

## Group's Questionnaire Answered

*CT60A7000 Critical Thinking and Argumentation in Software Engineering*

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### Missing questionnaires

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### Questionnaire

#### 1. Name the criteria that are used in assessment of arguments?

The criteria used in the assessment of arguments according to the Coursera course are clarity the arguments or statements, the credibility and relevance of the evidence provided, and coherence in the logic presented.

#### 2. Explain, what big data analyses assist to uncover?

Big data can be used to analyze sets of data and find or uncover different patterns/correlations, nevertheless, big data does not explain causation of correlations. Eventually, Big data can help us to predict the future based on past history.

#### 3. Explain using examples, how companies can find value from big data?

An example described in the book was Farecast which used information from different airlines to discover the fluctuations of the tickets' prices prior to the departure of the flight. Harnessing the capabilities of Big data, the application created could predict with an average of 70% accuracy when a ticket was going to be cheaper or more expensive. Microsoft found value by acquiring this application to its search engine "BING".

#### 4. Name eight rules to achieve commercially successful Killer Apps?

1. **Context is worth 80 IQ Points:** While thinking big, need to understand the information-technology.
2. **Embrace your doomsday scenario:** Investigate all possible threats.

3. **Start with a clean sheet of paper:** As goal, design a perfect form of your business.
4. **First, let's kill all the finance guys:** Don't settle on financial projections too soon.
5. **Get everyone on the same page:** Make sure everyone in the team is onboard before getting to work.
6. **Build a basket of killer options:** Invest small, test various options.
7. **A demo is worth a thousand pages of a business plan:** Stay longer than planner in testing and learning.
8. **Remember the Devil's advocate:** Build a process where the tough questions are keep getting asked.

5. **It's mentioned in the book that big data will challenge to a shift in thinking. How will big data change the way science is made and why?**

Nowadays the explanation of phenomena is of utmost importance, whereas the future prediction capabilities of Big data are achievable only through correlations without a hint on causation. Therefore, the relevance of causation or explanations to things will change causing a shift in thinking. Science will be impacted since the metrics will change as well, from reasons to probability.

6. **You're asked to justify using big data in a company in general level. Use the values of big data mentioned in the book. Also, add risk listing to your justification.**

If I was working for an insurance company, I would justify to use Big data since the company most likely has stored information regarding several details of the customers as incomes range, age, family status and possible amount of children. Based on that information, the company could forecast which individuals are prone to buy premiums for their insurances and allocate better the advertisement funds. Nevertheless, the risks faced are that the data curation process is carried out without standardizations or proper care, then the results wouldn't be accurate.

7. **The book "The New Killer Apps" studies the process of innovation and creating "killer app" from the point-of-view of big companies. Describe the 8 rules mentioned in the book and articulate how they are applicable to small companies.**

1. **Context is worth 80 IQ Points** – Small companies can compete VS big companies based on having the latest technology.
2. **Embrace your doomsday scenario** – SME can always plan their strategies knowing imagining how big corporations could harm them.
3. **Start with a clean sheet of paper** – When a startup is created, the design of the whole business should be planned flawlessly, thinking in the perfect business.
4. **First, let's kill all the finance guys** – A new small company should have enough time to prove it has potential before discarding the project.
5. **Get everyone on the same page** – Especially when starting a new company, the whole team should be align towards the same objectives.

6. **Build a basket of killer options** – Since small companies have tighter budgets, they should choose the best “killer” options that they have available.
  7. **A demo is worth a thousand pages of a business plan** – Even before a new startup develops the first line of code for an application, they should create a demo (might be using screenshots) to test their idea.
  8. **Remember the Devil’s advocate:** In every team, the sense-making questions should be continuously asked.
8. **“The best way to predict the future is to invent it” (Alan Kay).** In the book **“The New Killer Apps: How big companies can out-innovate start-ups”** there’s a comment that if the authors would have to pick one efficient practice from their collection of many, it would be the practice of **“future history”**. **Plan yourself short memos of future history which principles were mentioned in the book. The business works in selling big data analysis results. You can decide business area more precisely as you want.**

If the company sells big data analysis, most likely it operates similarly as a consultancy company. Then, some of the future success histories could be: (1) We have increased the market size by advertising the advantages of big data analysis to many companies. (2) Thanks to industrial internet and internet of things, there is more data to offer more robust services. (3) We have been successful on hiring the right talent although there are scarcity of data scientists in the market.

On the contrary, the future stories also apply for possible failures: (1) The industry of big data consultancy has grown at a very fast pace, including many new competitors with few differentiation from us. (2) Our clients don’t have enough data stored for Big data analysis. (3) The prediction of our reports is not accurate.

## **9. Characteristics of big data?**

Big data manages huge amounts of data that without special tools it couldn’t be managed. The boundaries of which amounts of data define where Big data begins are flexible since different industries utilize different amounts of data and the changing technology push forward the limits. Additionally, big data finds patterns within the data analyzed to predict behaviors.

## **10. Privacy and security challenges in Big Data?**

Big data posts a security threat for users since their data can be exposed to third parties and due to the re-utilization of this data, any amount of companies might have access to the private information. Additionally, companies might target advertising campaigns to an individual due to their data, but all the social sphere surrounding this individual is exposed to that advertisement.

## **11. Describe main steps for creating killer apps.**

Same as question 7.

**12. Explain the differences between start-up innovation- and large company innovation processes (,risks and challenges).**

Startups are thought to be more innovative than large companies, but this far from being truth, companies have also talented people with brilliant ideas and budget to do R&D. The main difference is the flexibility to execute this ideas, Startups are project managed and companies have corporate bureaucracy. Nonetheless, startups have higher risks due to their limited budget.

**13. What is meant by the dark side of big data? What are some of the possible downsides of using big data? (Big Data)**

That the data will be reutilized for purposes that the users never agreed on, or that their identities could be revealed and associated with something that should have stayed private. Additionally, People can be judged by things that they have not done due to the predictions ability of Big Data analysis.

**14. Why using all the data (n=all) can be better than just using random sampling? (Big Data)**

Sampling could skew the data without noticing it, furthermore, the data could have blanks for some records that are relevant to the overall manipulation of the data set and lastly, using all the data available provides the real ratio of subsets of data within the dataset.

**15. What were the eight rules for innovating and creating killer apps? (The New Killer Apps)**

Same as question 7.

**16. The book introduced six technological megatrends, what were they and explain shortly why these technologies are relevant to killer apps. (The New Killer Apps)**

- a. **Cameras** - This devices are everywhere and are cheap, they provide valuable information about consumers' behaviour.
- b. **Sensors** - The technology has been cheaper and cheaper, nowadays every device or home appliance can hold a chip that can send information.
- c. **Cloud computing** - This platform enables small businesses to utilize technologies that otherwise could be out of their budget.
- d. **Big data** (Emergent knowledge) - Big data provides visibility on hidden information and pattern recognition on the huge datasets that are collected from any device nowadays.
- e. **Mobile devices** - These are the third generation of personal computing and are reaching more people every day.

- f. **Social Networks** - These platforms enable communication from a community to other communities for free.

**17. Describe the 3 main actors and their relationships in big data ecosystem.**

**Data/data owners:** Individuals or organizations that hold the data as their property.

**Ideas/innovators:** Creative individuals with novel ideas to make business out of the databases.

**Expertise/data scientists:** Moderators or traders of the exploitation process of the data.

**18. Explain why the value of data is difficult to estimate, and how that value can change.**

Data is as valuable as the uses that can be done with it, therefore is difficult to assess if there is not a clear idea of the potential of it. Nonetheless, as many things, data can expire and stop representing the current interests or true values of the concept that it holds, therefore data comes with an expiry date.

**19. What kind of advantages do large companies have over smaller companies, when developing new killer apps?**

Large companies have better budgets, can stand if the projects fail, have more personnel and a lot of talent within the organization. Furthermore, big companies have an established reputation.

**20. How to and why to control the innovation development process?**

It's important to foster innovation within organizations since otherwise the chances for survival in the market are limited. Some examples of how to do it are Periodical reviews, Prototyping, playing doomsday scenarios, brainstorming or QFD,

**21. Explain the implementation of big data in both governmental and private organizations?**

I consider that the implementation should be the same regarding, the technical side. Depending on the implications of the decisions taken by the Big data processes, additional controls might be added.

**22. What security issues related big data might emerge in five years perspective? What strategies can be adopted to overcome privacy concerns in consequence of adopting big data?**

That anonymized databases are vulnerable to algorithms that trace back to the original subject of the records or information providers. Additionally, that the current privacy terms are short to regulate the use and implications of Big Data.

**23. Do you think are the current strategies for big data management, respondent in managing big data in near future? Support your idea.**

No, big data is just starting to be shaped in companies, therefore the infrastructure to hold it and the best practices for Big data are yet to be defined.

**24. How did thinking big, starting small and learning fast drive the innovation in a company that you know?**

Alibaba is the clearest example of this philosophy, they aim to conquer the world from the beginning but they have been gaining presence in the biggest markets step by step, and re-aligning their strategy based on new legislations and customer claims.

**25. How is big data changing the way organizations are operated?**

Companies have the ability to predict the behaviour of their customers, it works by identifying patterns and techniques as Data Mining.

**26. Are there differences in the ways big and small organizations utilize big data?**

Normally big corporations have more muscle to gather and analyze the data.

**27. Are the risks involved with big data unavoidable or are there ways to minimize them?**

Different “best practices” can be put in place to mitigate the risk of using Big Data, such a better work on the policies of privacy and restrict the possible uses of the data by third parties.

**28. why is it important to embrace your doomsday scenario?**

Because it prepares you for the worst possible scenario even if you company is the leader in the industry, so no competitor can take you by surprise.

**29. Why is Big Data a tool that is here to stay and not be replaced by others?**

Because the information being gather will only increase, and the ability to analyze it will be only derive from Big data tools and methods.

**30. As an internet user, under which terms would you agree to have your data re-utilized by companies?** enables independent thinking to cover a gap that on my eyes the author of the book was not able to address correctly, given acceptance by the users for granted to re-use of data.

Under specific terms where I can see who will have visibility on the data and what type of information they will have, additionally, knowing which uses they plan to have with the data.

**31. After knowing the downsides of entrepreneurship and the odds against it, what reasons would convince you to be an entrepreneur?**

Having an idea that I want might already be exploit by a bigger company but with a different strategy or business model. Additionally, to be independent from any company.

**32. Are there benefits of working for a SME in comparison than with a Large enterprise?**

Yes, these companies have the flexibility that big companies don't have and working for them provides a wider spectrum of knowledge in each position since the job descriptions are not as specific as in big companies.

**33. How can you critically assess an author's statements when you read an article?**

Verifying sources, searching for bias from the author's side or verifying the author presents support and his or her conclusions are logical.

**34. How can you differentiate a fact from an assertion and an opinion?** This question is to find out if the student knows the difference between these three types of statement.

Fact is something that happened, assertion is a statement that might be objective but needs evidence to be proven. An opinion is a subjective view on a happening.

**35. The guidelines for critical thinking present a systematic approach to assess arguments, while big data proposes a paradigm more flexible and empirical. What are the main differences between these approaches and how are they related?**

That big data explains on causality, just correlation, therefore, it provides not evidence on the results it offers, whereas, critical thinking should be based on the evidence provided.

**36. The growing use of big data presents some ethical issues such as loss of privacy, do you think the benefits of big data outweigh the negative aspects associated with it?**

This is an open question to observe the student's stand point about big data and its ethical implications. There are no right or wrong answers to it.

The negative aspects can outweigh the benefits as well depending on what is done with it. It is not generalizable to say that benefits are better than the downsides, without considering a case by case basis.

**38. Explain big data and tell how humans thinking should change when discussing about big data?**

Humans should change their thinking from causality to correlations and probability to profit from all the analytical tools that Data Mining provides.

**39. What are the biggest risks of big data?**

Privacy violations and wrongly judging individuals or organizations before they have done anything wrong.

**40. What are the 8 rules on how innovation process should run within a company and explain why they are important?**

Same as question number 7.

**41. In innovation process, why it's important to have someone who is questioning the decision making?**

Because along the way of performing business the basic ideas could be lost and the customer preferences taken out of the picture.

**42. How can companies use big data when creating killer apps?**

Companies would harness from using Big data through the technologies proposed in Killer Apps, it could be by integrating sensors to the products offered and then analyze the information obtained, as the internet of things does, additionally for manufacturing companies, the sensors could be implemented in the machines so the company can take advantages of the "industrial internet".

**43. What kind of values do big data have?**

The business opportunities that data has are one of the greatest values.

**44. Explain how correlation and causation are linked to big data and why**

Causation explains the WHY something happen whereas correlation explains the WHAT is happening or going to happen.

**45. Privacy and big data**

Covered in question 10.