Couchbase

Professional Architect Certification Exam Study Guide

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Welcome to the Couchbase Professional Architect Certification!

What to Expect:

⇒ Use this Study Guide to prepare for the Couchbase Professional Architect Certification Exam.

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Information Confidentiality

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<u>Certification Program and Exam Overview</u>

This Study Guide is designed to help you prepare for the Couchbase Professional Architect Certification exam. This certification exam is based on fundamental and more advanced aspects of Couchbase 7.0+ and various Couchbase SDKs. As with any certification, the most valuable parts are the learning process which leads to successful concept recognition.

We encourage you to take time to complete the **CD212: Couchbase NoSQL Data Modeling, Querying, Search, and Analytics** course which can be taken at various times as offered. These materials are designed to walk you through essential topics, Couchbase features and benefits, as well as how Couchbase 7.0+ knowledge can be applied from the perspective of an Application or Solutions Architect. However, taking the course is not a required prerequisite to taking the Certification Exam.

Items to understand:
⇒ Topics in this Study Guide and aligned to the exam and are organized by subject area, where each topic contains a description of what you should make sure you know.
⇒ The list of topics can be used as a check-list.
⇒ The CD212 course can be used for points of reference and explanation of key concepts covered in the exam.
⇒ Everything in the exam is covered somewhere in the course materials.

Possible Preparation Path:
⇒ Register for and take CD212: Couchbase NoSQL Data Modeling, Querying, Search, and Analytics course.
⇒ Make notes of key topics and call outs that align with the Study Guide topics listed.
⇒ Work through the lab exercises for practice with key concepts. Use labs to experiment with anything you need to spend more time on.
⇒ Please keep in mind that you are expected to have solid working knowledge of all the topics listed. Questions will be commensurate with a Professional level (2nd-level) certification, as determined by Couchbase Subject Matter Experts.
⇒ For more fundamental, basic concepts, please view CB131: Couchbase Associate Architect Certification.

<u>Certification Exam Logistics</u>

When you are ready to test and validate your product knowledge, please visit <u>learn.couchbase.com/store</u> to purchase an industry-recognized Couchbase Professional Architect Certification Exam.

- Certification exams may be taken from a location of your choosing, anywhere in the world, provided you meet the basic system and test environment requirements. *Please read these instructions thoroughly*. <u>See here for requirements</u>. *Mac users should pay specific attention here as setting changes may be required*. All users will need to bring a photo ID to the exam.

- For help with your exam purchase, exam registration process, credentials verification, or other questions related to our certification program, process, and procedures, please visit <u>couchbase.com/academy/certification</u>.

- The exam itself is computer-based and must be purchased from Couchbase and scheduled with the vendor ProctorU in order to take it.

- The proctor will require 10-25 minutes of setup before you begin the exam. You will receive general instructions from the proctor.

- It is <u>IMPORTANT</u> that you *do not start the exam until you are told to do so by the proctor, who must type in a password before you begin*. Starting the exam without the proctor can invalidate your exam.

- You have up to 90 minutes to answer the 50 multiple choice questions. You must answer at least 40 questions correctly (80%) in order to pass the exam.

- Read each question carefully, and provide the best answer. Questions can be skipped and returned to as you have the ability to review all selected answers before submitting the exam.

<u>Certification Exam Pass/Fail Scenarios</u>

If you earn a passing score, you will be granted the Couchbase Certified Professional Architect badge which is granted by Credly, our badging vendor.

- This badge can be socialized on LinkedIn, Twitter, Facebook, WhatsApp, or within your email signature.

- The skills you show with this certification have been validated as appropriate for the Professional-level Architect, and have been attested to by many Subject Matter Experts within Couchbase, Inc.

If you do not earn a passing score, you are encouraged to:

- Review the CD212: Couchbase NoSQL Data Modeling, Querying, Search, and Analytics course and study guide.

- *Purchase a new exam on the Couchbase Academy Store.*

- Schedule a time to take the exam with ProctorU.

Certification Exam Frequently Asked Questions (FAQs)

1. **Is there anything in the exam, which was not covered in the course?**

   No, everything in the exam is derived from the course materials and associated lab exercises.

2. **Do I have to know class names and method signatures?**

   No, however we expect you to be familiar with the basic method structure of the APIs in question and to evaluate if the given methods are written correctly or not.

3. **Do I have to write, complete or rearrange source code?**

   No. The only thing you should be able to do is read a snippet of code and understand what it's doing.

4. Who is eligible to take a certification exam?
   Our certification exam is available to individuals seeking to attain the Couchbase Associate Architect certification. We offer a corresponding course to help you prepare you for our certification exam. However, you may purchase and sit for a certification exam any time you like.

5. **Can I get certified without taking the training course?**
   Our training course is the best way to gain the knowledge tested in our certification exam. However, course attendance is not a required step in the certification process.

6. **How do I purchase a certification exam?**
   Exams are available for purchase on our Couchbase Academy Store. Locate the exam and add to cart (*Couchbase Professional Architect Certification Exam*) where you will be directed to log in if you have not already done so. Once logged in, you will complete the checkout. Once purchase has completed, you will receive several emails from ProctorU inviting you to set up your account and schedule your exam.

7. **How long is my exam purchase good for?**
   Once you have purchased the exam from the Couchbase Academy store, you must schedule and take your exam through ProctorU within 90 calendar days or the exam expires. Once this exam has expired, you must purchase another if you wish to continue with the exam. Therefore we encourage you not to wait to schedule your exam date.

8. **What happens if I pass the exam?**
   Within 72 hours of passing the exam, you will receive a notice to claim your digital badge through Credly. Once you accept your badge, you can share via LinkedIn, Twitter, and/or place in your email signature.

9. **What happens if I do not pass the exam?**
   ONE exam purchase offers you ONE opportunity to take the exam, whether you pass or fail. If you need another opportunity to take the exam, you may purchase again from our store. We encourage you to refresh your knowledge with the material in the associated course before re-attempting the exam.

10. **Do I have to create an account to take the exam or get the badge?**

    In order to take the exam, you ARE required to create a ProctorU account. In order to accept your badge, you ARE required to create an account with Credly.

N1QL Essentials

1. What is N1QL and what are some recommended best practices when using it to query?
2. Identify N1QL code that allows for basic querying operations including: returning document IDs from a given Collection or Bucket, returning documents by key, returning documents by given attributes, etc.
3. What are Primary indexes and what do they look like in N1QL?
4. How might UPSERT be using in a N1QL query?
5. How do JOINs function in N1QL?
6. Identify appropriate ANSI JOINs with N1QL.
7. How do back ticks (`) function in N1QL?
8. What is the "Explore Your Data" pane in Couchbase and what information does it provide?
9. What happens to a query during a multi-document transaction and in what session order do they happen?
10. What are Common Table Expressions (CTEs) and what are the benefits of using them?

Introduction to the Couchbase Data Platform

11. What services does Couchbase offer, what does each service allow the user to do, and what is the default port for the Couchbase Web Console?
12. What is a Bucket, Scope, Collection, and vBucket? What are the limits on each of these data segments?
13. Which Couchbase Services require memory-quota allocation?
14. What are the qualifications for triggering compaction in Couchbase?
15. What are the different Bucket Ejection options in Couchbase and what does each allow a user to do?
16. What are Scopes, Collections, Default Scopes, and Default Collections, and how do they function in Couchbase?
17. What must be considered when configuring Multi-Dimensional Scaling (MDS) in Couchbase?
18. It is vital to test your workloads. What services might you use to generate random workloads for testing?

Indexes in N1QL

19. What are the index-consistency options in Couchbase, and what are the benefits of each?

20. Given specific parameters, identify appropriate N1QL queries that satisfy a given index.

21. Given specific parameters, identify the appropriate index that would satisfy a given query.

22. Identify N1QL statements that would correctly execute Common Table Expressions (CTEs).

23. What is an Adaptive Index and how does it function with N1QL?

24. Identify and describe the features of each of the N1QL Access Methods.

25. What are Memory-Optimized Global Indexes and how do they function with N1QL?

Query Planning and Tuning

26. What is a Deferred Build and what does it achieve in Couchbase?

27. Evaluate which indexes may enhance performance based on a given set of criteria.

28. What are index replicas? When would they provide benefit, and when might they not be used?

29. What are the benefits of using a Covering Index?

30. What is the Indexer and what functions does it complete?

31. What are some best practices when utilizing indexes in Couchbase?

32. Where is N1QL statement execution information housed?

33. How do Predicates, Spans, and Filters function and where can they be found in an Execution Plan?

Eventing

34. Define and describe the database use-cases most beneficial for the Couchbase Eventing Service.

35. Identify code that allows users to get provided information from an Eventing function.

36. How can a user execute a N1QL SELECT query from an Eventing function? Provide examples.

37. Provide the steps for updating or changing an Eventing function after its been deployed.

38. Why and when might a user want to employ a Timer when working with Eventing functions?

39. What is important to consider if you are using the Eventing service to track data mutations in a single-cluster environment or a multi-cluster environment?

40. How does a Handler function and what are the Handler options within Couchbase Eventing?

41. Which language constructs are supported by Couchbase Eventing functions?

42. In which cases are "Feed Boundaries" supported by Couchbase Eventing functions?

Data Modeling

43. Provide examples of natural and surrogate keys.

44. Describe what takes place in each of the steps of Data Modeling: Conceptual, Logical, and Physical.

45. What are the ER Modeling notations?

46. Which character set is used in Couchbase?

47. What are Couchbase's document key length and document size minimums and maximums?

48. In which use cases might nesting one object into another and/or child documents inside parent documents bring the most benefit?

49. What is ISO-8601? How does it compare to Epoch time?

50. What benefits can be gained by using a lookup pattern in Data Modeling?

51. How does Couchbase validate a JSON document conforms to an expected structure?

Introduction to Couchbase Full-Text Search (FTS)

52. Define the steps of the text-analysis process for the Couchbase Full-Text Search Service and be prepared to provide an example of which terms the text analyzer would pull from a given statement.

53. Which algorithm is used by Couchbase FTS?

54. Define the query types supported by Couchbase FTS.

55. What are the capabilities of Couchbase Full-Text Search?

Full-Text Search Indexes

56. What is an Index Alias and when would you use it in Couchbase FTS?

57. What would you use to create a Search Index in Couchbase FTS?

58. What is a Flex Index and when would you use it in Couchbase FTS?

59. How does Type Mapping and allowing for different settings impact creating a new index in FTS?

Performing Full-Text Searches in Couchbase

60. Which character filters are supported by Couchbase FTS?

61. Which analyzers supported by Couchbase FTS are language sensitive and which analyzers are not?

62. How does a carat (^) function within Couchbase FTS?

63. Given code examples, identify what will be retrieved from a FTS query.

64. What is the maximum fuzziness level Couchbase FTS can enable?

Introduction to Couchbase Analytics

65. How are Scopes and Collections referred to in Couchbase Analytics?

66. What is the minimum Memory-quota allocation for Analytics Service?

67. Which file formats are supported by Couchbase Analytics?

68. Define each of the following Windows Functions: DENSE_RANK(), LAST_VALUE(), CUME_DIST().

69. What are the key characteristics of Window Functions in Couchbase Analytics?

Next Steps

Now that you have completed this Study Guide, we hope you feel prepared to take the Couchbase Professional Architect Certification exam.

Exam

The exam must be purchased at the Couchbase Academy Store and scheduled with ProctorU, our testing vendor, in order to be taken. Once you have scheduled your exam time, your exam will contain 50 questions. You will be given 90 minutes to complete the exam, and no feedback will be provided at the question level. Once you have completed the exam, you will be given your score.

Questions? Concerns?

Please send all inquiries to training@couchbase.com.