



Complete, fold and seal
(see note 2 below)

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12 Pages

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

1	Student Number	P145653
2	Title of Examination Paper	Emerging Web technologies
3	Module Code	M6X01096
4	Date and Time of Examination	15/5/19
5	Examination Venue	1Q 310
6	Seat Number	G025
7	Number of Answer Books handed in	1

List the numbers of the questions you have attempted	Office Use
1	10
2	15.5
3	5
Total	41%

(Gweler yr ochr arall am y fersiwn Cymraeg)

1

- a appendix 1 shows use of the revealing module pattern in use as a counter. The pattern allows the ~~two~~ methods ~~next~~ and ~~reset~~ to be called for each counter.

The count method that is called with the ~~next~~ counter. ~~Next()~~ call simply adds 1 to the existing count. The ~~reset~~ ~~ResetCount~~ method sets the count to 0. These methods are returned as the ~~next~~ and ~~reset~~ calls.

The main program creates a new counter and then uses both methods to reset the count and count up once.

- b appendix 2 shows a diagram that shows a dynamic web application making a series of requests to different things. The application upon starting requests the page from the web server, the service A from web service A and service B from web ~~service~~ service B. The application generates an error for trying to complete a cross origin post. This could be caused by the web application requesting the use of all three services. Perhaps this could be ~~completed~~ repaired by having the web server request the services from web services A and B before passing the page through to the application.

- c TypeScript is an extension of JavaScript that allows the user to use types in their code. This is helpful for object oriented programming. This allows the language to do all that JavaScript can do but

With the added use of type. This is helpful for creating type dependant applications far easier than is doable using normal Javascript. This language allows the same things to be done as Javascript but often far more simply and efficiently.

3-5

10
agreed

2

a) The four V's used to describe the characteristics of big data are Value, Variability, Velocity and Veracity. These four V's are used to describe the characteristics of big data. Value is used to describe value you get from using it as using big data allows for space to be used far more efficiently allows for for more data to be stored without using as much memory as a traditional relational database. Variability is used to describe how this approach can be used for storing all kinds of data and not just data restricted to a certain field or value. There is also a 5th V that can sometimes be applied.

2-5

b) Appendix 3 illustrates the ^{map} process used for dealing with big data. The approach firstly uses a map ~~sort~~ function to separate the statements provided into individual words as string values. The map function also gives each individual a count of 1. The data is then passed to the shuffle and sort function which shuffles the values so they are in alphabetical order and then sorts them into key value pairs for identical values. The data is then separated and passed into the reduce function. The ~~data~~ function uses the key value pairs ~~into~~ sorted in the previous function and ~~reduces~~ them from ~~to~~

two identical Pairs of the ~~same~~ same value with a count of 1 each to 1 value that has a count of 2 or however many the ~~shares~~ the data has been reduced from. This use of key value pairs allows for the data to be reduced efficiently and for the data to use less memory as to get more value.

The combiner then combines the two sets of data into 1 final output that can be stored.

This application allows for data to be sorted and reduced so it can be stored and organised without using more memory.

This allows for the developer to get more value out of their resources.

- C The immutability is important in big data as it is for most applications. ~~The~~ Data should never be modified as any modification to the data may lead to errors in the data. The data should be open to ~~modification~~ but never to extension but never to modification. Data should never be deleted as it may be needed. ~~Data~~ Deleting data may also leave gaps in data that could lead to errors when the data is needed.

3

- a ~~REST~~ REST based applications allow for web applications to request services from web services. This is the most popular choice for web services as it allows for data to be retrieved simply by using an API key. This is likely the most popular as its execution is very simple and can be used very easily to retrieve

8

5

15 1/2 agreed.

data. The Service includes the use of CRUD mapping operations in the System and includes a set of HTTP methods that means data should always be stored in the request body.

4

- b) Ajax pull request allow for only needed data to be requested. This means that only the data the developer requires is provided. This allows for more simple data. The only drawback of this is that it may lead to several requests being made if the developer requires more data than the original request provides.

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