COMP3056

The University of Nottingham Ningbo China

SCHOOL OF COMPUTER SCIENCE

A LEVEL 3 MODULE, AUTUMN SEMESTER 2022–2023

Professional Ethics in Computing (COMP3056 UNNC)

Time allowed TWO hours

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Candidates may complete the front cover of their answer book and sign their desk card but must NOT write anything else until the start of the examination period is announced.

Answer ALL TWO questions

No calculators are permitted in this examination.
Dictionaries are not allowed with one exception. Those whose first language is not English may use a standard translation dictionary to translate between that language and English provided that neither language is the subject of this examination. Subject-specific translation directories are not permitted.

No electronic devices capable of storing and retrieving text, including electronic dictionaries, may be used.

DO NOT turn examination paper over until instructed to do so

Question 1

a) Why do we study moral theories? [2]
What are the two moral theories that we, as computer professionals do not use? [1]
Does virtue theory apply to computer profession? [1]
Briefly explain your answer (why your answer is yes or no). [1]

[5 marks]

b) List six characteristics that distinguish a professional from a non-professional. [3]
How do we apportion blame (moral responsibility) for harm caused by computing artefacts in complex systems? [3]

[6 marks]

c) Explain the concepts of 'copyright' as defined in the US law. [2]
Explain the author's rights. [2]
Discuss the right of 'fair use' of copyrighted material using real examples. [4]

[8 marks]

d) List Birsch's criteria that must be met for a person to bear moral responsibility. [3]
What were moral responsibilities of the programmer in the THERAC-25 radiation accident (people undergoing radiation therapy that received high radiation overdose)? [3]

[6 marks]

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Question 2

Ping is a new software engineer in a Company A working on the development of medical software that alerts a patient when their resting blood pressure is higher than recommended value. Zac the project manager, assigned Ping the task to test the software and ensure the quality of software product. The software is ready to be deployed as a smart watch app. The programmer who developed software has already left the company. During testing Ping found that there was a bug in software that, under certain conditions will falsely notify the patient that their blood pressure is higher than a value defined in the software as a threshold, and the software will create a false alarm. Ping notified Zac, the Project Manager, about the bug. Zac told Ping that it does not matter because the patient is healthy anyway and several false alarms will not make difference to the patient. Zac told Ping that the product was supposed to be launched the previous week and they are already late. The Chief information Officer told Zac that the product must be launched as soon as possible. Zac told Ping she should finish testing immediately since the product is ready for the market, otherwise she might lose her job. What should Ping do?

1. Do as Zac told her because he provided adequate explanation.
2. Continue testing and ignore Zac's request.
3. Tell Zac that it is not possible to pass the software testing and explain why.
4. Ping should immediately report Zac to the Chief Information Officer for unprofessional behaviour.
5. Ping should immediately post the description of the situation plus Zac's name, Zac's photo, Zac's residential address, company's A name, and the source code on public blog to shame Zac and the company A for their practices.

Consider these five scenarios and answer the following questions:

a) Identify the actors [2 marks] and actions [3 marks] in these scenarios and list them [5 marks]

b) Identify one item from the BCS Code of Conduct that were breached under each of the five scenarios (one breach per scenario). Your answer should contain the code (such as "1a"), the text of the rule, and a short explanation of the breach. What ethics theory can be applied to identify the breach?
[10 marks]

c) If Ping decides to do "5. Post the details on a public blog to shame Zac", use Solove's hierarchy of threats to define possible violations of privacy by Ping. Explain why these can be considered as violations of privacy. Which of the categories were not violated by Ping – explain why. [10 marks]

END

BCS, THE CHARTERED INSTITUTE FOR IT
CODE OF CONDUCT FOR BCS MEMBERS

Version 5 approved by Trustee Board 3 June 2015 and last reviewed 5 June 2019

INTRODUCTION

As a professional body, the British Computer Society (known as BCS, the Chartered Institute for IT), has a responsibility to set rules and professional standards to direct the behaviour of its members in professional matters. It is expected that these rules and professional standards will be higher than those established by the general law and that they will be enforced through disciplinary action which can result in expulsion from membership.

Members are expected to exercise their own judgement (which should be made in such a way as to be reasonably justified) to meet the requirements of the code and seek advice if in doubt.

Appendix 1 to the code sets examples of interpretation of the tenets of professional conduct and forms part of this Code of Conduct.

DEFINITIONS

Legislation

The term "Legislation" means any applicable laws, statutes and regulations.

Third Parties

The term "Third Parties" includes any person or organisation that might be affected by your activities in your professional capacity, irrespective of whether they are directly aware or involved in those activities.

Relevant Authority

The term "Relevant Authority" in this document is used to identify the person(s) or organisation(s) which has/have authority over the activity of individuals in their professional capacity. For practising BCS members this is normally an employer or client. For student members, this is normally an academic institution.

BCS CODE OF CONDUCT

This Code of Conduct:

- sets out the professional standards required by BCS as a condition of membership.

- applies to all members, irrespective of their membership grade, the role they fulfil, or the jurisdiction where they are employed or discharge their contractual obligations.

- governs the conduct of the individual, not the nature of the business or ethics of any Relevant Authority.

1. Public Interest

You shall:
   a. have due regard for public health, privacy, security and wellbeing of others and the environment.
   b. have due regard for the legitimate rights of Third Parties.
   c. conduct your professional activities without discrimination on the grounds of sex, sexual orientation, marital status, nationality, colour, race, ethnic origin, religion, age or disability, or of any other condition or requirement
   d. promote equal access to the benefits of IT and seek to promote the inclusion of all sectors in society wherever opportunities arise.

2. Professional Competence and Integrity

You shall:
   a. only undertake to do work or provide a service that is within your professional competence.
   b. **NOT** claim any level of competence that you do not possess.
   c. develop your professional knowledge, skills and competence on a continuing basis, maintaining awareness of technological developments, procedures, and standards that are relevant to your field.
   d. ensure that you have the knowledge and understanding of Legislation and that you comply with such Legislation, in carrying out your professional responsibilities.
   e. respect and value alternative viewpoints and, seek, accept and offer honest criticisms of work.
   f. avoid injuring others, their property, reputation, or employment by false or malicious or negligent action or inaction.
   g. reject and will not make any offer of bribery or unethical inducement.

3. Duty to Relevant Authority

You shall:

a. carry out your professional responsibilities with due care and diligence in accordance with the Relevant Authority's requirements whilst exercising your professional judgement at all times.

b. seek to avoid any situation that may give rise to a conflict of interest between you and your Relevant Authority.

c. accept professional responsibility for your work and for the work of colleagues who are defined in a given context as working under your supervision.

d. **NOT** disclose or authorise to be disclosed, or use for personal gain or to benefit a third party, confidential information except with the permission of your Relevant Authority, or as required by Legislation.

e. **NOT** misrepresent or withhold information on the performance of products, systems or services (unless lawfully bound by a duty of confidentiality not to disclose such information), or take advantage of the lack of relevant knowledge or inexperience of others.

4. Duty to the Profession

You shall:

a. accept your personal duty to uphold the reputation of the profession and not take any action which could bring the profession into disrepute.

b. seek to improve professional standards through participation in their development, use and enforcement.

c. uphold the reputation and good standing of BCS, the Chartered Institute for IT.

d. act with integrity and respect in your professional relationships with all members of BCS and with members of other professions with whom you work in a professional capacity.

e. notify BCS if convicted of a criminal offence or upon becoming bankrupt or disqualified as a Company Director and in each case give details of the relevant jurisdiction.

f. encourage and support fellow members in their professional development

APPENDIX 1

Interpretation of the BCS Code of Conduct

The explanatory notes below are offered for guidance only. The examples are not, and not intended to be, exhaustive.

If you are in a leadership position and especially if you hold an executive position you are expected to:

- encourage and facilitate colleagues to develop as professionals.

- seek to ensure that no one is penalised for raising areas of concern or conflicts of interest.

- encourage colleagues to follow this code of conduct.

Public Interest

- Acting in the public interest may be governed by Legislation.

- Legitimate rights of third parties include protecting personal identifiable data to prevent unlawful disclosure and identity theft, and also respect for copyright, patents and other intellectual property.

Professional Competence and Integrity

- All members are required to undertake professional development activities as a condition of membership. Continuing professional development activities should broaden your knowledge of the IT profession and maintain your competence in your area of specialism.

- You should seek out and observe good practice exemplified by rules, standards, conventions or protocols that are relevant in your area of specialism

- You should only claim current competence where you can demonstrate you have the required expertise e.g. through recognised competencies, qualifications or experience.

- Legislation that may apply in carrying out your professional responsibilities might include that applicable to:
    - o   your Relevant Authority.
    - o   the geographic area in which you are carrying out your professional responsibilities.
    - o   the geographic area in which your responsibilities will be discharged.

- You may need to seek guidance from your Relevant Authority.

Where you are leading a first of kind project you will ensure that you make use of peer review and support where appropriate.

Duty to Relevant Authority

- Exercising of your professional judgement:

  o Where there is conflict between full and committed compliance with the Relevant Authority's instructions and the independent and considered exercise of your professional judgement, you will indicate the likely risks and consequences.

  o If any conflict is likely to occur or be seen by a third party as likely to occur, you will make full and immediate disclosure to your Relevant Authority.

  o If for any reason you are unable to complete any assigned tasks in accordance with their requirements (e.g. on time or within budget) you will advise the Relevant Authority as soon as practicable.

Duty to the Profession

- As a member of BCS you have a responsibility to:

  o share knowledge and understanding of IT and support inclusion of every sector of society.

  o encourage and support fellow members in their professional development.

- In circumstances where a member is also a member of another professional body the clauses of any other applicable code of conduct cannot be employed to diminish or negate the clauses of the BCS Code of Conduct.

- You will not make any statement on behalf of BCS or purport to represent BCS through any public medium, including digital social media, unless authorised to do so by BCS.

BREACHES OF THE CODE OF CONDUCT

If a member of BCS should know of, or become aware of, any breach of this Code of Conduct by another member they are under an obligation to notify BCS immediately.

Breaches of the Code of Conduct may also be brought to the attention of BCS by others who are not members of BCS.

Any breach of the Code of Conduct brought to the attention of BCS, or of which BCS becomes aware, will be considered under the Institute's Disciplinary procedures.

Where BCS receives information that a member has been convicted of a criminal offence, the member, when asked will provide a Standard Disclosure Certificate, or Certificate of Conviction or other similar notice providing evidence of their criminal record (if any) within 28 days. Note that not all convictions are seen as relevant to membership in BCS and each case will be considered individually.

Correspondence in connection with this Code of Conduct should be directed to:

Customer Services BCS, The Chartered Institute for IT
First Floor, Block D, North Star House North Star Avenue Swindon SN2 1FA
Email: custsupport@bcs.uk