

EXAM DESCRIPTION

Hitachi Vantara Qualified Associate Applied Data Science HQT-0812 Exam

Exam Type
 Qualification

Format

Proctored, closed book exam

Credential

Hitachi Vantara Qualified Associate - Applied Data Science

Validity 3 years

Delivery
[Kryterion Webassessor System](#)*

Questions 50

Passing Score 66%

Duration 90 minutes

Cost

US \$140 or equivalent in local currency (plus local tax, depending on location)

Supporting Material

• TOP4051 Applied Data Science (Curriculum)

This test is primarily designed for college and university students who wish to pursue a career related to data science. It is also available to Hitachi Vantara customers, partners and employees, and anyone interested in the technical aspects of data science and how data-driven decision making can be applied to projects across a diverse range of industries. The test will validate that the successful candidate has basic knowledge and understanding of data science concepts and methodology, statistics and data analysis techniques, Big Data and analytic data pipelines, and data modeling and visualization. In addition, the test covers the concepts of artificial intelligence (AI), industrial internet of things (IIoT) and machine learning (ML), scripting techniques with Python, data science tools, and the Pentaho and Lumada solutions from Hitachi Vantara.

Audience: anyone interested in the business and technical aspects of data science.

College or university students attending Science, Technology, Engineering and Mathematics as well as Business, Management, Marketing, or Information Technology studies and who wish to augment these studies with data science.

Test Objectives	
Section 1	Applied data science overview
1.1	Define the concepts of data science.
1.2	Describe the value of data.
1.3	Describe how Big Data can support business transformation.
1.4	Describe the "Thinking Like A Data Scientist" methodology.
1.5	Describe analytics maturity levels and data science process (DEPPA).
Section 2	Statistics and data analysis
2.1	Describe statistic techniques used within data science.
2.2	Describe data analysis methods.
Section 3	Data modeling and visualization
3.1	Describe data models for self-service reporting and analytics.
3.2	Describe common visualization techniques.
Section 4	Artificial intelligence and machine learning
4.1	Describe artificial intelligence (AI) and machine learning (ML) related terminology.
4.2	Describe the ethical aspects of artificial intelligence (AI).
Section 5	Internet of Things (IoT)
5.1	Describe the Internet of Things (IoT) and Operational Technology (OT) concepts.

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5.2	Describe the drivers of digital transformation.
5.3	Describe how Hitachi Vantara's Pentaho and Lumada technologies are used in Industrial Internet of Things (IIOT) projects.
Section 6	Data operations
6.1	Describe the principles of Data Operations (Data Ops).
6.2	Describe the analytics data pipeline concepts.
Section 7	Big Data
7.1	Describe the Big Data ecosystem.
Section 8	Machine learning (ML)
8.1	Describe machine learning concepts and process.
8.2	Describe supervised learning and regression.
8.3	Describe classification algorithms.
8.4	Describe ensemble techniques.
8.5	Describe sampling methods.
8.6	Describe unsupervised learning.
Section 9	Basics of Python
9.1	Describe the characteristics of the Python language.
9.2	Describe Python data types and structures.
9.3	Describe Python functions.
9.4	Describe the concepts of object oriented programming.
Section 10	Python for machine learning
10.1	Describe Pandas analysis tools.
10.2	Describe the Numpy data science library.
10.3	Describe the Matplotlib plotting library for Python.
10.4	Describe the Seaborn data visualization library for Python.
Section 11	Pentaho Data Integration (PDI)
11.1	Describe Pentaho Data Integration.
11.2	Describe Pentaho's role with ETL.
11.3	Describe how data is structured in Pentaho Data Integration.
11.4	Describe job orchestration in Pentaho Data Integration.
Section 12	Pentaho Business Analytics (BA)
12.1	Describe the Pentaho tools for business analytics.
12.2	Describe data modelling with Pentaho.
12.3	Describe the Mondrian OLAP engine.
12.4	Describe the role of Pentaho Schema Workbench.
Section 13	Streaming data with Pentaho
13.1	Describe the major components in messaging systems.
13.2	Describe the operation of MQTT.
13.3	Describe the Kafka and AMQP messaging systems.

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Hitachi Vantara



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