Data Provided: None

DEPARTMENT OF COMPUTER SCIENCE   Autumn Semester 2021-2022

COM6655 PROFESSIONAL ISSUES   2 Hours

Answer all THREE questions.

All questions carry equal weight. Figures in square brackets indicate the percentage of available marks allocated to each part of a question.

All personal and company names used in this paper are fictitious.

Each question (including all its parts) must be answered in no more than 1000 words. If you write more, only the first 1000 words will be marked.

1. In response to the Covid-19 pandemic, the University of Portmeirion (UoP) has to move all of its examinations online. It is concerned that students might use unfair means, so it decides to use proctoring software to invigilate the online exams. UoP contracts a software company, EduSoft Ltd, to develop a bespoke proctoring system called the Exam Integrity Analyser (EIA). The decision to use the EIA software has been communicated to all students so that they are aware of its use.

   UoP students must install the EIA software on their own computers to be eligible to sit an online exam. The student logs onto the online exam using their student identification (ID) number, and the EIA software accesses the computer's camera. A video recording of the student sitting the online exam is then recorded and stored by UoP for further analysis. The EIA software analyses the video recording and automatically detects suspicious head and eye movements that indicate the possibility of cheating by reading notes off camera. A warning is sent to UoP administrators if the incidence of detected suspicious head and eye movements exceeds a threshold number.

   The EIA software does not have a separate privacy policy. UoP believes that its actions are covered by its existing privacy policy, which states that students' personal information (photograph/video material, home address, telephone number, email address) will only be used for educational purposes.

   EduSoft Ltd is a small company that produces a variety of software for use in higher education. For the development of the EIA system, EduSoft does not have expertise in face/eye tracking so they subcontract a consultant, Alice Packer, to provide that part of the system. Alice writes the system to detect suspicious head and eye movements using a machine learning algorithm, which is trained on a large corpus of video recordings.

   During the exams, the EIA system indicates that several students are cheating. Although the students concerned are adamant that they have not used unfair means, they are given a zero mark by UoP. As a result they are required to resit the academic year, for which an additional tuition fee is due. The students get in touch with each other and realise that they are all Black or Asian. On further investigation, it is discovered that the training corpus that Alice used did not contain a representative sample. As a result, it was not properly trained and frequently reported false positives for Black and Asian students.

CONTINUED

(a) Explain the liability of Alice Packer, UoP and EduSoft Ltd under the following areas of law:

  (i)   Contract law

[30%]

  (ii) Negligence

[20%]

  (iii) Negligent misstatement

[10%]

  (iv) Vicarious liability

[10%]

  In your answer, you should define any terms that you use, state the legislation and principles of common law that are relevant, and refer to related case law.

(b) UoP is interested in adding value to its student experience by offering discounts for products and services through partner programmes. It realises that the video analysis done by the EIA system provides metadata (e.g., about students' emotional characteristics) which can be used to target offers to their students. UoP enters a partnership with a retail company, Rainforest Ltd., that sends discount offers to the students by email. While many students welcome these offers, others complain that they are receiving unsolicited email from Rainforest.

  Explain the duties upon UoP and Rainforest Ltd. under the Data Protection Act 2018, and identify any potential breaches of that act.

[30%]

2. MathSoft Ltd. is a software company that sells a widely-used spreadsheet program, called SheetCalc. A second company called WordSoft Ltd. wishes to develop and market a new word processing program called Scribe. WordSoft wants Scribe to be compatible with SheetCalc, in the sense that it will be able to read SheetCalc spreadsheet files and display them as a table in a Scribe document.

In order to obtain the information needed to make Scribe compatible with SheetCalc files, WordSoft approaches MathSoft and asks them to reveal the details of the SheetCalc file format. However, MathSoft declines.

WordSoft's programmers study SheetCalc files and determine that they are compressed. Since they cannot work out the details of the compression algorithm by studying SheetCalc files alone, they decompile the SheetCalc program.

CONTINUED

(a) Explain whether a breach of copyright has occurred in the scenario given above. In your answer, state the applicable legislation.

[20%]

(b) Now that they have the information needed to ensure compatibility, WordSoft finishes the Scribe program and starts to sell it. MathSoft obtains a copy and notices various similarities between the user interface of Scribe and SheetCalc. In particular, Scribe has a similar layout of controls, the icons and colour scheme are similar, and the help system interacts with the user in the same way.

Can MathSoft claim that Scribe infringes their copyright in the SheetCalc software on grounds of similar 'look and feel'? Refer to relevant case law in your answer.

[25%]

(c) MathSoft becomes increasingly suspicious that WordSoft has copied their software. MathSoft's programmers decompile Scribe and identify three sections of its program code that are identical to their SheetCalc program. These are the parts that read compressed SheetCalc files, another part that implements Quicksort (a well-known sorting algorithm) and a third part which collects information about the user's input (keystrokes, mouse movements) in order to suggest help topics. Explain the liability of both parties under copyright law for this scenario.

[25%]

(d) In an attempt to resolve the conflict with WordSoft, MathSoft invites the Director of WordSoft to visit their offices for a face-to-face meeting. During a break in the meeting, the Director of WordSoft is left alone in MathSoft's offices and notices that a personal computer on the desk has been left logged in. The Director opens a file browser on the computer and uses it to locate some documents relating to legal action that MathSoft might bring against WordSoft. The Director just has time to copy the documents to a USB memory stick. He intends to pass the documents to his legal team in order to help them, should MathSoft proceed with legal action.

Explain the liability of the Director of WordSoft under the following:

(i)   Criminal law

(ii)   Civil law

Refer to relevant legislation and case law in your answer.

[30%]

3. John Smith recently completed his PhD in Computer Science at the University of Columbus. John's PhD developed novel natural language processing techniques able to identify fake news from social media data. He showed how these techniques could be used to combat misinformation in the area of healthcare. Since he started his PhD, John has been a student member of the British Computer Society (BCS).

To develop his techniques John needed data, and John's supervisor, Professor Lewis, facilitated John's access to a large dataset containing Twitter data. Professor Lewis is a well-respected researcher in the study of social media data, and thanks to his extensive network of contacts, was able to gain access to a dataset collected at the University of Pembroke to study how healthcare news and medical studies are disseminated among the general population.

Due to ill-health, John needed to take a long period of study leave after the first year of his PhD. Eventually, John resumed his studies, but switched to a part-time PhD. This meant that a PhD that should have lasted 3 to 4 years, ended up lasting nearly 15 years. During this period, Professor Lewis retired, and Professor Collins kindly stepped in and agreed to supervise John.

The last two years of John's PhD happened during the Covid pandemic, and John was able to show that his technique was very effective in fighting misinformation promoted by the anti-vaccine movement. The examiners of John's PhD strongly recommended the publication of his dataset, methods and results via the University of Columbus data sharing platform ShareMe, to promote reproducibility of research and to allow others to use his techniques to tackle fake news in the context of the current pandemic.

The student followed a standard request procedure to publish the dataset, methods and results. The request got to Ms Angelou, a technician working on ShareMe. Ms Angelou, as part of the routine data protection check-ups required before publication of any dataset in ShareMe, asked John to provide evidence that the dataset had been ethically obtained. At that point, John realised that a new ethics policy had been introduced by the University after he obtained the data, and that he was in breach of this policy. In particular, he did not have a proper data management plan in place.

John decided to be open and admitted that he did not have an adequate data management plan. As soon as Ms Angelou received John's reply, she reported the situation to the relevant authorities within the University of Columbus. The University followed its internal procedures. It held an investigation to determine if a breach had actually happened, the responsibilities (if any) of the different parties involved, to determine the disciplinary actions needed, and to establish if the University had to take any internal organisational measures to avoid similar situations in the future.

CONTINUED

(a) Provide three examples from this scenario which demonstrate the interplay between technology and society.

[15%]

(b) Critically evaluate the actions of the student from the point of view of the following schools of moral philosophical thought:

(i) Utilitarianism

[15%]

(ii) Kantian ethics

[15%]

(c) Which aspects of the BCS code are relevant to the conduct of John Smith in this scenario? Justify your answer.

[25%]

(d) What actions do you recommend that the University should take to resolve the ethics breach, in respect of the following:

(i) John Smith

(ii) Professor Lewis

(iii) Professor Collins

(iv) The research data

(v) Wider University policy

[30%]

END OF QUESTION PAPER