

Preview Test: INFS3208 Semester Two Final Examination 2020

Test Information

Description Undertaking this online examination deems your commitment to UQ's academic integrity pledge as summarised in the following declaration:
"I certify that I have completed this examination in an honest, fair and trustworthy manner, that my submitted answers are entirely my own work, and that I have neither given nor received any unauthorised assistance on this examination".

Instructions You need to answer all of the questions in the Blackboard Test.

Timed Test This test has a time limit of 2 hours and 30 minutes. This test will save and be submitted automatically when the time expires.
Warnings appear when **half the time, 5 minutes, 1 minute**, and **30 seconds** remain.
[The timer does not appear when previewing this test]

Multiple Attempts Not allowed. This test can only be taken once.

Force Completion This test can be saved and resumed at any point until the time has expired. The timer will continue to run if you leave the test.
Your answers are saved automatically.

QUESTION 1

1 points

Save Answer

What are the cloud delivery models for Virtual Machine and Google App Engine, respectively?

- ☐ SaaS and PaaS
- ☐ IaaS and PaaS
- ☐ IaaS and SaaS
- ☐ None of the above

QUESTION 2

1 points

Save Answer

Which pre-existing technology is NOT considered to be one of the primary influences on cloud computing?

- ☐ Clustering technology
- ☐ Encryption technology
- ☐ Grid Computing technology
- ☐ Virtualisation technology

QUESTION 3**1 points**[Save Answer](#)

What computing resources do cloud users need to manage in Platform-as-a-service?

- ☐ Networking and storage
 - ☐ Operation system
 - ☐ Application and data
 - ☐ None of the above
-

QUESTION 4**1 points**[Save Answer](#)

Which of the following software that lets you run multiple virtual machines on one physical server machine?

- ☐ Host operation system
 - ☐ Guest operating system
 - ☐ Virtual machine management or hypervisor
 - ☐ None of the above
-

QUESTION 5**1 points**[Save Answer](#)

Which of the following is NOT correct about container?

- ☐ An image cannot be changed after it was create
 - ☐ The container can share the kernel of the host operation system but can provide user isolation.
 - ☐ From one image you can create multiple containers.
 - ☐ When constructing an image, each layer in the image can be changed after it has been constructed
-

QUESTION 6**1 points**[Save Answer](#)

Which of the following tools can help you manage multiple containers on one single machine?

- ☐ Dockerfile
 - ☐ Docker-compose
 - ☐ Docker machine
 - ☐ Docker-swarm and Kubernetes
-

QUESTION 7**1 points**[Save Answer](#)

Deploying MySQL, Redis, Nginx, and PHP services into ONE container makes it easier to scale horizontally and reuse container.

- ☐ True
 - ☐ False
-

QUESTION 8**1 points**[Save Answer](#)

In GFS (Google File System) files are divided in _____ chunks.

- ☐ Variable size
 - ☐ Fixed size
 - ☐ Both fixed size and variable size
 - ☐ None of the above
-

QUESTION 9**1 points**[Save Answer](#)

Which of the following is belonged to Cluster File System?

- ☐ Sun Network File System (NFS)
 - ☐ Hadoop Distributed File System (HDFS)
 - ☐ Common Internet File System (CIFS)
 - ☐ Google's Bigtable
-

QUESTION 10**1 points**[Save Answer](#)

Apache Spark has language API's in _____

- ☐ Scala
 - ☐ Java
 - ☐ Python
 - ☐ All of the above
-

QUESTION 11**1 points**[Save Answer](#)

Which Cluster Manager does Spark support?

- ☐ Standalone Cluster Manager
 - ☐ MESOS
 - ☐ YARN
 - ☐ All of the above
-

QUESTION 12**1 points**[Save Answer](#)

Which of the following operations is NOT a transformation?

- ☐ flatmap
 - ☐ filter
 - ☐ reduce
 - ☐ reduceByKey
-

QUESTION 13**1 points**[Save Answer](#)

Which of the following is true for Spark SQL?

- ☐ It is the kernel of Spark
 - ☐ Provides an execution platform for all the Spark applications
 - ☐ It enables users to run SQL / HQL queries on the top of Spark.
 - ☐ Enables powerful interactive and data analytics application across live streaming data
-

QUESTION 14**1 points**[Save Answer](#)

Which of the following is true for RDD?

- ☐ We can operate Spark RDDs in parallel with a low-level API
 - ☐ RDDs are similar to the table in a relational database
 - ☐ It allows the processing of a large amount of structured data
 - ☐ It has built-in optimization engine
-

QUESTION 15**1 points**[Save Answer](#)

Which of the following is NOT a NoSQL database?

- ☐ MySQL
 - ☐ Redis
 - ☐ MongoDB
 - ☐ Cassandra
-

QUESTION 16**1 points**[Save Answer](#)

Which of the following statements is WRONG?

- ☐ NoSQL databases require that schemas be defined before you can add data
 - ☐ NoSQL databases are built to allow the insertion of data without a predefined schema
 - ☐ Transaction properties (ACID) in the traditional relational databases are not suitable to be a set of properties to describe NoSQL databases
 - ☐ All of the above
-

QUESTION 17**1 points**[Save Answer](#)

_____ stores are used to store information about networks, such as social connections.

- ☐ Key-value
 - ☐ Wide-column
 - ☐ Document
 - ☐ Graph
-

QUESTION 18**1 points**[Save Answer](#)

NoSQL databases are used MAINLY for handling large volumes of _____ data.

- ☐ Unstructured
 - ☐ Structured
 - ☐ Semi-structured
 - ☐ All of the above
-

QUESTION 19**1 points**[Save Answer](#)

Which of the following is FALSE about Hadoop MapReduce?

- ☐ It is a distributed framework
 - ☐ The main algorithm used in it is MapReduce
 - ☐ It runs with commodity hardware
 - ☐ All are true
-

QUESTION 20

1 points

Save Answer

Which of the following is FALSE about load balancing?

- ☐ Load balancing improves the distribution of workloads across multiple computing resources.
- ☐ Load balancing aims to optimize resource use, maximize throughput, minimize response time, and avoid overload of any single resource.
- ☐ Using multiple components with load balancing instead of a single component may increase reliability and availability through redundancy.
- ☐ All are true.

QUESTION 21

3 points

Save Answer

What are the characteristics of cloud computing? (3 marks)

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

QUESTION 22

4 points

Save Answer

What are the four deployment models in cloud computing? (4 marks)

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

The screenshot displays the TinyMCE editor toolbar. The top row includes bold (B), italic (I), underline (U), strikethrough (ABC), paragraph (Paragraph), and font family (Arial) dropdowns. The second row shows font size (10pt), bulleted list, numbered list, text color (A), background color (pencil icon), and text color removal (I_x). The third row contains undo/redo, link, unlink, and other icons. The bottom row features text color, background color, and other icons. The status bar at the bottom indicates 'P' and '0 WORDS POWERED BY TINY'.

QUESTION 23

4 points

Save Answer

What are Docker Image, Docker Container, and Docker Registries? Please give brief descriptions of these concepts. (4 marks)

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

B	<i>I</i>	<u>U</u>	S	Paragraph	▼	Arial	▼						
10pt	▼	☰	▼	☰	▼	<u>A</u>	▼		▼	<u>I</u> _x			
						...							
☰	☰	☰	☰	☰	☰	X ²	X ₂			↶	↷	—	±
P											0 WORDS	POWERED BY TINY	

QUESTION 24

4 points

Save Answer

Please briefly describe how Spark works? (4 marks)

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

B	<i>I</i>	<u>U</u>	S	Paragraph	▼	Arial	▼					
10pt	▼	☰	▼	☰	▼	<u>A</u>	▼		▼	<u>I</u> _x		
						...						
P											0 WORDS	POWERED BY TINY

QUESTION 25

4 points

Save Answer

Please briefly compare the differences between RDD and DataFrame? (4 marks)

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

B	<i>I</i>	<u>U</u>	S	Paragraph	▼	Arial	▼						
10pt	▼	☰	▼	☰	▼	<u>A</u>	▼		▼	<u>I</u> _x			
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☰	☰	☰	☰	☰	☰	X ²	X ₂			↶	↷	—	±
ABC	▼	✓	¶	”	Ω	☺	📖	☒	☒	☒	☒		
P											0 WORDS	POWERED BY TINY	

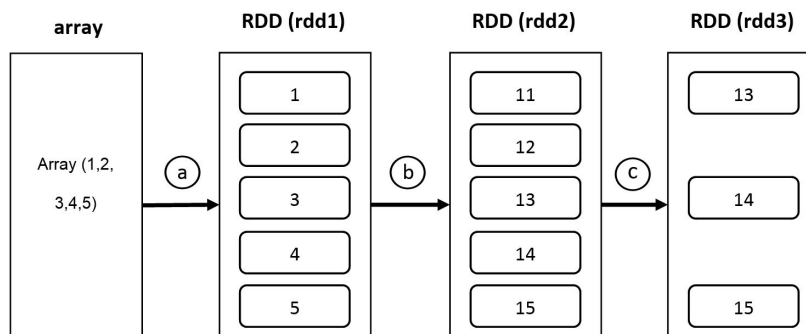
Save Answer

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

A screenshot of the TinyMCE editor toolbar. The toolbar is divided into several sections. The first section contains icons for bold (B), italic (I), underline (U), and strikethrough (ABC). The second section contains a dropdown menu for Paragraph and a dropdown menu for Arial. The third section contains a dropdown menu for 10pt, a dropdown menu for bulleted list (three horizontal lines), a dropdown menu for numbered list (1, 2, 3), a dropdown menu for text color (A), a dropdown menu for background color (pencil icon), and a dropdown menu for text background color (Tx). The fourth section contains icons for undo (curved arrow), redo (curved arrow), and a menu icon (three dots). The bottom of the toolbar shows a status bar with 'P' on the left and '0 WORDS POWERED BY TINY' on the right.

Save Answer

Please use Scala to fill in the appropriate RDD transformation operations in the steps a, b, and c. (3 marks)



a:

b:

C:

QUESTION 28

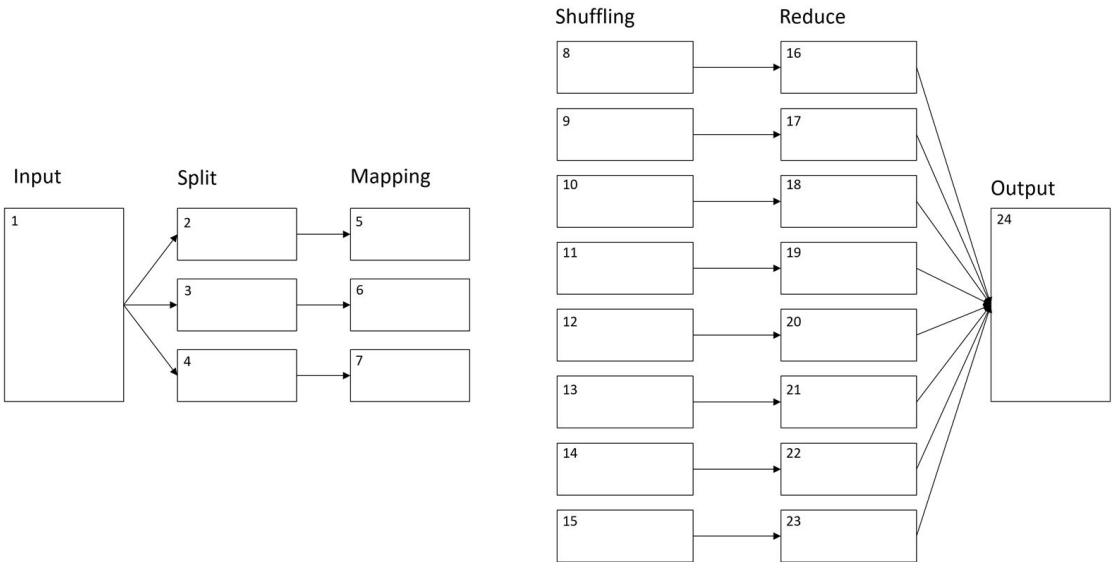
5 points

Save Answer

Given the following text input, please use the below Map-Reduce framework to perform word count (case insensitive). Note that a combiner should be in use if necessary. Please write down the answers according to the box numbers below.

Text Input:

Saturn is a planet.
Planet Earth is a planet.
Pluto is not a planet anymore.



Answer sample:

1: (Input).

Saturn is a planet

Planet earth is a planet

Pluto is not a planet anymore

Please write the answers in the below blanks:

Split		Mapping	
2:	<input type="text"/>	5:	<input type="text"/>
3:	<input type="text"/>	6:	<input type="text"/>
4:	<input type="text"/>	7:	<input type="text"/>
Shuffling		Reduce	
8:	<input type="text"/>	16:	<input type="text"/>
9:	<input type="text"/>	17:	<input type="text"/>
10:	<input type="text"/>	18:	<input type="text"/>
11:	<input type="text"/>	19:	<input type="text"/>
12:	<input type="text"/>	20:	<input type="text"/>
13:	<input type="text"/>	21:	<input type="text"/>
14:	<input type="text"/>	22:	<input type="text"/>
15:	<input type="text"/>	23:	<input type="text"/>

24:


QUESTION 29**0 points**[Save Answer](#)

Please use this space to specify any assumptions you have made in completing the exam and which questions those assumptions relate to. You may also include queries you may have made with respect to a particular question, should you have been able to 'raise your hand' in an examination room.

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

B *I* U ~~S~~

Paragraph ▼ Arial ▼

10pt ▼ ☰ ▼ ☷ ▼ A ▼  ▼ T_x

...

POWERED BY TINY