor parameters will be mocked. @InjectMocks annotations provide this ability to use other @Mock annotated objects into @InjectMocks annotated object. That means,

X must be @ExtendWith(MockitoExtension.class)

Y must be @InjectMocks

T, Z, X must be @Mock annotations

Answer C provides this

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>X=&nbs;p;@ExtendWith
 Y = @Mocked
 Z = @Mock
 T = @Mock
 S = @Mock</p> <p>&nbs;p;</p>

<p>X=&nbs;p;@ExtendWith
 Y = @InjectMock
 Z = @Mock
 T = @Mock
 S = @Mock</p> <p>&nbs;p;</p>

<p>X=&nbs;p;@ExtendWith(MockitoExtension.class)
 Y = @InjectMocks
 Z = @Mock
 T = @Mock
 S = @Mock</p> <p>&nbs;p;</p>

<p>None of the above</p>

① No comments.

225. Integration Test Dirty Context Annotation Usage

Correct

Multiple Choice Java JUnit Medium

Question description

Guest.java

```
@Component  
public class Guest {
```

```
private List<Integer> guestsByDay = new ArrayList<>();

public void addGuests(Integer guests) {
    guestsByDay.add(guests);
}

public long getGuestRegistrationCount() {
    return guestsByDay.stream().count();
}

public long getTotalGuestCount() {
    return guestsByDay.stream().mapToInt(Integer::intValue).sum();
}
}
```

GuestTest.java

```
@TestMethodOrder(value = MethodOrderer.OrderAnnotation.class)
@SpringBootTest
public class HackerRankIT {

    @Autowired
    Guest guest;

    @DirtiesContext(methodMode = DirtiesContext.MethodMode.BEFORE_METHOD)
    @Test
    @Order(1)
    public void guestsFive() {

        guest.addGuests(5);
        assertEquals(5, guest.getGuestRegistrationCount());
    }

    @Test
    @Order(2)
    public void anotherGuestsFive() {

        guest.addGuests(5);
        assertEquals(10, guest.getGuestRegistrationCount());
    }

    @DirtiesContext(methodMode = DirtiesContext.MethodMode.AFTER_METHOD)
    @Test
    @Order(3)
    public void groupGuests15() {

        guest.addGuests(15);
        assertEquals(25, guest.getGuestRegistrationCount());
    }

    @Test
    @Order(4)
    public void unkownGuests20() {
        guest.addGuests(20);
        assertEquals(20, guest.getTotalGuestCount());
    }
}
```

Which of the following statements is true regarding these test methods?

Interviewer guidelines

@DirtiesContext annotation refreshes the spring context whenever it's triggered. That means all beans/classes managed by spring will be initialized anew.

And it's used in test 1 and 3. (before first test, after third test)

First test will fail because it's checking element's count in list and it's 1,

Second test will fail because it's same as first. it's returning getGuestRegistrationCount which is element's count in list and it's two but checked with 10.

Third test will also fail because it's same as first two. But after third test run, spring context will be refreshed. That means Guess class will be initialized again.

Only fourth test passes the test because with refreshed context guess list will be empty. After adding 20 guest it's checking the sum of guests in guestList.

Candidate's Solution

Options: (Expected answer indicated with a tick)

All 4 methods pass the tests.

The first three methods run successfully and the last method fails.

DirtiesContext annotation refreshes the spring context and only the first test passes the test.

Only the fourth test will pass the test.



No comments.

226. JUnit Multiple When Usage

Correct

Multiple Choice Java JUnit Mockito Easy

Question description

Consider the following code block

```
import org.junit.jupiter.api.BeforeEach;
import org.junit.jupiter.api.Test;

import java.util.ArrayList;
import java.util.List;

import static org.junit.jupiter.api.Assertions.assertEquals;
import static org.mockito.Mockito.*;

public class JUnitWhenMultipleUsage {

    private List<String> nameList;
```

```
@BeforeEach
public void init() {
    nameList = mock(ArrayList.class);
}

@Test
public void testWithMockedArrayList() {
    when(nameList.size()).thenReturn(10).thenReturn(20).thenReturn(30).thenReturn(40).thenReturn(41);
    assertEquals(X, nameList.size());
    assertEquals(Y, nameList.size());
    assertEquals(Z, nameList.size());

    verify(nameList, T).size();
}

}
```

Which of the following *X*, *Y*, *Z*, and *T* values, when applied, allow the *testWithMockedArrayList* method to pass the test?

Interviewer guidelines

Mockito's when the method is applied to 5 times given List object. That means each call of the size() method on nameList object will return "thenReturn" values in order
first size() call will return 10, the second will return 20 and the third call will return 30.

And for the verify method, test(3), at least once(), and at least (3) method validations will be used to pass the test.

The answer is C that's providing the right *X*, *Y*, *Z*, and *T* values

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>X = 41
 Y = 41
 Z= 41
 T = atLeastOnce()</p> <p> </p>

<p>X = 41
 Y = 41
 Z= 41
 T = times(3)</p> <p> </p>

<p>X = 10
 Y = 20
 Z= 30
 T = times(3)</p> <p> </p>

<p>X = 41
 Y = 41
 Z= 41
 T = atLeast(3)</p> <p> </p>

① No comments.

227. JUnit Real Method Call Trap

Correct

Multiple Choice Java JUnit Mockito Hard

Question description

```
@Test  
public void whenAddCalledRealMethodCalled() {  
    List<Integer> myList = mock(ArrayList.class);  
    doCallRealMethod().when(myList).add(any(Integer.class));  
    myList.add( 15);  
    myList.size();  
  
    verify(myList, times(1)).add(0, 15);  
    verify(myList, times(1)).size();  
  
    Integer result = myList.get(0);  
    assertEquals(15, result);  
}
```

Which of the following statements is true regarding the `whenAddCalledRealMethodCalled` test method?

Interviewer guidelines

Correct Answer:

Option [D] – It will throw a null pointer exception on line `myList.add(15)`. ArrayList mocked and its array length is unknown. Even if the original add method is called since its length is null then it will fail.

Explanation – This is exactly right. When you use `mock(ArrayList.class)`, Mockito creates a proxy object but **does not run the `ArrayList` constructor**. This means the internal `elementData` array that the list uses to store items is never initialized; it remains `null`. When `doCallRealMethod()` forces the real `add` method to run, that method tries to access this `null` array, resulting in a `NullPointerException`.

Incorrect Answers:

Option [A] – It passes Test successfully. It will call ArrayList's add real method call and it will add 15 to list.

Explanation – This is incorrect because the real method fails. The real `add` method requires an initialized internal array to add the item to, but the array is `null` because the object is a mock.

Option [B] – It will fail. Its call to ArrayList's add method is working but its mocked and get method returns null. It will fail at `assertEquals(15,result)`.

Explanation – This is incorrect because the test fails much earlier. The code execution never reaches `myList.get(0)` or the `assertEquals` line. The test crashes on the line `myList.add(15)`.

Option [C] – The code won't compile. You cannot mock `ArrayList.class` for `List<Integer>` data type.

Explanation – This is incorrect. The code is perfectly valid and will compile. Mockito can create a mock from a concrete class (like `ArrayList`), and that mock can be assigned to a variable of an interface it implements (like `List`).

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>It passes Test successfully. It will call ArrayList's add real method call and it will add 15 to list. </p>

<p>It will fail. Its call to ArrayList's add method is working but its mocked and get method returns null. It will fail at
assertEquals(15,result); </p>



<p>The code won't compile. You cannot mock ArrayList.class for List<Integer> data type.</p>



<p>It will throw a null pointer exception on line myList.add(15);. ArrayList mocked and its array length is unknown. Even if the original add method is called since its length is null then it will fail. </p>



No comments.

228. Mockito Inject Mock

Correct

Multiple Choice JUnit Mockito Easy

Question description

Which of the following annotations can be used to inject mock attributes into the test object automatically?

Candidate's Solution

Options: (Expected answer indicated with a tick)

@Inject

@MockInjects

@InjectMocks



@Mocks

No comments.

229. Mockito MockMvc

Correct

Multiple Choice JUnit Mockito Medium

Question description

```
@SpringBootTest
@AutoConfigureMockMvc
public class TestWebApplicationTest {

    @Autowired
    private MockMvc mockMvc;

    @Test
    public void shouldReturnDefaultMessage() throws Exception {
        MvcResult mvcResult = this.mockMvc.perform(get("/users"))
            .andExpect(MockMvcResultMatchers.status().isOk())
            .andExpect(MockMvcResultMatchers.content().string(<method>("professional")))
            .andReturn();

        assertEquals("application/json", mvcResult.getResponse().getContentType());
    }
}
```

The json response to GET "/users" endpoint is below

```
{
    "users": [
        {
            "id": 6,
            "name": "Andy Blueman",
            "title": "Master"
        },
        {
            "id": 3,
            "name": "Ahmed Romel",
            "title": "Professional"
        },
        {
            "id": 2,
            "name": "TrancEye",
            "title": "Associate"
        }
    ],
    "message": "Success",
    "result": 1
}
```

Which of the following options can be used in "<method>" block to pass the code block?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Matchers.contains

Matchers.containsStringIgnoringCase



Matchers.containsString Matchers.containsInAnyOrder

① No comments.

230. Mockito Mock-Spy

 Correct[Multiple Choice](#) [JUnit](#) [Mockito](#) [Medium](#)

Question description

Which of the following statements is true about Mockito's mock and spy?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 While mock creates objects that simulate the behavior of real objects, spy creates a real instance of that class. With spy you can change stubbing specific methods of a given class. If you create a mock of an interface and try to configure a stub to call a real method, Mockito will throw an exception. All of the above ✓

① No comments.

231. Mockito Static Methods

 Correct[Multiple Choice](#) [Mockito](#) [JUnit](#) [Medium](#)

Question description

Which of the following options is/are true about Mockito library?

Candidate's Solution

Options: (Expected answer indicated with a tick)

With Mockito's Mockito.mockStatic(<Class>) method, static methods can be mocked.



With Mockito's Mockito.mockPrivate(<Class>) method, private methods can be mocked.

With Mockito's Mockito.spy(<Instance>) method, you get a real object and you can spy or stub specific methods of it.



Mockito.mock(<Class>) method returns mocked new instance of given class.



No comments.

232. Mockito Solution

Correct

Multiple Choice JUnit Mockito Easy

Question description

DoctorServiceImpl.java

```
@Service
public class DoctorServiceImpl{

    private DoctorRepository doctorRepository;
    private DoctorMapper doctorMapper;

    public DoctorServiceImpl(DoctorRepository doctorRepository,
                           DoctorMapper doctorMapper) {
        this.doctorRepository = doctorRepository;
        this.doctorMapper = doctorMapper;
    }

    public DoctorDto save(String name, String speciality, Double hourlyRate) {
        Doctor doctor = new Doctor();
        doctor.setName(name);
        doctor.setSpeciality(speciality);
        doctor.setHourlyRate(hourlyRate);

        doctorRepository.save(doctor);
        DoctorDto dto = doctorMapper.entityToDto(doctor);
        return dto;
    }
}
```

DoctorServiceTest.java

```
//annotation here
public class DoctorServiceTest {

    @InjectMocks
    private DoctorServiceImpl doctorService;

    @Mock
    private DoctorRepository doctorRepository;

    @Mock
    private DoctorMapper doctorMapper;

    @Test
    void givenDoctor_whenSave_thenCheckIfDoctorSaved(){
        //given
        String name = "doctor bambam";
        String speciality = "bambam";
        Double hourlyRate = Double.MIN_VALUE;
        //when
        doctorService.save(name,speciality,hourlyRate);
        //
        verify(doctorRepository,times(1)).save(any(Doctor.class));
    }
}
```

To ensure DoctorServiceTest successfully runs and the test passes, what annotation should be used?

Candidate's Solution

Options: (Expected answer indicated with a tick)

@Test

@ExtendWith(MockitoExtension.class)

@RunWith(JUnitPlatform.class)

None of the above

ⓘ No comments.

233. JUnit Test Order

Correct

Multiple Choice JUnit Medium

Question description

```
//annotation 1 here
public class HackerRankTest {
    private static StringBuilder test = new StringBuilder("");
    @Test
    //annotation 2
    public void hack() {
        test.append("Hack");
    }
    @Test
    //annotation 3
    public void rank() {
        test.append("Rank");
    }
    @Test
    //annotation 4
    public void er() {
        test.append("er");
    }
    @AfterAll
    public static void assertOutput() {
        assertEquals(test.toString(), "HackerRank");
    }
}
```

Which of the following annotation usages would pass the test with success?

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>annotation 1 -> ;@TestMethodOrder(MethodOrderer.Random.class)</p> <p>annotation 2 -> ;@Order(1)</p>
<p>annotation 3 -> ;@Order(2)</p> <p>annotation 4 -> ;@Order(3)</p>



<p>annotation 1 -> ;@TestMethodOrder(MethodOrderer.OrderAnnotation.class)</p> <p>annotation 2 -> ;@Order(1)</p>
<p>annotation 3 -> ;@Order(2)</p> <p>annotation 4 -> ;@Order(3)</p>

<p>annotation 1 -> ;@TestMethodOrder(MethodOrderer.OrderAnnotation.class)</p> <p>annotation 2 -> ;@Order(1)</p>
<p>annotation 3 -> ;@Order(3)</p> <p>annotation 4 -> ;@Order(2)</p>



<p>None of the above</p>

No comments.

234. Reactive Unit Test

Correct

Multiple Choice Java JUnit Reactive Programming Medium

Question description

HolidayBudgetFinancialYear.java

```
@Document  
@Data  
@Builder  
@NoArgsConstructor  
@AllArgsConstructor  
public class HolidayBudgetFinancialYear  
{  
    @Id  
    private String id;  
    @NotBlank  
    private String year;  
    @NotNull  
    private LocalDate startDate;  
    @NotNull  
    private LocalDate endDate;  
    @NotBlank  
    private String locationId;  
}
```

HolidayBudgetFinancialYearService.java

```
@Service  
@RequiredArgsConstructor  
@Slf4j  
public class HolidayBudgetFinancialYearService  
{  
    private final HolidayBudgetFinancialYearRepo holidayBudgetFinancialYearRepo;  
    public Mono<HolidayBudgetFinancialYear> getHolidayBudgetCurrentFinancialYear(String year, String  
locationId)  
    {  
        return holidayBudgetFinancialYearRepo.findByYearAndLocationId(year, locationId)  
            .switchIfEmpty(Mono.error(new ObjectNotFoundException("Financial year " + year + " is not  
found")));  
    }  
}
```

HolidayBudgetFinancialYearRepo.java

```
@Repository  
public interface HolidayBudgetFinancialYearRepo extends ReactiveCouchbaseRepository<HolidayBudgetFinancialYear, String>  
{  
    Mono<HolidayBudgetFinancialYear> findByYearAndLocationId(String year, String locationId);  
    Flux<HolidayBudgetFinancialYear> findAllByLocationId(String locationId);  
}
```

HolidayBudgetFinancialYearServiceTest.java

```
public class HolidayBudgetFinancialYearServiceTest  
{
```

```
private static HolidayBudgetFinancialYearService holidayBudgetFinancialYearService;

@BeforeAll
static void beforeAll()
{
    HolidayBudgetFinancialYearRepo holidayBudgetFinancialYearRepo = mock(HolidayBudgetFinancialYearRepo.class);
    holidayBudgetFinancialYearService =
        new HolidayBudgetFinancialYearService(holidayBudgetFinancialYearRepo);

    when(holidayBudgetFinancialYearRepo.findByYearAndLocationId(anyString(), anyString())).thenReturn(
        Mono.just(HolidayBudgetFinancialYear.builder()
            .year("2022")
            .startDate(LocalDate.of(2022, 1, 1))
            .endDate(LocalDate.of(2022, 1, 7))
            .locationId("30103")
            .build()));
    when(holidayBudgetFinancialYearRepo.findAllByLocationId(anyString())).thenReturn(
        Flux.just(HolidayBudgetFinancialYear.builder()
            .year("2022")
            .startDate(LocalDate.of(2022, 1, 1))
            .endDate(LocalDate.of(2022, 1, 7))
            .locationId("30103")
            .build(),
            HolidayBudgetFinancialYear.builder()
            .year("2023")
            .startDate(LocalDate.of(2023, 1, 1))
            .endDate(LocalDate.of(2023, 1, 7))
            .locationId("30103")
            .build())));
}

@Test
void getHolidayBudgetFinancialYearTest()
{
    StepVerifier.create(
        holidayBudgetFinancialYearService.getHolidayBudgetCurrentFinancialYear("2022", "30103"))
        .assertNext(holidayBudgetFinancialYear -> {
            <changes>
        })
        .verifyComplete();
}
```

Which of the following options, when placed in the `<changes>` block, allows `HolidayBudgetFinancialYearServiceTest` to compile and `getHolidayBudgetFinancialYearTest` method to pass the test?

Interviewer guidelines

`HolidayBudgetFinancialYearService` is a working reactive programming framework that is spring web flux and it returns Mono and Flux data types.

In test class's before all method repository methods

are mocked and the test method's return type should be mono this means assertNext will be applied once and it's `HolidayBudgetFinancialYear.builder()`

```
.year("2022")
.startDate(LocalDate.of(2022, 1, 1))
.endDate(LocalDate.of(2022, 1, 7))
```

```
.locationId("30103")
.build()
```

options A, B, and C have assertion lines that will allow this test to pass.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<p>assertEquals("2022", holidayBudgetFinancialYear.getYear());
 assertEquals(LocalDate.of(2022, 1, 7),
holidayBudgetFinancialYear.getEndDate());</p> <p> </p>`



`<p>assertEquals("30103", holidayBudgetFinancialYear.getLocationId());
 assertEquals(LocalDate.of(2022, 1, 1),
holidayBudgetFinancialYear.getStartDate());</p> <p> </p>`



`<p>assertEquals("2022", holidayBudgetFinancialYear.getYear());
 assertEquals(LocalDate.of(2022, 1, 1),
holidayBudgetFinancialYear.getStartDate()); assertEquals(LocalDate.of(2022, 1, 7), holidayBudgetFinancialYear.getEndDate());
</p> <p> </p>`



`<p>None of the above</p>`

No comments.

235. Mockito Verify

Correct

Multiple Choice Mockito JUnit Medium

Question description

Which of the following is/are true about Mockito's verify method?

Interviewer guidelines

<https://www.baeldung.com/mockito-verify>

Candidate's Solution

Options: (Expected answer indicated with a tick)

With verify method, you can check unexpected interactions on a mocked object.



With verify method, you can check the order of interactions on a mocked object.



With verify method, you can check not occurred interactions on a mocked object.



With verify method, you can check interaction with a certain argument on a mocked object.



With verify method, you can check interaction using argument capture.



! No comments.

236. Spring Integration Dispose Context

Correct

Multiple Choice JUnit Spring Integration Test Hard

Question description

UserCache.java

```
@Component
public class UserCache {
    private Set<String> users = new HashSet<>();
    public boolean addUser(String user) {
        return users.add(user);
    }
    public void printUsers(String message) {
        System.out.println(message + ": " + users);
    }
    public Set<String> getUsers() {
        return users;
    }
}
```

HackerRankIT.java

```
@TestMethodOrder(value = MethodOrderer.OrderAnnotation.class)
@SpringBootTest
public class HackerRankIT {
    @Autowired
    UserCache cache;
    @DirtiesContext(methodMode = DirtiesContext.MethodMode.AFTER_METHOD)
    @Test
    @Order(1)
    public void methodOne() {
        cache.getUserList().add("HackerRank");
    }
    @Test
    @Order(2)
    public void methodTwo() {
```

```
    cache.getUserList().add("Rocks");
}
@DirtiesContext(methodMode = DirtiesContext.MethodMode.BEFORE_METHOD)
@Test
@Order(3)
public void methodThree() {
    cache.getUserList().add("All");
}
@Test
@Order(4)
public void methodFour() {
    cache.addUser("is one");
    cache.printUserList("Result ");
}
}
```

What will be printed on the console when the last test in HackerRankIT.java class runs?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Result : [HackerRank, Rocks, All, is one]

Result : [Rocks, All, is one]

Result : [HackerRank, All, is one]

Result : [All, is one] ✓

! No comments.

237. Spring Integration Test MockMvc

✓ Correct

Multiple Choice Medium Integration Testing JUnit Spring Boot

Question description

```
import static org.springframework.test.web.servlet.result.MockMvcResultMatchers.status;

import static org.hamcrest.Matchers.containsStringIgnoringCase;
import static org.junit.Assert.assertEquals;
import static org.springframework.test.web.servlet.request.MockMvcRequestBuilders.get;
import static org.springframework.test.web.servlet.result.MockMvcResultHandlers.print;
import static org.springframework.test.web.servlet.result.MockMvcResultMatchers.content;
import static org.springframework.test.web.servlet.result.MockMvcResultMatchers.status;
```

```
import org.junit.jupiter.api.Test;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.boot.test.autoconfigure.web.servlet.AutoConfigureMockMvc;
import org.springframework.boot.test.context.SpringBootTest;
import org.springframework.test.web.servlet.MockMvc;
import org.springframework.test.web.servlet.MvcResult;

@SpringBootTest
@AutoConfigureMockMvc
public class HackerRankIntegrationTest {

    @Autowired
    private MockMvc mockMvc;

    @Test
    public void shouldReturnDefaultMessage() throws Exception {
        MvcResult mvcResult = this.mockMvc.perform(get("/user/listUsers"))
            .andDo(print())
            .andExpect(status().isOk())
            .andExpect(content().string(containsStringIgnoringCase("Hacker Rank Rock")))
            .andReturn();

        assertEquals("application/json", mvcResult.getResponse().getContentType());
    }
}
```

Assume all the following responses are from "/hacker/rank". Which of them may pass the test?

Candidate's Solution

Options: (Expected answer indicated with a tick)

{"data": {"key": "Hacker Rank", "value": "Rank rocks"}}

{"data": {"key": "Hacker Rank", "value": "rocks Hacker rocks Rank"}}

{"data": {"key": "Hacker Rank", "value": "rocks"}}

{"data": {"key": "hacker Rank Rocks", "value": "Rank rocks"}}



! No comments.

238. Java Keywords

✓ Correct

Multiple Choice Easy Java

Question description

Which keyword is used to take control out of the enclosing loop?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 for break (Correct) if continue

① No comments.

239. Java Constants(Correct)

Multiple Choice Easy Java

Question description

How is a constant declared so that it can be accessed without making an instance of a class in which it is declared?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 public final int intConst public static int intConst public static final int intConst (Correct) public int intConst

① No comments.

240. Java Types

Correct

Multiple Choice Easy Java

Question description

Which of the following is not a Java primitive type?

Candidate's Solution

Options: (Expected answer indicated with a tick)

- String ✓
- float
- double
- int
- byte

① No comments.

241. FilteredRowSet

Correct

Multiple Choice JDBC Hard FilteredRowSet

Question description

Which of the following are correct ways to apply a filter to display the data of those employees whose salary is greater than 5000 using FilteredRowSet?

Interviewer guidelines

Option A is correct because it creates a FilteredRowSet, and then sets the SQL command to select all records from the "Employees" table, executes the command, iterates through each row, deletes rows with salary <= 5000, and finally displays the remaining filtered rows. It correctly applies the

filter to exclude employees with a salary less than or equal to 5000.

Option B is incorrect because it declares a FilteredRowSet as a concrete class instead of using RowSetProvider.newFactory().createFilteredRowSet(). This results in a syntax error.

Option C is also correct because it creates a FilteredRowSet, sets the SQL command to select records from the "employees" table where salary is greater than 5000, executes the command, and then iterates through the filtered rows to display the data of employees with a salary greater than 5000.

Option D is incorrect because it uses the incorrect method filteredRowSet.end() to check the end of the filteredRowSet iteration. The correct method is filteredRowSet().next() to iterate through each row.

Candidate's Solution

Options: (Expected answer indicated with a tick)

```
<pre> <code>FilteredRowSet filteredRowSet = RowSetProvider.newFactory().createFilteredRowSet();
filteredRowSet.setCommand("SELECT * FROM Employees"); filteredRowSet.execute(conn); while (filteredRowSet.next()) { int
salary = filteredRowSet.getInt("salary"); if (salary <= 5000) { filteredRowSet.deleteRow(); } } filteredRowSet.beforeFirst(); while
 (filteredRowSet.next()) { int id = filteredRowSet.getInt("id"); String name = filteredRowSet.getString("name"); int salary =
filteredRowSet.getInt("salary"); System.out.println("ID: " + id + ", Name: " + name + ", Salary: " + salary); }</code></pre>
<p>&nbsp;</p>
```



```
<pre> <code>FilteredRowSet filteredRowSet = new FilteredRowSet(); filteredRowSet.setCommand("SELECT * FROM employees
WHERE salary > 5000"); filteredRowSet.execute(conn); while (filteredRowSet.next()) { int id = filteredRowSet.getInt("id"); String
name = filteredRowSet.getString("name"); int salary = filteredRowSet.getInt("salary"); System.out.println("ID: " + id + ", Name: " +
name + ", Salary: " + salary); }</code></pre> <p>&nbsp;</p>
```

```
<pre> <code>FilteredRowSet filteredRowSet = RowSetProvider.newFactory().createFilteredRowSet();
filteredRowSet.setCommand("SELECT * FROM employees WHERE salary > 5000"); filteredRowSet.execute(conn);
 filteredRowSet.beforeFirst(); while (filteredRowSet.next()) { int id = filteredRowSet.getInt("id"); String name =
filteredRowSet.getString("name"); int salary = filteredRowSet.getInt("salary"); System.out.println("ID: " + id + ", Name: " + name +
", Salary: " + salary); }</code></pre> <p>&nbsp;</p>
```



```
<pre> <code>FilteredRowSet filteredRowSet = RowSetProvider.newFactory().createFilteredRowSet();
filteredRowSet.setCommand("SELECT * FROM employees WHERE salary > 5000"); filteredRowSet.execute(conn); while
 (!filteredRowSet.end()) { int id = filteredRowSet.getInt("id"); String name = filteredRowSet.getString("name"); int salary =
filteredRowSet.getInt("salary"); System.out.println("ID: " + id + ", Name: " + name + ", Salary: " + salary); }</code></pre>
<p>&nbsp;</p>
```

① No comments.

242. JSP Implicit Objects

Correct

Multiple Choice Java Implicit Objects Medium JSP

Question description

Consider the following *HttpServlet* class, *TestServlet*, and its corresponding JSP file, *test.jsp*.

TestServlet

```
import javax.servlet.*;
import javax.servlet.http.*;
import java.io.*;

public class TestServlet extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        request.setAttribute("testAttr", "Test Attribute");
        RequestDispatcher view = request.getRequestDispatcher("test.jsp");
        view.forward(request, response);
    }
}
```

test.jsp

```
<%@ page contentType="text/html;charset=UTF-8" language="java" %>
<html>
    <body>
        <!-- Code block -->
    </body>
</html>
```

Which of the following code snippets can replace the *Code block* in *test.jsp* to retrieve and print the value of the *testAttr* attribute from the request?

Interviewer guidelines

Answer: A, B, and D

Explanation:

Option A is correct. The *request* object is one of the implicit objects available in JSP, and *request.getAttribute("testAttr")* correctly retrieves the attribute from the request. However, it uses the older scriptlet syntax, which is less preferred compared to the Expression Language (EL) syntax.

Option B is correct. The *pageContext* object provides access to various scopes, and *pageContext.request* gives access to the request scope. *pageContext.request.getAttribute("testAttr")* correctly retrieves the attribute from the request scope. However, it's recommended to use the simpler EL syntax, *\${requestScope.testAttr}*, for better readability.

Option C is incorrect. The *application* object represents the *ServletContext*, which is a different scope from the request. The *testAttr* attribute was set on the request, not the *ServletContext*, so this option will not correctly retrieve the attribute.

Option D is correct. This option uses the EL syntax to retrieve the attribute from the request scope. EL provides a simpler and cleaner syntax to access the attributes of various scopes compared to using scriptlets or the *pageContext* object. It's the recommended approach for accessing attributes and values in JSP files due to its conciseness and readability.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p><%= request.getAttribute("testAttr") %></p>



<p>\${pageContext.request.getAttribute("testAttr")}</p>



<p><%= application.getAttribute("testAttr") %></p>

<p>\${requestScope.testAttr}</p>



No comments.

243. Servlet and JSP Integration

Correct

Multiple Choice Java Servlet JSP Hard

Question description

Consider the following `HttpServlet` class named `TestServlet` and a JSP file named `test.jsp` in a Java web application.

```
import javax.servlet.*;
import javax.servlet.http.*;
import java.io.*;

public class TestServlet extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        String param1 = request.getParameter("param1");
        String param2 = request.getParameter("param2");

        // Code block 1
    }
}
```

```
<%@ page contentType="text/html;charset=UTF-8" language="java" %>
<html>
  <body>
    <!-- Code block 2 -->
  </body>
</html>
```

To use `param1` and `param2` from the servlet in the JSP page, which code snippets should replace `Code block 1` in `TestServlet` and `Code block 2` in `test.jsp` respectively?

Interviewer guidelines

Answer: A and D

Explanation:

Option A is correct. Here, the parameters param1 and param2 are set as request attributes and then forwarded to the JSP page using RequestDispatcher. The `request.getRequestDispatcher("test.jsp").forward(request, response)` call forwards the request from the servlet to the JSP page, allowing the JSP to access all data stored in the request. The `${param1} ${param2}` in the JSP page is the Expression Language (EL) syntax to access the request attributes.

Option B is incorrect. Here, the parameters are stored in the session object, not the request object. While the session attributes can be accessed from the JSP, the problem is with `response.sendRedirect("test.jsp")`. The `sendRedirect` method does a completely new request to the JSP page, the previous request data (request attributes) will not be available in the JSP page. Also, in the JSP page, `request.getAttribute` is used instead of `${param1} ${param2}`. With session attributes, the EL syntax should have been used.

Option C is incorrect. This option attempts to use `response.sendRedirect("test.jsp")` to navigate to the JSP page after setting the parameters as request attributes. However, `response.sendRedirect` creates a new request, and all attributes of the previous request are lost, so param1 and param2 won't be available in the JSP page.

Option D is correct. The parameters param1 and param2 are stored in the session, then the request is forwarded to the JSP page using RequestDispatcher. The session is maintained across multiple requests and responses, so the values can be retrieved in the JSP page using the EL syntax `${param1} ${param2}`. Remember, though, this method will make these parameters available to all JSP pages throughout the session, not just test.jsp.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<p>// Code block 1 request.setAttribute("param1", param1); request.setAttribute("param2", param2);`
 `RequestDispatcher view = request.getRequestDispatcher("test.jsp"); view.forward(request, response); <!-- Code`
`block 2 --> ${param1} ${param2}</p>` (Correct)

`<p>// Code block 1 request.getSession().setAttribute("param1", param1);`
`request.getSession().setAttribute("param2", param2); response.sendRedirect("test.jsp"); <!-- Code`
`block 2 --> <%= request.getAttribute("param1") %> <%= request.getAttribute("param2") %>`
`</p>`

`<p>// Code block 1 request.setAttribute("param1", param1); request.setAttribute("param2", param2);`
`response.sendRedirect("test.jsp"); <!-- Code block 2 --> ${param1} ${param2}</p>`

`<p>// Code block 1 request.getSession().setAttribute("param1", param1);`
`request.getSession().setAttribute("param2", param2); RequestDispatcher view =`
`request.getRequestDispatcher("test.jsp"); view.forward(request, response); <!-- Code block 2 --> ${param1}`
`${param2}</p>` (Correct)

① No comments.

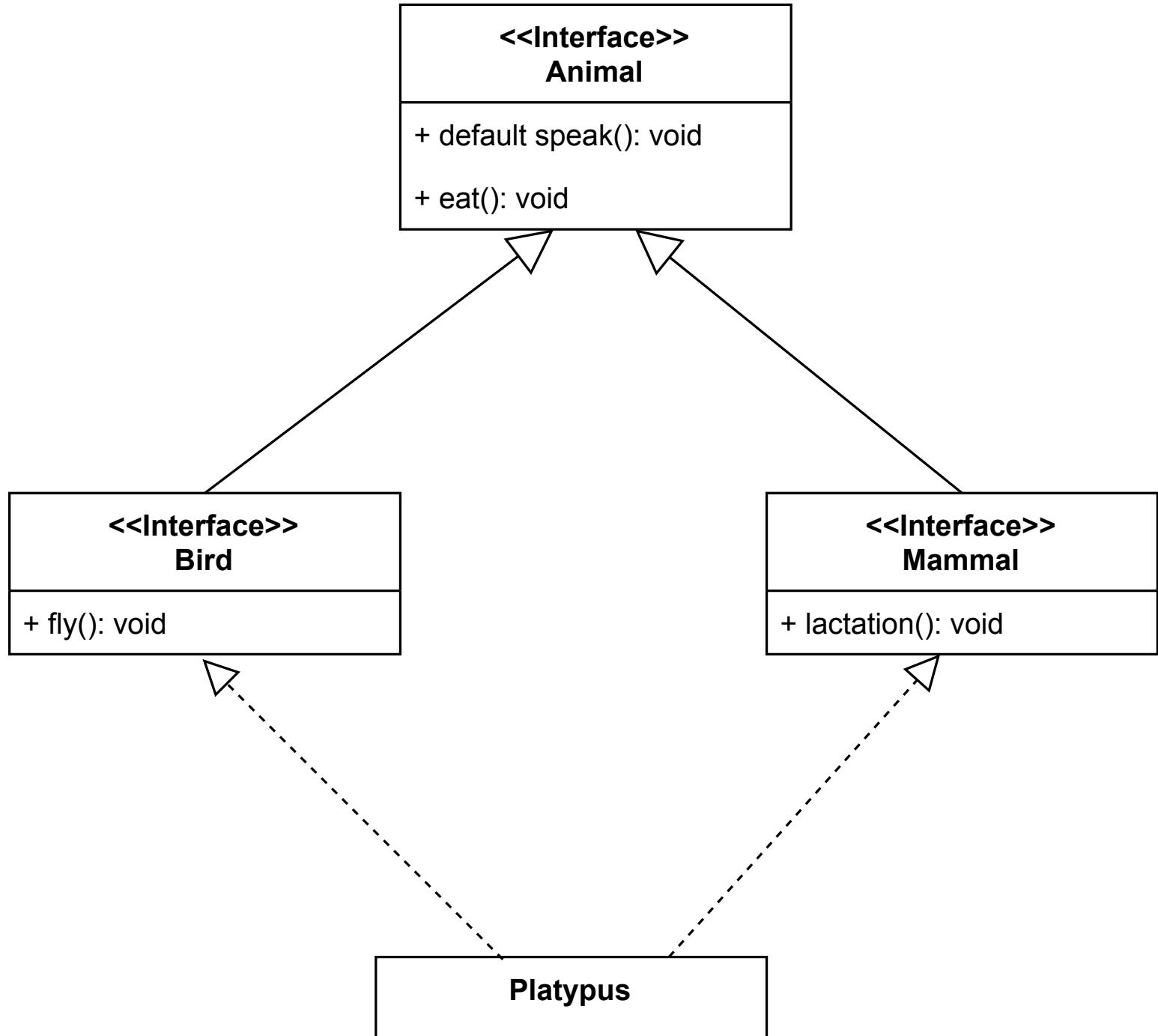
244. Interfaces

Correct

Multiple Choice Medium Classes Interfaces Inheritance

Question description

Consider the following diagram



Which of the following statements are true regarding it?

Interviewer guidelines

Option A is incorrect because the speak() method is declared as default, which means that it is already implemented in the animal's interface. Option B is incorrect because diamond problem only occurs in case of multiple inheritance in class, not the interfaces. The other methods are unimplemented and will be implemented in the Platypus class so the methods of the Platypus class will be called. Regarding the speak() method, there is only a single implementation of it in the animal class. So whenever the speak() is called with the object of the Platypus class the speak() method of the animal will be called.

Option C is correct. The default implementation of the speak() method is already provided in the animal's class. So the Platypus class will only have to implement the rest of unimplemented methods i-e eat(), fly(), and lactation().

Option D is incorrect because an interface can extend multiple interfaces, because they contain unimplemented methods.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>The Platypus class must implement all the methods.</p>

<p>The diagram represents a diamond problem.</p>

<p>The Platypus class only have to implement the eat(), fly(), and lactation() method.</p> (Correct)

<p>The Platypus class cannot extend multiple interfaces.</p>

(1) No comments.

245. Inner Class, Static and Final

(✓) Correct

Multiple Choice Medium Inner Class Static

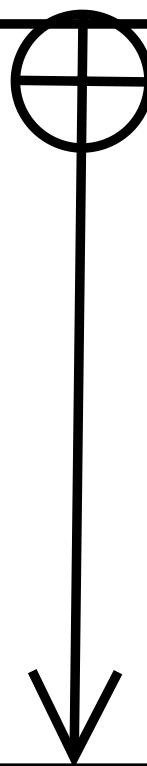
Question description

Consider the following UML class diagram

Note - Class B is *private*.

A

+ final PI: double



B

+ getPI(): double

What is the correct way to access the value of PI through the `getPI()` method in the main?

Interviewer guidelines

Option A, and B are incorrect because the class B is private in class A. Hence its object cannot be created in main.

Option C is incorrect, because we still cannot access the value of PI through the `getPI()` method even by making the class B public. Because the `getPI()` method is static, so it can only access the static members of the class A.

Option D is correct, because we have to create the object of class B in main, therefore it should be made public. Secondly to access the static field of class A, the `getPI()` method of class B must also be made static.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<pre> <code class="language-java">A.B inner = new B(); double piValue = inner.getPI(); System.out.println("The value of PI is: "+piValue);</code></pre> <p>A.B inner = new B(); double piValue = inner.getPI(); System.out.println("The value of PI is: "+piValue);</p>`

`<pre> <code class="language-java">B inner = new B(); double piValue = B.getPI(); System.out.println("The value of PI is: "+piValue);</code></pre> <p>&nbsp</p>`

`<p>First, class B must be made public then we can use the following code.</p> <pre> <code class="language-java">A outerObj = new A(); A.B innerObj = outerObj.new B(); double piValue = A.B.getPI(); System.out.println("The value of PI is: "+piValue);</code></pre> <p>&nbsp</p>`

`<p>&nbspFirst, class B should be made public, and PI should also be declared as static&nbspthen, we can use the following code.</p> <pre> <code class="language-java">A outerObj = new A(); A.B innerObj = outerObj.new B(); double piValue = A.B.getPI(); System.out.println("The value of PI is: "+piValue);</code></pre> <p>A outerObj = new A();</p> <p>A.B innerObj = outerObj.new B(); double piValue = A.B.getPI(); System.out.println("The value of PI is: "+piValue);</p>`

 No comments.



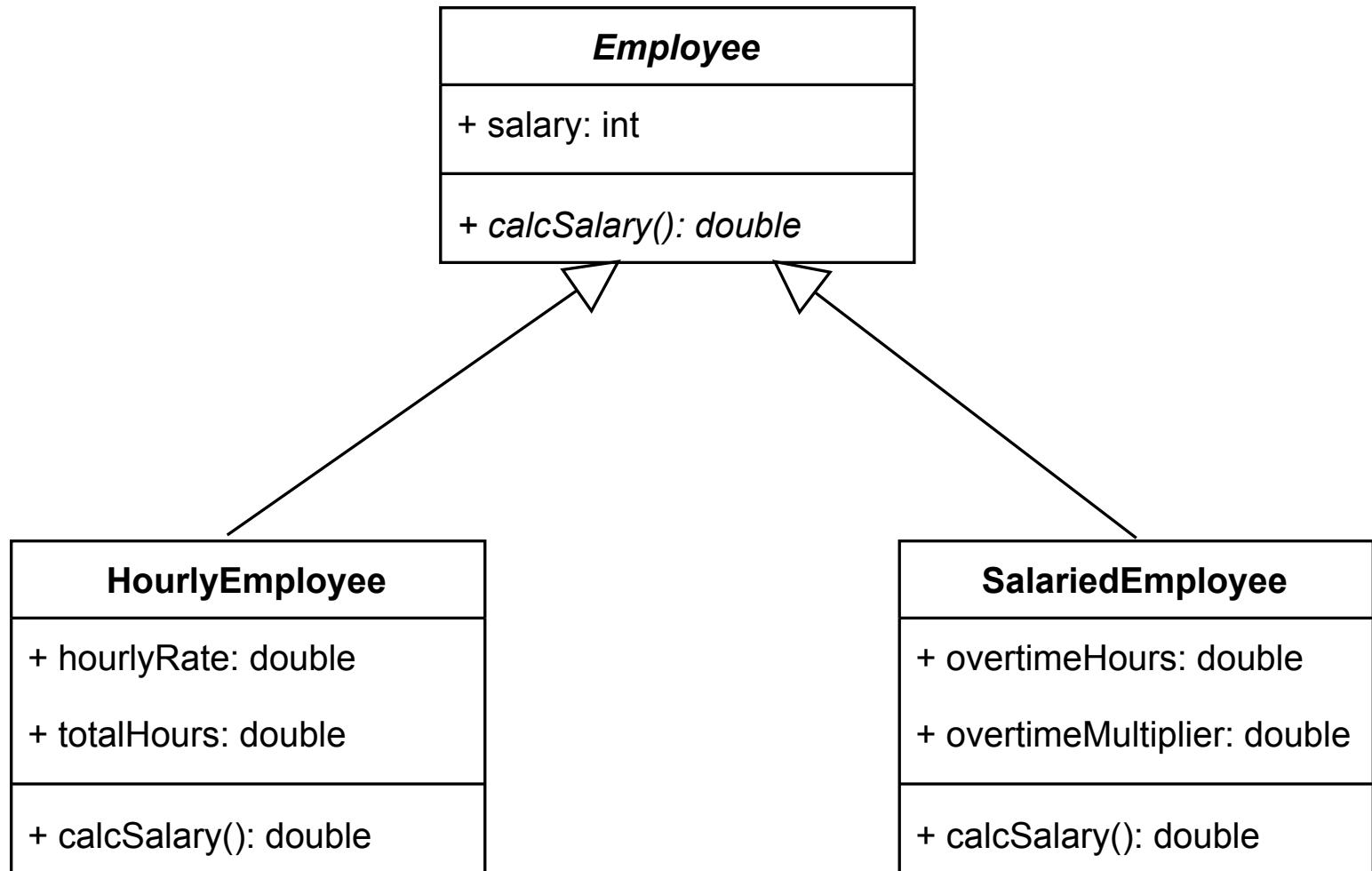
246. Classes and Objects

Correct

Multiple Choice Method Overriding Inheritance Abstract Class Easy Classes and Objects

Question description

Observe the following class diagram and state



Which of the following statements are true regarding it?

Interviewer guidelines

Option A is correct because an abstract class has at least one abstract method, represented by italic characters in the UML diagram, and the class also becomes abstract, represented by italic characters. Abstract class cannot be instantiated because it contains abstract methods.

Option B is correct because as per rule the sub class have to override the abstract methods inherited from the base class, otherwise they too will become abstract and hence cannot be instantiated.

Option C is false, because an abstract class can contain both implemented and abstract methods.

Option D is false. There is inheritance relationship between the child classes (**HourlyEmployee** and **SalariedEmployee**), and the parent class **Employee**. The arrow represents inheritance relationship.

Candidate's Solution

Options: (Expected answer indicated with a tick)

Employee class is abstract and cannot be instantiated.



Both **HourlyEmployee** and **SalariedEmployee** class should override the `calcSalary()` method, in order to get instantiated.



Employee class cannot contain concrete methods.

There is a composition relationship between Employee and the other two classes.

! No comments.

247. Method Overloading

Correct

Multiple Choice Easy Methods Method Overloading

Question description

```
public void foo(ArrayList<String> data)
{
    //some code
}
public void foo (ArrayList<Integer> data)
{
    //some code
}
public ArrayList<String> foo (ArrayList<String> data)
{
    //some code
}
private void foo(List<String> data)
{
    //some code
}
public void foo(ArrayList<String> data, boolean flag)
{
    //some code
}
```

Which of the statements are true regarding this code?

Interviewer guidelines

Option 2: All methods can coexist without issue.

This statement is false. The `foo(ArrayList<String> data)` and `foo(ArrayList<Integer> data)` methods have the same name and parameter types (`ArrayList`), but with different generic types (`String` and `Integer`). This will result in a compilation error as the parameter types conflict.

Option 3: `foo(ArrayList<String>)` clashes with `foo(ArrayList<Integer>)`; both methods have the same erasure.

This statement is true. The erasure of both methods is `foo(ArrayList data)`, since generic types are erased during compilation. As a result, these two methods have the same signature and will result in a compilation error due to duplicate methods.

Option 4:

`private void foo(List<String> data)` is an overloaded method, while `public ArrayList<String> foo (ArrayList<String> data)` is not.

This statement is true. The `foo(List<String> data)` and `foo(ArrayList<String> data, boolean flag)` methods have different parameter types, and thus,

they are not overloaded with each other. The `foo(ArrayList<String> data)` method has the same parameter type as the first `foo(ArrayList<String> data)` method, but with a different return type. Therefore, it is not considered an overloaded method.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>All the methods are considered as overloaded methods, except for private void foo(List data) because it has a private access modifier.</p> <p> </p>

<p>All methods can coexist without issue.</p> <p> </p>

<p>'foo(ArrayList)' clashes with 'foo(ArrayList)', as both methods have the same erasure.</p> <p> </p>

<p>private void foo(List data) { } is an overloaded method, while public ArrayList foo (ArrayList data) { } is not.</p> <p> </p>

① No comments.

248. Java Garbage Collection

Correct

Multiple Choice Garbage Collection Medium

Question description

Which of the following statements are true about garbage collection in Java?

Interviewer guidelines

When an object is created using the new keyword, it is allocated on the heap memory, and the garbage collector only runs for the heap memory. On the other hand, static variables in Java are allocated in the stack space, which is separate from the heap. Calling the `System.gc()` does not guarantee that garbage collection will occur in Java. This method is used to suggest to the JVM that a garbage collection cycle should be performed. However, the JVM has its own algorithm for deciding when to perform garbage collection, based on some factors. When an object is no longer reachable by the program, the garbage collector will eventually reclaim its memory. Before this happens, the garbage collector will call the object's `finalize()` method (if it is overridden) as part of the finalization process. If that method restores the object by making it reachable again, then the object will not be garbage collected. However, it's important to note that the `finalize()` method is not always a reliable mechanism for restoring an object or preventing it from being garbage collected.

Candidate's Solution

Options: (Expected answer indicated with a tick)

The garbage collector can only free memory that was allocated using the new keyword.



The garbage collector can free memory that is being referenced by a static variable.

The system.gc() method can be used to guarantee that garbage collection will occur.

The finalize() method can be used to prevent an object from being garbage collected.



? No comments.

249. Java BufferedReader

Correct

Multiple Choice Easy File Handling

Question description

file1.txt

Hello

World

file2.txt

Hackerrank

What is the output of this code?

```
import java.io.*;
public class Main{
    public static void main(String args[]) throws IOException {
        String str1, str2, str=null;
        File file1 = new File("file1.txt");
        File file2 = new File("file2.txt");
        BufferedReader br1 = new BufferedReader(new FileReader(file1));
        BufferedReader br2 = new BufferedReader(new FileReader(file2));
        while ((str1 = br1.readLine()) != null)
        {
            str2 = br2.readLine();
            if(str2 != null)
            {
                str=str1+" "+str2;
                System.out.println(str);
            }
        }
    }
}
```

```
    br1.close();
}
}
```

Interviewer guidelines

We read the first line from file1 i-e "Hello" and then the first line from file2 i-e "Hackerrank". We concatenated two strings so it becomes "Hello Hackerrank" and printed it. We closed the stream connection to file 1. Again when we try to read from file1 after closing the connection, it throws "IOException: Stream closed".

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Hello World</p> <p>IOException: Stream closed</p>

<p>Hello Hackerrank</p> <p>World</p>

<p>Hello World Hackerrank</p>

<p>Hello Hackerrank</p> <p>IOException: Stream closed</p>



No comments.

250. Java PriorityQueue

Correct

Multiple Choice Collections Queues Medium

Question description

What is the output of the following code?

```
import java.util.*;
public class Main{
    public static void main(String args[]){
        Queue<String> pq = new PriorityQueue<>();
        pq.add("Hello");
        pq.add("Hackerrank");
        String s1=pq.poll();
        pq.remove();
        System.out.println(s1);
```

```
String s2=pq.remove();
System.out.println(s2);
}
}
```

Interviewer guidelines

First, we added two elements in the queue, "Hello" and "Hackerrank". We removed the front element "Hackerrank" of the queue using the poll() method and saved in s1 and print it. We removed the remaining element "Hello". Now the queue is empty. When we call the remove() method on an empty queue it throws a "NoSuchElementException" exception. However, the poll() method does not.

Candidate's Solution

Options: (Expected answer indicated with a tick)



<p>Hackerrank</p> <p>NoSuchElementException</p>



<p>Hackerrank</p> <p>Hello</p>



<p>Hackerrank</p> <p>null</p>



<p>Hello</p> <p>Hackerrank</p>

① No comments.

251. Java parseInt

Correct

Multiple Choice Exception Handling Easy

Question description

What is the output of the following code?

```
public class Main{
    public static void main(String[] args) {
        try
        {
            int[] a = new int[5];
            String s="1.0";
            try
            {
                System.out.println(Integer.parseInt(s+a[4]));
            }
        }
    }
}
```

```
    }
    catch (Exception e)
    {
        System.out.println("Exception 1 occurs. "+ e.getClass());
    }
    throw new Exception();
}
catch (Exception e)
{
    System.out.println("Exception 2 occurs");
}
}
```

Interviewer guidelines

When the `parse.Int()` method is called with the string "1.0" concatenated with the last element of the array, it throws a `NumberFormatException` because "1.0" is not a valid integer. The respective catch block catches this exception and prints "Exception 1 occurs. java.lang.NumberFormatException". After this, the code throws a new `Exception` using the `throw` keyword, which is caught by the outer catch block which then prints "Exception 2 occurs".

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>1</p> <p>Exception 2 occurs</p>

<p>Exception 1 occurs. class java.lang.NumberFormatException
 Exception 2 occurs</p>

<p>Exception 1 occurs. class ArrayIndexOutOfBoundsException
 Exception 2 occurs</p>

<p>Compile-Time Error</p>

 No comments.

252. Java Networking

 Correct

Multiple Choice Medium Java Networking

Question description

This code sends a message from the client to the server.

```
import java.io.*;
import java.net.*;
public class Server {
    public static void main(String[] args) {
        try {
            ServerSocket serverSocket = new ServerSocket(9999);
            Socket socket = serverSocket.accept();
            BufferedReader in = new BufferedReader(new InputStreamReader(socket.getInputStream()));
            String message = in.readLine();
            System.out.println("Client: " + message);
            socket.close();
            serverSocket.close();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

What is the output on the server side?

Interviewer guidelines

Since we have closed the connection on the client side before sending the data. According to the Java API documentation for the BufferedReader class (typically used to read data from a socket's input stream), the readLine() method returns null if the end of the stream has been reached, which can occur if there is no input data to read.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Client: Hello</p>

<p>SocketException: Connection Closed</p>

<p>NullPointerException</p>

<p>Client: null</p>



! No comments.

253. Java Generics

Correct

Multiple Choice Generics Medium

Question description

What is the result of compiling and/or running this code?

```
public class Generic<T> {  
    private T value;  
    public Generic(T value) {  
        this.value = value;  
    }  
    public T getValue() {  
        return value;  
    }  
}
```

```
import java.util.ArrayList;  
public class Main {  
    public static void main(String args[]) {  
        ArrayList<Generic> g = new ArrayList<>();  
        Generic<?> g1=new Generic<>(10);  
        Generic<?> g2=new Generic<>"Hello";  
        g.add(g1);  
        g.add(g2);  
        int i=g.get(0).getValue();  
        String s=g.get(1).getValue();  
        System.out.println(s);  
        System.out.println(i);  
    }  
}
```

Interviewer guidelines

In the program, we have created two generic objects with the wildcard ?, which means that the exact type is unknown/could be of any type. However, when retrieving a generic value with a wildcard in Java, we cannot directly assign it to a primitive data type, as primitive data types are not compatible with the Object type.

Candidate's Solution

Options: (Expected answer indicated with a tick)



<p>Compile-time error while retrieving the values from array list and assigning them to their respective datatypes.</p>



<p>Compile-time error while creating the generic object with int value, because generics does not work with primitive data type int</p>



<p>Hello 10</p>

<p>Run-time error because an array list cannot contain generic objects of different types (string and int)</p>

 No comments.

254. Java Design Pattern

 Correct

Multiple Choice Easy Design Patterns

Question description

The following code represents which design pattern?

```
class Student {  
    private static Student s;  
    private Student() {}  
    public static Student getInstance() {  
        if(s == null) {  
            s = new Student();  
        }  
        return s;  
    }  
}  
class Main {  
    public static void main(String[] args) {  
        Student s;  
        s= Student.getInstance();  
    }  
}
```

Interviewer guidelines

In the above code, there is a private constructor and class instance, implemented in such a way that restricts the creation of more than one object. This is the rule of the Singleton Design Pattern.

Candidate's Solution

Options: (Expected answer indicated with a tick)

Singleton Design Pattern



Factory Design Pattern

Adapter Design Pattern Iterator Pattern

! No comments.

255. Java Concatenate

✓ Correct

Multiple Choice Easy Interfaces

Question description

In main(), after creating an object of MyClass, which code option returns the string *s* concatenated with the sum of two numbers *x* and *y*?
For example, if *s* = 'HackerRank', *x* = 2, and *y* = 3, the output should be HackerRank 5

```
public interface MyInterface {  
    String foo(String s, int x, int y);  
}
```

```
public class MyClass {  
    public String foo2(MyInterface i, String s, int x, int y) {  
        return i.foo(s, x, y);  
    }  
}
```

```
public class Main {  
    public static void main(String[] args) {  
        MyClass myClass = new MyClass();  
        // code to write  
    }  
}
```

Interviewer guidelines

The correct syntax of doing so is, first we will call the foo2() method of MyClass, then using the lambda expression, we provide arguments, and using the arrow operator -> we provide the method implementation which the function will execute and returns the result. Here we will enclose the addition within parenthesis for its precedence.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>String result = myClass.foo2((s, x, y) -> s + " " + x + y, "HackerRank", 2, 3);
System.out.println(result);</p>

<p>String result = myClass.foo2((s, x, y) -> s + " " + (x + y), "HackerRank", 2, 3);
System.out.println(result);</p>

<p>String result = myClass.foo2(>(s + " " + x + y, "HackerRank", 2, 3); System.out.println(result);</p>

<p>String result = myClass.foo2((s, x, y) -> " " + 2 + 3); System.out.println(result);</p>

 No comments.

256. Java Interface

 Correct

Multiple Choice Easy Interfaces

Question description

What is the output of the following program?

```
@FunctionalInterface  
public interface MyInterface {  
    void foo();  
}
```

```
public class MyClass implements MyInterface {  
    public void foo() {  
        System.out.println("Hello");  
    }  
}
```

```
public class MyClass2 extends MyClass implements MyInterface{  
    public void foo() {  
        System.out.println("Hello 2");  
    }  
}
```

```
public class Main extends MyClass2{  
    public static void main(String[] args) {  
        MyClass c = new MyClass2();  
        c.foo();  
    }  
}
```

```
}
```

Interviewer guidelines

In the interface, there is an abstract method named foo(). The MyClass and MyClass2 classes both implement this interface and provide an implementation for the foo() method. The MyClass2 class overrides the implementation provided by MyClass. The Main class creates an instance of MyClass2, but assigns it to a variable of type MyClass. Since the actual object is created for the class MyClass2, so the foo() method of MyClass2 will be invoked, and the output will be "Hello 2".

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Hello 2 Hello MyClass2 cannot extend a class and an interface at the same time. Runtime error

① No comments.

257. Multi-threaded code

Correct

Multiple Choice Java Java 8 Medium Multithreading

Question description

```
class Worker implements Runnable
{
    AtomicInteger c = new AtomicInteger(0);
    @Override
    public void run()
    {}
}
```

Which of the following code snippets is an example of multi-threading?

Interviewer guidelines

The correct answers are **A, B, and C.**

Multi-threading is the concept where two threads are executed at the same time. Java supports multithreading in traditional ways as well as modern ways. In The modern approach, Java has introduced a *concurrent* package exclusively for this purpose. The methods and the corresponding classes used in the code belong to this package.

A and B use fixedThreadPool and scheduledThreadPool methods to create a thread pool size(10). Then, it calls to submit() with a runnable argument inside a loop. This is the modern approach.

C is also a multi-threaded example because it creates a Thread with a runnable interface in a loop. This is the traditional approach. In the case of D, it creates only one thread, and that same thread is used with a runnable interface. So, D is not the correct answer.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>ExecutorService service = Executors.newFixedThreadPool(10); for(int i = 0; i<10; i++) { service.submit(new Worker()); }</p>



<p>ExecutorService service = Executors.newScheduledThreadPool(10); IntStream.range(0, 10).forEach(e -> service.submit(new Worker()));</p>



<p>for(int i = 0; i<10; i++) { Worker worker = new Worker(); Thread thread = new Thread(worker, i +";"); thread.start(); }</p>



<p>ExecutorService service = Executors.newSingleThreadExecutor(); IntStream.range(0, 10).forEach(e -> service.submit(new Worker()));</p>

No comments.

258. Empty Collection

Correct

Multiple Choice Medium Collections Java Queues Stacks

Question description

Which code displays an empty ([]) collection when executed?

Interviewer guidelines

The correct answer is D.

There are 10 items in the stack initially. In the first loop, we add these 10 items to the stack. In the second loop, we iterate based on the size of the

stack, and in every iteration, we remove the item from the top of the stack and insert it into the queue. Then decrement the counter. This is a very important step as this will adjust the index counter and will remove all the items from the stack.

For example, if i is not decremented, then the stack size is reduced and i is incremented. After 4th iteration, the value of the variable i will be greater than the size of the stack and exit from the loop.

But the stack will not be empty. The final elements in the stack are mentioned below:

[5, 6, 7, 8, 9]

To avoid this, we need to decrement the value of the variable i so that it will never increment. It will be always '0'. But the loop will exit when the stack becomes empty as the condition is evaluated to false.

The same case is applicable to the third loop as well as the variable i is required to be reduced. This way it will remove all the items from the queue.

Based on the above explanation, other answers are not correct.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<pre> <code class="language-java">Stack<Integer> stack = new Stack<Integer>(); Queue queue = new LinkedList(); for (int i = 0; i < 10; i++) stack.add(i); for (int i = 0; i < stack.size() - 1; i++) { int n = stack.remove(0); queue.add(n); } for (int i = 0; i < queue.size() - 1; i++) { int n = (int) queue.remove(); i = i - 1; } System.out.println(queue);</code></pre> <p>&nbsp</p>`

`<pre> <code class="language-java">Stack<Integer> stack = new Stack<Integer>(); Queue queue = new LinkedList(); for (int i = 0; i < 10; i++) stack.add(i); for (int i = 0; i < stack.size(); i++) { int n = stack.remove(0); queue.add(n); } for (int i = 0; i < queue.size(); i++) { int n = (int) queue.remove(); } System.out.println(queue); </code></pre> <p>&nbsp</p>`

`<pre> <code class="language-java">Stack<Integer> stack = new Stack<Integer>(); Queue queue = new LinkedList(); for (int i = 0; i < 10; i++) stack.add(i); for (int i = 0; i < stack.size(); i++) { int n = stack.remove(0); queue.add(n); i = i - 1; } for (int i = 0; i < queue.size(); i++) { int n = (int) queue.remove(); } System.out.println(queue); </code></pre> <p>&nbsp</p>`

`<pre> <code class="language-java">Stack<Integer> stack = new Stack<Integer>(); Queue queue = new LinkedList(); for (int i = 0; i < 10; i++) stack.add(i); for (int i = 0; i < stack.size(); i++) { int n = stack.remove(0); queue.add(n); i = i - 1; } for (int i = 0; i < queue.size(); i++) { int n = (int) queue.remove(); i = i - 1; } System.out.println(queue); </code></pre> <p>&nbsp</p>`

 No comments.

259. Java Operators

 Correct

Multiple Choice Java Easy

Question description

What is the value of the variable `z` in the statement `int x = 5; int y = x++; int z = ++y; ?`

Candidate's Solution

Options: (Expected answer indicated with a tick)

 5 6 7 8

① No comments.

260. Legacy Code

Correct

Multiple Choice Java Java 8 Stream Medium

Question description

An error is encountered while executing the following code.

```
private List < Integer > convertToIntList(List < String > list) {  
    List < Integer > intList = new ArrayList < > ();  
    for (String s: list) {  
        int n = Integer.parseInt(s);  
        intList.add(n);  
    }  
    return intList;  
}  
private int sum(List < Integer > list) {  
    int sum = 0;  
    for (int i = 0; i < list.size(); i++) {  
        list.set(i, list.get(i) * 2);  
    }  
    for (int i = 0; i < list.size(); i++) {  
        sum += list.get(i);  
    }  
    return sum;  
}
```

Which of the following piece(s) of code when added will result in execution without error?

Interviewer guidelines

Answers: **B, C, D** because the integer elements are of String type. So it is necessary to convert to int type before any stream operations. Hence A is not a correct answer.

Candidate's Solution

Options: (Expected answer indicated with a tick)

int sum = Arrays.stream(n).mapToInt(i->i).map(i->i * 2).reduce(0, (x,y) -> x + y);

int sum = Arrays.stream(n).mapToInt(i->Integer.parseInt(i)).map(i->i * 2).reduce(0, (x,y) -> x + y); (Correct)

int sum = Arrays.stream(n).mapToInt(i->Integer.parseInt(i)).map(i->i * 2).reduce(0, Integer::sum); (Correct)

int sum = (int)Arrays.stream(n).mapToInt(i->Integer.parseInt(i)).map(i->i * 2).summaryStatistics().getSum(); (Correct)

① No comments.

261. Display Boolean

(Correct)

Multiple Choice Java Java 8 Stream Medium

Question description

Which of the following codes will output **true**, when executed?

Interviewer guidelines

Answer: **A, C, E**

anyMatch() method returns true if the given predicate is matched to any value
noneMatch() method returns true if the given predicate is matched to no value

Based on the above explanation, B and D are incorrect answers.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<pre data-widget="codeSnippet"> <code class="hljs language-java">String str = "kayak"; boolean result = IntStream.range(0, str.length()) .anyMatch(i -> str.charAt(i) == str.charAt(str.length() - i - 1)); System.out.println(result);</code></pre>`



`<pre data-widget="codeSnippet"> <code class="hljs language-java">String str = "kayak"; boolean result = IntStream.range(0, str.length()) .anyMatch(i -> str.charAt(i) != str.charAt(str.length() - i - 1)); System.out.println(result);</code></pre>`



`<pre data-widget="codeSnippet"> <code class="hljs language-java">String str = "kayak"; boolean result = IntStream.range(0, str.length() /2) .noneMatch(i -> str.charAt(i) != str.charAt(str.length() - i - 1)); System.out.println(result);</code></pre>`



`<pre data-widget="codeSnippet"> <code class="hljs language-java">String str = "kayak"; boolean result = IntStream.range(0, str.length() /2) .noneMatch(i -> str.charAt(i) == str.charAt(str.length() - i - 1)); System.out.println(result);</code></pre>`



`<pre data-widget="codeSnippet"> <code class="hljs language-java">String str = "kayak"; boolean result = Stream.iterate(0, i-> i+1).limit(str.length()) .anyMatch(i -> str.charAt(i) == str.charAt(str.length() - i - 1)); System.out.println(result);</code></pre>`

No comments.

262. Java Inheritance Overriding

Correct

Multiple Choice Java Polymorphism Abstraction Inheritance OOPS Easy OOP

Question description

What will be the output of the following code block?

Animal.java

```
public abstract class Animal
{
```

```
    public abstract void makenoise();  
}
```

Dog.java

```
public class Dog extends Animal  
{  
    public void makenoise()  
    {  
        System.out.println("Make Dog Noise...");  
    }  
}
```

GoldenRetriever.java

```
public class GoldenRetriever extends Dog  
{  
    public void makenoise()  
    {  
        super.makenoise();  
        System.out.println("Make Golden Retriever Noise");  
    }  
    public static void main(String ... arg)  
    {  
        Dog dog=new GoldenRetriever();  
        dog.makenoise();  
    }  
}
```

Interviewer guidelines

Compiler only knows about the declared reference type, the Java Virtual Machine (JVM) at runtime knows what the object really is. And that means if the GoldenRetriever object's makenoise() method is called using a Dog reference variable, if the GoldenRetriever overrides the makenoise() method, the JVM will invoke the GoldenRetriever version. The JVM looks at the real object at the other end of the reference, "sees" that it has overridden the method of the declared reference variable type, and invokes the method of the object's actual class.

Since GoldRetriever is extend Dog class and override makenoise() method, JVM will call GoldenRetriever's makenoise() method which will print result as Answer C.

Candidate's Solution

Options: (Expected answer indicated with a tick)

<p>Make Dog Noise...</p>

<p>Make Golden Retriever Noise</p>



<p>Make Dog Noise...</p> <p>Make Golden Retriever Noise</p>



<p>throws ClassCastException on runtime</p>

ⓘ No comments.

263. Java Streams

✓ Correct

Multiple Choice Java Medium Stream

Question description

Consider the following code

```
class Weather
{
    String place;
    Double temperature;

    public Weather()
    {

    }

    public Weather(String place, Double temperature)
    {
        this.place = place;
        this.temperature = temperature;
    }

    public Double getTemperature()
    {
        return temperature;
    }

    public String getPlace()
    {
        return place;
    }

    public String toString()
    {
        return new StringBuffer(" Place : ")
            .append(this.place)
            .append(" Temperature : ")
            .append(this.temperature)
            .toString();
    }
}
```

```
List<Weather> weathers = new ArrayList<>();
weathers.add(new Weather("Sunny", 33.0));
weathers.add(new Weather("Rainy", 17.0));
weathers.add(new Weather("Cloudy", 23.0));
weathers.add(new Weather("Cold", 3.0));
weathers.add(new Weather("Hot", 37.0));
weathers.add(new Weather("Windy", 13.0));
weathers.add(new Weather("Snowy", 0.0));
weathers.add(new Weather("Freezing", -15.0));

// sort & print code block
```

Which of the following options will display the output after sorting the objects by temperature?

Interviewer guidelines

The question is related to the usage of java stream api. sorted and forEach method usage knowledge is tested here.

The answer is C. Only it sorts and print's given array in the right order.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<p>weathers.stream() .map(Weather::getTemperature) .sorted() .forEach(System.out::println);</p>`

`<p>weathers.stream() .sorted(Weather::getTemperature) .forEach(System.out::println);</p>`

`<p>weathers.stream() .sorted((p1, p2) -> p1.getTemperature().compareTo(p2.getTemperature()))
.forEach(System.out::println);</p>`

`<p>weathers.stream() .map(Weather::getTemperature) .sorted((p1, p2) -> p1.compareTo(p2)) .forEach(System.out::println);
</p>`

 No comments.

264. Java String Pool

 Correct

Multiple Choice Java Strings Easy Language Proficiency

Question description

How many strings will be added to the string pool upon execution of the following code block?

```
public static void main(String[] args) {  
    String str = "Hello There!";  
    String mtr = "Hello" + " " + "There" + "!";  
    String dtr = "Hello " + "There" + "!";  
    String gtr = "Hello There" + "!";  
}
```

Interviewer guidelines

Correct Answer:

Option [A] – 1

Explanation: The compiler folds all concatenations into a single literal `"Hello There!"`. After compilation, only **one** string literal appears in the class file, confirmed via `javap -v`.

Incorrect Answers:

Option [B] – 3

Explanation: More literals were assumed to exist, but the compiler optimized them away.

Option [C] – 5

Explanation: These literals appear in source but are **not** kept in the compiled constant pool.

Option [D] – 7

Explanation: Intermediate concatenated strings never enter the pool.

Option [E] – 9

Explanation: No such number of literals survive compilation.

Candidate's Solution

Options: (Expected answer indicated with a tick)



ⓘ No comments.

265. Find the Output

Correct

Multiple Choice Java Java 8 Stream Medium

Question description

Consider the following code:

```
int sum = Stream.iterate(new int[]{0, 1},  
    tint sum = Stream.iterate(new int[]{0, 1}, x -> new int[]{x[1], x[0] + x[1]})  
        .limit(n)  
        .map(x -> x[0])  
        .collect(toList())  
        .stream()  
        .distinct()  
        .filter(i -> i % 2 == 0)  
        .mapToInt(i->i).  
        sum();  
return sum;
```

What is the difference in results for $n=7$ and $n=8$?

Interviewer guidelines

The answer is D:

The above code is an implementation for the Fibonacci series using Java streams. The code will generate the Fibonacci series and eliminate the duplicates and filter only even numbers.

Then these numbers are added.

For $n = 7$, the above code first will produce a series = {0, 1, 1, 2, 3, 5, 8}.

Next, it will eliminate duplicates and pick only even numbers. The resultant list becomes {2, 8}.

The sum of the above numbers is 10.

For $n = 8$, the series will be = {0, 1, 1, 2, 3, 5, 8, 13}. So the resultant list becomes {2, 8} and the sum is 10.

So for all these test cases, the sum is 10 only and the difference is 0. Hence D is the correct answer.

Candidate's Solution

Options: (Expected answer indicated with a tick)

2

4

8



0



11

No comments.

266. Java Variables

Correct

 Multiple Choice Java Easy

Question description

What is the value of the variable `c` in the statement `int a = 5; int b = 6; int c = a = b;`?

Candidate's Solution

Options: (Expected answer indicated with a tick)



5



11



56



6



No comments.

267. Console Output

Correct

 Multiple Choice Medium Java Java 8 Stream Functions

Question description

What is the output of this code?

```
Function<List<Integer>, Integer> function = x -> x
    .stream()
    .map(i-> i * 2)
    .mapToInt(i->i)
    .distinct()
    .sum();

Function<Integer, Integer> function2 = x -> x * 10;
Function<Integer, Integer> function3 = x -> x * 100;

int len = function.andThen(function2)
    .andThen(function3)
    .apply((Arrays.asList(1,2,2)));
System.out.println(len);
```

Interviewer guidelines

Answer is D

The input array is 1,2,2. This contains a duplicate element. In the first operation, all of the elements in the array are multiplied by 2 and the array becomes **2,4** because it will eliminate the duplicate elements from the sum operation. This will result in a **6**. In the phase, it calls a Function and this number is multiplied by 10 subsequently, the result of this operation will be input to the next Function in the chain. This will produce **60 X 100 = 6000**.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 600 60000 3000 6000

① No comments.

268. Best Three Scores

Correct

Multiple Choice Java Java 8 Stream Medium

Question description

```
int [] scores = {1,3,8,3,5,6,2,4}
```

Which code returns the largest three numbers from the *scores* array?

Interviewer guidelines

Answer A

The array is sorted and converted to an **Integer** array. The resultant array looks like this:

[1,2,3,3,4,5,6,8]

Next, it will call **the skip()** method with an argument as 5 which will return all the elements starting from the index 5 of the resultant array.

The result is:

[5,6,8]

Hence the answer is A.

Answer B is NOT a correct option because it will start picking the elements from the third index of the resultant array.

[3, 4, 5, 6, 8]

Answer C is NOT correct because it will throw compile-time ERROR as it is not calling the boxed() method for boxing operation.

Answer D is also NOT correct because it will start picking the elements from the fourth index of the resultant array.

[3, 4, 5, 6, 8]

Candidate's Solution

Options: (Expected answer indicated with a tick)

List<Integer>bestScore = Arrays.stream(scores).boxed().sorted().skip(5).collect(Collectors.toList()); ✓

List<Integer>bestScore = Arrays.stream(scores).boxed().sorted().skip(3).collect(Collectors.toList());

List<Integer>bestScore = Arrays.stream(scores).sorted().skip(5).collect(Collectors.toList());

List<Integer>bestScore = IntStream.of(scores).sorted().boxed().skip(4).collect(Collectors.toList());

 No comments.

269. Java : Collections

Correct

[Multiple Choice](#) [Medium](#) [Java](#) [Collections](#) [Arrays](#) [Vectors](#) [Language Proficiency](#) [Problem Solving](#)**Question description**

Which of the statements is true about ArrayList and Vector in Java?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Vector can be resized while ArrayList cannot be Vector is synchronized while ArrayList is not ArrayLists can grow but cannot shrink in size, while Vector can both grow and shrink Vectors allow duplicate values while ArrayList does not

No comments.

270. Even Numbers

Correct

[Multiple Choice](#) [Java 8](#) [Java](#) [Stream](#) [Medium](#)**Question description**

The following set of operations is performed on an array.

1. Select even numbers
2. Multiply each of them by 2
3. Subtract 1 from each
4. Select all the numbers that are greater than 4

Which of the following code blocks represents these operations?

Interviewer guidelines

The answer is **B**.

If we analyze the stream operations, each and every step, the following operations take place

```
.filter(i -> i %2) = [2, 4]
.map(i -> i*2-1) = [3, 7]
.filter(i -> i >4) = [7]
```

Hence the answer is B.

Answer A is NOT correct because it will return an empty collection in this case. `.map(i -> i -1)` will get an array of [1,3] and upon further filtering (`i -> i >4`), there will not be any elements in the array meeting this criterion and will return an empty list.

Answer C is NOT correct. It will throw a compile time error because lambda expression, `filter(i -> i = i * 2-1)` SHOULD return a boolean value, but this is returning an integer.

Answer D is NOT correct. It will throw a compile time error because lambda expression, `filter(i -> i = i * 2-1)` SHOULD return a boolean value, but this is returning an integer.

Candidate's Solution

Options: (Expected answer indicated with a tick)

`<p> </p> <pre> <code class="language-java"> Collection<Integer>c = Arrays.asList(1,2,3,4,5);
List<Integer> list = c.stream() .filter(i -> i % 2 == 0) .map(i -> i - 1) .filter(i -> i > 4)
.collect(Collectors.toList());</code></pre> <p> </p>`

`<p> </p> <pre> <code class="language-java">Collection<Integer>c = Arrays.asList(1,2,3,4,5); List<Integer> list =
c.stream() .filter(i -> i % 2 == 0).map(i -> i * 2-1) .filter(i -> i > 4) .collect(Collectors.toList());</code></pre>
<p> </p>`



`<p> </p> <pre> <code class="language-java">Collection<Integer>c = Arrays.asList(1,2,3,4,5); List<Integer> list =
c.stream() .filter(i -> i % 2 == 0).filter(i -> i = i * 2-1) .filter(i -> i > 4) .collect(Collectors.toList());</code></pre>
<p> </p>`

`<p> </p> <pre> <code class="language-java">Collection<Integer>c = Arrays.asList(1,2,3,4,5); List<Integer> list =
c.stream() .filter(i -> i % 2 == 0).filter(i -> i = i * 2-1) .map(i -> i > 4) .collect(Collectors.toList());</code></pre>
<p> </p>`

No comments.

271. Identify Runtime Exceptions

Correct

Multiple Choice Java Exception Handling Programming Medium

Question description

Which of the following is **not** an example of RuntimeException ?

Candidate's Solution

Options: (Expected answer indicated with a tick)

NullPointerException

ArrayIndexOutOfBoundsException

FileNotFoundException



① No comments.

272. Empty a HashMap

Correct

Multiple Choice Java Collections Hash Map Medium

Question description

To delete all pairs of keys and values in a given HashMap, which of the following methods should be used ?

Candidate's Solution

Options: (Expected answer indicated with a tick)

clearAll()

empty()

remove()

clear()



① No comments.

273. Java : OOPS

Correct

Multiple Choice Java Overloading OOPS Polymorphism Language Proficiency Problem Solving Programming Medium OOP

Question description

What feature allows different methods to have the same name and arguments type, but a different implementation is called?

Candidate's Solution

Options: (Expected answer indicated with a tick)

overloading

overriding

✓

Java does not permit methods with same name and type signature

None of the above

① No comments.

274. Which of the following is true about iterators ?

Correct

Multiple Choice Java Collections Medium

Question description

Which of the following is true about iterators ?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Iterator is an interface

✓

Iterator is a member function of a class in the library Iterators are used to traverse through the elements of a collection Iterator is an abstract class used for iterating all the elements of the class

ⓘ No comments.

275. The Keyword Synchronized

ⓘ Correct

Multiple Choice Java Synchronization Medium

Question description

The keyword synchronized can be used in which of the following types of blocks:

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Instance methods Static methods Static classes Code blocks inside static methods

ⓘ No comments.

276. Look Up an Element in a Map Using a Key

ⓘ Correct

Multiple Choice Java Collections Medium

Question description

Which of the methods would you use to look up a element in a given map using a specified key.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 get() look() search() value()

① No comments.

277. Type Promotions

Correct

Multiple Choice Java Medium

Question description

Given the following type declarations:

```
int a;  
double b;  
float c;  
long d;
```

The expression $(a + d) * (c + b)$ will be promoted to which of the following?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 long double

int float

ⓘ No comments.

278. Which of the following operators is overloaded for string objects?

✓ Correct

Multiple Choice Easy Java Polymorphism Operator Overloading

Question description

Which of the following operators is overloaded for string objects?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 + - == >>

Java doesn't support operator overloading

✓

ⓘ No comments.

279. Select the correct statement, from the options below:

✓ Correct

Multiple Choice Java Medium Garbage Collection

Question description

Select the correct statement, from the options below:

Candidate's Solution

Options: (Expected answer indicated with a tick)

If object obj1 can access object obj2 that is eligible for garbage collection, then obj1 is also eligible for garbage collection (checkmark)

Objects can be explicitly destroyed using the keyword delete

An object will be garbage collected immediately after it becomes unreachable

None of the above

① No comments.

280. Root Class of the Java Exception Hierarchy

(checkmark) Correct

Multiple Choice Java Medium Exception Handling Programming

Question description

Which of the following is the root class (apex) of the exception hierarchy in Java?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Throwable (checkmark)

Exception

Error

RuntimeException

ⓘ No comments.

281. Given the following code, what is the most likely result:

✓ Correct

Multiple Choice Java OOPS Programming Easy OOP

Question description

Given the following code, what is the most likely result:

```
import java.util.*;
public class Compares
{
    public static void main( String args[])
    {
        String[] cities = {"Bangalore","Pune","San Francisco","New York City"};
        MySort ms = new MySort();
        Arrays.sort(cities, ms);
        System.out.println(Arrays.binarySearch(cities, "New York City"));
    }
    static class MySort implements Comparator
    {
        public int compare( String a, String b)
        {
            return b.compareTo(a);
        }
    }
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)



-1



1



2



Compilation fails



ⓘ No comments.

282. Field Names in Classes

Correct

Multiple Choice Java OOPS Medium Programming OOP

Question description

A public data member with the same name is provided in the base and its derived classes. Which of the following is true?

Candidate's Solution

Options: (Expected answer indicated with a tick)

It is a compiler error to provide a field with the same name in both the base and derived classes.

The program will compile, and this feature is called 'overloading';

The program will compile, and this feature is called 'overriding';

The program will compile, and this feature is called 'hiding' or 'shadowing';

 No comments.

283. Static Analysis 3

Correct

Multiple Choice OOPS Java Medium Programming OOP

Question description

What is the output of the PirateTalk code when executed with this command?

```
java PirateTalk -DargProp="dog,"
```

```
import java.util.*;
public class PirateTalk
{
    public static void main(String... arrrrgs) {
        Properties p = System.getProperties();
        p.setProperty("pirate","scurvy");
        String s = p.getProperty("argProp") + " ";
        s += p.getProperty("pirate");
        System.out.println(s);
    }
}
```

{
}**Candidate's Solution****Options:** (Expected answer indicated with a tick) dog, scurvy null scury scury dog, scury null

No comments.

284. Static Analysis 1

Correct

Multiple Choice Java Exception Handling Medium

Question description

What will be the output of this Java program?

```
public class X
{
    public static void main(String [] args)
    {
        try
        {
            badMethod();
            System.out.print("A");
        }
        catch (Exception ex)
        {
            System.out.print("B");
        }
        finally
        {
            System.out.print("C");
        }
        System.out.print("D");
    }
}
```

```
public static void badMethod() {}  
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

 AC BC ACD ABCD

 No comments.



285. Java Classes

Correct

Multiple Choice Medium Java OOPS Programming OOP

Question description

Which statement is true?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Non-static member classes must have either default or public accessibility. All nested classes can declare static member classes. Methods in all nested classes can be declared static. Static member classes can contain non-static methods.

① No comments.

286. Result of Concurrent Threads

Correct

Multiple Choice Concurrency Java Medium

Question description

Five threads are accessing a shared resource. The common variable being accessed by all of them is 'x' and the common code being executed by all of them is:

```
for ( int i = 0; i < 10000000; i++ )  
{  
    x = x + 1;  
}
```

Assuming that the original (initial) value of 'x' was zero, after each of the threads have finished running this loop, the value of 'x' is:

Candidate's Solution

Options: (Expected answer indicated with a tick)

50000000

10000000

A specific value F, less than 50000000; which remains fixed across multiple runs.

A specific value F, greater than 50000000; which remains fixed across multiple runs.

The value may differ/vary each time, across runs.



① No comments.

287. Bitwise Operators in Java

Correct

Multiple Choice Java Easy Operators

Question description

Consider the following Java snippet:

```
int x = 3 & 5;  
int y = 3 | 5;
```

The values of 'x' and 'y' (respectively) are:

Candidate's Solution

Options: (Expected answer indicated with a tick)

- 1,7 (checkmark)
- 2,8
- 8,-2
- 1,8
- 2,7

 No comments.

288. JDK Design Patterns

 Correct

Multiple Choice Java Algorithms Easy

Question description

One example of _____ Design pattern from JDK itself is the Collections.sort() method and the Comparator Interface, through which we can specify different criteria for sorting a collection of objects.

Which of the following is the best fit for the blank in this line?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Singleton Adapter Factory Strategy

No comments.

289. Value of k After Function Runs

Correct

Multiple Choice Java OOPS Easy Programming OOP

Question description

Which is true of the following program?

```
public class TestFirstApp {  
    static void dolt(int x, int y, int m) {  
        if (x == 5) {  
            m=y;  
        } else {  
            m=x;  
        }  
    }  
  
    public static void main(String[] args) {  
        int i=6, j=4, k=9;  
        TestFirstApp.dolt(i,j,k);  
        System.out.print(k);  
    }  
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Doesn't matter what the values of i and j are, the output will always be 5 . Doesn't matter what the values of k and j are, the output will always be 5 .



Doesn't matter what the values of i and j are, the output will always be 9 .



Doesn't matter what the values of k and j are, the output will always be 9 .

No comments.

290. Default Packages

Correct

Multiple Choice Java Easy

Question description

Which of the following packages is imported by default?

Candidate's Solution

Options: (Expected answer indicated with a tick)



java.lang



java.io



java.math



java.text

No comments.

291. Automatic Imports

Correct

Multiple Choice Java Easy

Question description

Classes from packages **java.lang**, **java.io** and **java.util** are imported by default without having to be specified explicitly using import statements in a Java program.

True or False?

Candidate's Solution

Options: (Expected answer indicated with a tick)

True

False



! No comments.

292. Java: Constructor, Exception Handling and Inheritance

Correct

Multiple Choice Language Proficiency Constructors Java Exception Handling OOPS Problem Solving Medium OOP

Question description

What should be the output of the following code?

```
class AirPlane {  
    public AirPlane() throws IOException {  
        System.out.print("AirPlane");  
        throw new IOException();  
    }  
}  
class AirJet extends AirPlane {  
    public AirJet() throws IOException {  
        System.out.println("Airjet");  
        try {  
            super();  
        } catch (IOException e) {  
            System.out.print("IOException is thrown in AirJet");  
        }  
    }  
}  
public class Tester {  
    public static void main(String args[]) {  
        try {  
            new AirJet();  
        } catch (IOException e) {  
            System.out.print("IOException is thrown in Tester");  
        }  
    }  
}
```

Candidate's Solution**Options:** (Expected answer indicated with a tick)

&quot;AirPlaneIOException is thrown in AirJet&quot; will be printed.



&quot;AirPlaneIOException is thrown in AirJetIOException is thrown in Tester&quot; will be printed.



&quot;AirPlaneIOException is thrown in Tester&quot; will be printed.



The code does not compile because of an error in the constructor of class Airjet.



No comments.

293. Interfaces

Multiple Choice Java OOPS Easy Programming Interfaces OOP

Question description

Which of the below is true about Interfaces?

Candidate's Solution**Options:** (Expected answer indicated with a tick)

Interface can contain constructors



A class can implement just one interface



An interface can declare public and protected method only



An interface cannot have instance variables



No comments.

294. Java Class Path

Correct

Multiple Choice Java Easy

Question description

There is a java file named *Test.java* that needs access to a class contained in *app.jar* in the *exam* directory.

Which of the following commands sets classpath to compile clean?

Candidate's Solution

Options: (Expected answer indicated with a tick)

`javac -classpath exam/app.jar Test.java`



`javac -classpath app.jar Test.java`

`javac -classpath exam Test.java`

None of the above

No comments.

295. Static Code Analysis 3

Correct

Multiple Choice Java Easy Exception Handling OOPS Programming OOP

Question description

What will be the output of this Java code snippet? Assume that all necessary imports have been taken care of.

```
public class Test{  
    public static void main(String args[]) {  
        try {  
            int x = 0;  
            for (x=1; x<4; x++)  
                System.out.println(x);  
        } catch(Exception e) {}  
        finally {  
            System.out.println("Error");  
        }  
    }  
}
```

{
}**Candidate's Solution****Options:** (Expected answer indicated with a tick) 1 2 3 4 1 2 3 4 4 Error

No comments.

296. Will This Compile? 2

Correct

Multiple Choice Java Medium OOPS Programming OOP

Question description

What is the output for the below code ?

```
public class A {  
    public void printName(){  
        System.out.println("Value-A");  
    }  
}  
public class B extends A{  
    public void printName(){  
        System.out.println("Value-B");  
    }  
}  
  
public class C extends A{  
    public void printName(){  
        System.out.println("Value-C");  
    }  
}  
  
1. public class Test{
```

```
2. public static void main (String[] args) {  
3.     B b = new B();  
4.     C c = new C();  
5.     b = c;  
6.     newPrint(b);  
7. }  
8. public static void newPrint(A a){  
9.     a.printName();  
10. }  
11. }
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Value-B Value-C Compilation fails due to an error on lines 5 Compilation fails due to an error on lines 9

① No comments.

297. Java Print a Sum

Correct

Multiple Choice Java Language Proficiency Classes Inheritance OOPS Easy OOP

Question description

What is the output of the following code?

```
1. public class A {  
2.     int add(int i, int j){  
3.         return i+j;  
4.     }  
5. }  
6. public class B extends A{  
7.     public static void main(String argv[]){  
8.         short s = 9;  
9.         System.out.println(add(s,6));
```

```
10. }
11.}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

Compilation fails due to an error on line 2

Compilation fails due to error an on line 9, non-static method referenced from a static context. (✓)

Compilation fails due to a type mismatch on line 9.

15

 No comments.

298. What is result of the following command?

 Correct

Multiple Choice Java Easy

Question description

What is result of the following command?

```
1. import java.util.*;
2. class Priorities {
3.   public static void main(String[] args) {
4.     PriorityQueue ToDo = new PriorityQueue();
5.     ToDo.add("dishes");
6.     ToDo.add("laundry");
7.     ToDo.add("bills");
8.     ToDo.offer("bills");
9.     System.out.print(ToDo.size() + " " + ToDo.poll());
10.    System.out.print(" " + ToDo.peek() + " " + ToDo.poll());
11.    System.out.println(" " + ToDo.poll() + " " + ToDo.poll());
12.  }
13.}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

3 bills dishes laundry null null 3 bills bills dishes laundry null 3 dishes dishes laundry bills null 4 bills bills dishes laundry null 4 bills bills bills dishes laundry 4 dishes laundry laundry bills bills Compilation fails. An exception is thrown at runtime.

① No comments.

299. Which of the following statements is correct? Select the one correct answer.

Correct

Multiple Choice Easy Java

Question description

Which of the following statements is correct? Select the one correct answer.

Candidate's Solution

Options: (Expected answer indicated with a tick)

 Each Java file must have exactly one package statement to specify where the class is stored. If a Java file has both an import and a package statement, the import statement must come before package statement.

A Java file must have at least one class defined.

If a Java file has a package statement, it must be the first statement (except comments).

 No comments.

300. C++ Loop Control

 Correct

Multiple Choice Application Development Java Easy

Question description

Given the following code what is the effect of `a = 5`:

```
public class Test {  
    public void add(int a) {  
        loop: for (int i = 1; i < 3; i++) {  
            for (int j = 1; j < 3; j++) {  
                if (a == 5) {  
                    break loop;  
                }  
                System.out.println(i * j);  
            }  
        }  
    }  
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

Generate a runtime error

Throw an `ArrayIndexOutOfBoundsException`

Print the values: 1, 2, 2, 4

Produces no output



① No comments.

301. Calling a Constructor

Correct

Multiple Choice Application Development Java Easy

Question description

Where in a constructor, can you place a call to a constructor defined in the super class?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Anywhere

The first statement in the constructor



The last statement in the constructor

You can't call super in a constructor

① No comments.

302. Java: Find the Output

Correct

Multiple Choice Exception Handling Java Arithmetic Operations Easy Language Proficiency

Question description

Consider the following Java code snippet:

```
public int divide(int a, int b) {  
    int c = -1;  
  
    try {  
        c = a / b;  
    }  
    catch (Exception e) {  
        System.err.print("Exception ");  
    }  
    finally {
```

```
        System.err.println("Finally ");
    }

    return c;
}
```

What will our code *print* when we call *divide(4, 0)*?

Candidate's Solution

Options: (Expected answer indicated with a tick)

Exception Finally



Finally Exception

Exception

Finally

No output

-1

No comments.

303. Java Execution Flow

Correct

Multiple Choice Application Development Java Medium

Question description

What is the result of the following program?

```
public class Test {
    public static void main (String args []) {
        boolean a = false;
        if (a = true)
            System.out.println("Hello");
        else
```

```
        System.out.println("Goodbye");
    }
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

Program produces no output but terminates correctly.

Program does not terminate.

Prints out "Hello";



Prints out "Goodbye";

No comments.

304. Java: Inner Classes

Correct

Multiple Choice Application Development Java Language Proficiency Problem Solving Easy

Question description

Examine the following Java code, it includes an inner class, what will be the output of the following code?

```
public final class Test4 {
    class Inner {
        void test() {
            if (Test4.this.flag) {
                sample();
            }
        }
    }
    private boolean flag = true;
    public void sample() {
        System.out.println("Sample");
    }
    public Test4() {
        (new Inner()).test();
    }
    public static void main(String args []) {
        new Test4();
    }
}
```

```
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

Prints out "Sample";



Program produces no output but terminates correctly

Program does not terminate.

The program will not compile

No comments.

305. Which of the following statements is correct?

Correct

Multiple Choice Application Development Java Easy

Question description

Which of the following statements is correct for a method which is overriding the following method:

```
public void add(int a) {...}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

the overriding method must return void



the overriding method must return int

- the overriding method can return whatever it likes

① No comments.

306. Arrays in Java

Correct

Multiple Choice Java Easy Data Structures Arrays

Question description

Which of the following statements is true?

Candidate's Solution

Options: (Expected answer indicated with a tick)

- Arrays in Java are essentially objects.

✓

- It is not possible to assign one array to another. However, individual elements of the array can be assigned.

- Array elements are indexed from 1 to the size of the array.

- If a method tries to access an array element beyond its range, a compile warning is generated.

① No comments.

307. What is the correct declaration of an abstract method that is intended to be pub?

Correct

Multiple Choice Application Development Java Easy

Question description

What is the correct declaration of an abstract method that is intended to be public?

Candidate's Solution

Options: (Expected answer indicated with a tick)



`public abstract void add();`



`public abstract void add() {}`



`public abstract add();`



`public virtual add();`

No comments.

308. Java: String Array

Correct

Multiple Choice

Application Development

Java

Arrays

Language Proficiency

Problem Solving

Easy

Question description

Which of the following Java declaration of the String array is correct?

Candidate's Solution

Options: (Expected answer indicated with a tick)



`String temp [] = new String {"j","a","z"};`



`String temp [] = { "j", "b", "c"};`



`String temp = {"a", "b", "c"};`



`String temp [] = {"a", "b", "c"};`



No comments.

309. Which of the following will output -4.0 ?

Correct

Multiple Choice Java Language Proficiency Math Easy

Question description

Which of the following will output -4.0 ?

Candidate's Solution

Options: (Expected answer indicated with a tick)

System.out.println(Math.floor(-4.7));

System.out.println(Math.round(-4.7));

System.out.println(Math.ceil(-4.7));

System.out.println(Math.Min(-4.7));

 No comments.



310. Java : Object Class

Correct

Multiple Choice Application Development Java Language Proficiency Problem Solving Easy

Question description

Which of the following is true?

Candidate's Solution

Options: (Expected answer indicated with a tick)

The Class class is the superclass of the Object class.

The Object class is final.

The Class objects are constructed by the JVM as classes are loaded by an instance of java.lang.ClassLoader



- None of the above

① No comments.

311. Which of the following are true about the Error and Exception classes?

Correct

Multiple Choice Application Development Java Easy

Question description

Which of the following are true about the Error and Exception classes?

Candidate's Solution

Options: (Expected answer indicated with a tick)

- Both classes extend Throwable.

✓

- The Error class is final and the Exception class is not.

- The Exception class is final and the Error is not.

- Only the Exception class extends Throwable

① No comments.

312. "Syntax Review 2"

Correct

Multiple Choice Application Development Java Easy

Question description

What is the result of trying to compile and run this program?

```
public class Test {  
    public static void main(String[] args){  
        int[] a = {1};  
        Test t = new Test();  
        t.increment(a);  
    }  
    void increment(int[] a){  
        a[0]++;  
    }  
}
```

```
        System.out.println(a[a.length - 1]);
    }
void increment(int[] i){
    i[i.length - 1]++;
}
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

It generates a compiler error.

It compiles and prints 2.



It compiles and prints 1.

It compiles and generates an ArrayIndexOutOfBoundsException at runtime.

No comments.

313. Java : Division Check

Correct

Multiple Choice Arithmetic Operations Java Easy Language Proficiency

Question description

What is the result when one tries to compile and run the following code?

```
public final static void main(String[] args){
    double d = 10.0 / -0;
    if(d == Double.POSITIVE_INFINITY)
        System.out.println("Positive infinity");
    else
        System.out.println("Negative infinity");
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

Positive infinity Negative infinity Will fail to compile Runtime exception

! No comments.

314. Java: Classes

Correct

Multiple Choice Application Development Java Language Proficiency OOPS Problem Solving Easy OOP

Question description

Which of the following are true for Java Classes?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 The Void class extends the Class class. The Float class extends the Double class. The System class extends the Runtime class. The Integer class extends the Number class.

! No comments.

315. Java String Concatenation

Correct

Multiple Choice Application Development Java Easy

Question description

What is the output of the following program?

```
public class Question {  
    public static void main(String args[]) {  
        String s1 = "abc";  
        String s2 = "def";  
        String s3 = s1.concat(s2.toUpperCase());  
        System.out.println(s1+s2+s3);  
    }  
}
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

abcdefabcdef

abcabcDEFDEF

abcdefabcDEF

None of the above

 No comments.



316. Declarations

Correct

Multiple Choice Application Development Java Easy

Question description

Given the following declarations

```
String s1=new String("Hello")  
String s2=new String("there");  
String s3=new String();
```

Which of the following are legal operations?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 s3=s1 + s2; s3=s1 - s2; s3=s1 & s2 s3=s1 && s2

No comments.

317. "Syntax Review 1"

Correct

Multiple Choice Application Development Java Easy

Question description

The following code is in a file called Test.java

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

What happens when it is compiled and run?

Candidate's Solution

Options: (Expected answer indicated with a tick)

 It fails to compile.

It compiles and generates a runtime error.

It compiles and runs with no output.

It compiles and prints "Hello";



No comments.