Unit: Case study

About

The case study forms the entire basis of Paper 3 of the IB External Exams for Computer Science. It is an annually changing paper intended to prompt research into an area of emerging technology. The case study is released each May for the following years' examinations. Recent topics have included:

- 2014 Network security
- 2015 Electronic banking
- 2016 Animation and computer graphics (CGI)
- 2017 Computer Science in Medicine (telemedicine, nanobots etc)
- 2018 Autonomous vehicles
- 2019 Computer aided dispatch
- 2020, 2021 Blockchain currency

30 hours of class time will be allotted to preparing for the case study examination. As part of your IB preparations, you will have a paper 3 exam in your Year 13 mocks.

I am always open to the idea of a field trip or a guest speaker visiting our class if it is relevant to the case study. It would be great if you can refer to some primary research in your answers (the time I visited the....). Let me know if you have any suggestions.

Paper 3 structure

30 marks, 60 minutes, worth 20% of your final CS grade.

Questions 1-3

- 3 x Short answer questions worth ~6 marks ~12 minutes each
- Command terms: Define (2m), Outline (2m), Explain (4m), Describe (4m)
- Terminology is very important for questions 1, 2 & 3. This includes the list the IB provides at the end of the case study, and some other terms scattered from the case study that don't make it onto the list. Students need to not just know the definition of these terms but be able to describe what they are.

Question 4

Requires the synthesis of information from a range of sources, including independent research and investigations beyond the case study, to develop an extended response to a specified issue.

- 1 x Extended answer question worth 12 marks (40%) with approximately 24 minutes.
- Command terms: Compare, evaluate, discuss, to what extent
- Will be based upon one of the five challenges listed at the end of the case study

Question 4 mark scheme

The mark scheme for question 4 is known in advance, it does not change year-to-year.

0 marks	No knowledge or understanding of the relevant issues and concepts. No use of appropriate terminology.
1-3 marks Basic	**Minimal** knowledge and understanding of the relevant issues or concepts **Minimal** use of appropriate terminology. The answer may be little more than a list. No reference is made to the information in the case study or independent research.
4-6 marks Adequate	A descriptive response with **limited** knowledge and/or understanding of the relevant issues or concepts. A **limited** use of appropriate terminology. There is **limited** evidence of analysis. There is evidence that **limited** research has been undertaken.
7-9 marks Competent	A response with **knowledge and understanding** of the relevant issues and/or concepts. A response that uses terminology appropriately in places. There is **some evidence** of analysis. There is evidence that research has been undertaken.
10-12 marks Proficient	A response with a **detailed** knowledge and clear understanding of the relevant issues and/or concepts. A response that uses terminology appropriately throughout. There is competent and **balanced** analysis. **Conclusions** are drawn that are linked to the analysis. There is **clear** evidence that **extensive research** has been undertaken.

Exam response best practices

Overall, the IB expects students to write approximately 1,000 words and base the depth of their response on the requirements of the command terms and the mark allocations across the paper

Students should:

- understand the structure of the paper, including the command terms and requirements of each question, particularly the extended responses
- use appropriate computer science terminology throughout the response
- include evidence (for example, the introduction of new knowledge to that provided in the case study) of independent research in responses
- ensure that any assertions made are fully substantiated and underpinned by balanced analysis
- plan their extended responses before they start writing.

Schedule

This schedule is flexible. I am open to discussion as to what schedule and learning activities will best suit the class. This is based on how I have approached the case study in past years.

5 lessons	Focus on introductory understanding of the case study ● Individually read the case study. Highlight & identify key points. ● Identify resources suitable for a "big picture" introduction to the topic ● Identify questions about content/concepts/technical aspects in the case study that will require new knowledge. ● Discuss the case study as a class. ● Pool the definitions and discussion questions together into a shared document
5 lessons	Focus on questions 1-3 ● Research and identify online materials that address class questions about the case study ● Prepare definitions for all terminology words, including all those identified at the end of the case study itself, as well as other words identified by the class. ● Pool definitions and information together into a shared document ● Quiz and test each other on terms and closed ended exam response questions
5 lessons	Focus on question 4 ● Research into each of the five challenges identified. ● Prepare summary notes to share with the class. ● Present/peer teach on the various challenges to the class.
5 lessons	Focus on responding to exam style questions ● Brainstorm potential examination questions ● Trade and prepare responses for the pooled questions
5 lessons	Complete a practice mock paper 3 ● Discuss, review, identify any areas for further research and preparation prior to the May examination
5 lessons	Complete a second mock paper 3 ● Discuss & review