

University of Sargodha
BS 8th Term Exam 2018

Paper: Professional Practices

Solved by: Javeria Shahab

Subjective Part (4*12)

Q2. Differentiate between the field of software engineering and computer science?

Software Engineering	Computer Science
Software engineering focuses on technical and managerial leadership for large and complex systems.	Computer science focuses on theory, fundamentals and foundations of computing including, algorithms design, programming languages, theories of computing, artificial intelligence and hardware design.
It concerns professional decision attained through practical experience, their training is hands-on, project focused and team-centered.	It concentrate on individual assignments, dealing with the development of systems such as databases, compilers and operating systems.
It focuses on how to design and build software in teams.	It is an engineering field that covers the core concepts and technologies involved to prepare a computer system to do something
Software engineering learn working with people (communication, management, working with non-technical customers), processes for developing software, and how to measure and analyze the software product and the software process.	It covers how computers and network operate and behave in detail
Software engineering learn how to design, plan and manage resources.	Computer science learns building a new system, discovering better way to design software or developing new algorithms for projects in entirely different fields

Glance of computer science:

Some most important points that are covered under Computer science are:

- **Algorithms:** Algorithm is a process or a set of rules to be followed in calculations or other problem-solving operations, especially by a computer.
- **Theory of Computation:** The theory of computation is a branch of computer science that deals with how proficiently problems can be solved on a model of computation, using designed algorithm.
- **Compilers:** A compiler is a special computer program that specially used to processes statements written in a particular programming language and turns them into machine language or “binary code” or “compute understandable code” that a computer’s processor uses.
- **Operating Systems:** The operating system in short OS is the most important program for every computer. In every general-purpose computer must have an operating system to run other programs and applications in other words it provide a bridge or interface among software and hardware.
- **Artificial Intelligence:** Artificial intelligence is the study of human behavior or simulation of human intelligence processes by machines, especially computer systems.

Glance of software engineering:

Some most important points that are covered under Software engineering, their glance and short of description given below;

- **Software Architecture:** Software architecture is a structured framework used to describe the subsystems, conceptualize software elements, properties and their relationships.
- **Project Management:** Project management oversees the application of processes, methods, knowledge, skills and experience to achieve the project objectives.
- **Technical Planning:** Planning is one of the fundamental functions of management at any level, it consist goals, strategies, objectives, set of activities, hierarchy of activities, resource allocated etc.
- **Risk Management:** It is the process of analysis, identification and acceptance or mitigation of uncertainty in investment decisions.
- **Software Assurance:** It is a part of software management. It concerns the capacity of a system to maintain information about connected components to optimize their operations.

Q3. Explain the following:

Sole Trade

Partnership

Company

➤ Sole Trader

- A sole trader is an individual who is operating his or her own business
- no legal formalities
- It may then be necessary to register with Customs
- Excise for VAT purposes and to negotiate with the Inland Revenue

A sole trader is responsible for the liabilities of the business. Liability is unlimited and includes all personal assets, including any assets jointly-owned with another person, such as a house.

Advantages

- Simple to set up and operate.
- You retain complete control of your assets and business decisions.
- Fewer reporting requirements.
- Allows you to use your individuals tax file numbers
- Relatively easy to change business structure if your business grow or if you wish to wind things up.

Disadvantages

- Unlimited liability which means all your personal assets are at risk if things go wrong.
- Little opportunity for tax planning.

➤ Partnership

The Partnership Act 1890 defines a partnership as :

“The relationship which subsists between persons carrying on a business in common with a view to profit”.

. When two or more people are carrying on business together, the law will treat them as a partnership.

- A partnership is an arrangement between two or more people to oversee business operations and share its profits and liabilities.
- In a general partnership company, all members share both profits and liabilities.

How a Partnership Works

A partnership can be any endeavor undertaken jointly by multiple parties.

The parties may be governments, non-profits enterprises, businesses, or private individuals. The goals of a partnership also vary widely.

Three main categories of partnership:

general partnership,

limited partnership,

liability limited partnership.

In a **general partnership**,

- All parties share legal and financial liability equally.
- The individuals are personally responsible for the debts the partnership takes on.
- Profits are also shared equally.
- The specifics of profit sharing will almost certainly be laid out in writing in a partnership agreement.

Limited liability partnerships are a common structure for professionals, such as accountants, lawyers, and architects.

Limited partnerships are a hybrid of general partnerships and limited liability partnerships. At least one partner must be a general partner, with full personal liability for the partnership's debts.

➤ **Company**

- Companies Acts 1985 and 1989.
- Companies may be either public or private.

Public companies are companies which are allowed to offer their shares to the public ; their names must end with the words "Public Limited Company" or the abbreviation "PLC" .

Private company cannot offer its shares to the public; its name must end with the word "Limited" or the abbreviation "Ltd".

- Companies can be limited or unlimited.

In an **unlimited company** the shareholders are personally liable for all the company's debts.

A **limited company** may be limited by shares or by guarantee. If a company is limited by guarantee, each member, instead of subscribing for shares, undertakes to pay a fixed, usually small, sum towards the company's debts in the event of the company being wound up. This form of organization is commonly used by professional bodies and charities; it is not used by normal commercial organizations.

The constitution of a company

All companies must have a written constitution, which consists of two documents:

- **The memorandum of association**, which controls its external relations.

This document covers the following matters:

- The name of the company.
- The country in which its registered office will be located.
- The objects of the company.
- A liability clause.

- **The articles of association**, which state how its internal affairs are to be run.

The articles of association of a company usually need to address at least the following topics:

- The rules governing the transfer of shares.
- Meetings of members.
- Appointment and removal of directors.
- Powers of directors.
- Dividends and reserves.

Director and company secretary

- Many companies have both executive directors and non-executive directors. Executive directors are normally also employees of the company, with specific responsibility for certain areas of its activities.
- Non-executive directors are directors who act in advisory capacity only.

Disclosure Requirements

All limited companies must submit an annual return and copies of their accounts to the Registrar of Companies.

Public companies that wish to have their shares listed on a stock exchange must satisfy the disclosure requirements of that exchange.

Corporate Exchange

The relationship between the stakeholders in companies and its most senior management is known as corporate governance.

Q4. Explain the role and characteristics BCS as of professional body?

The **British Computer Society (BCS)** is a professional body and a learned society that represents those working in information technology (IT) and computer science, both in the United Kingdom and internationally. Founded in 1956, BCS has played an important role in educating and nurturing IT professionals, computer scientists, computer engineers, upholding the profession, accrediting chartered IT professional status, and creating a global community active in promoting and furthering the field and practice of computing.

British computer Society 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 – everyone must abide by the rules; governs the conduct of the individual, not the nature of the business or ethics of any Relevant Authority – judged purely on the conduct and not judged prejudicially.

he BCS Role Someone needs to lead this charge - BCS can and should do it –An independent voice –Bridge between academia, industry and government –The place for expert IT views BCS can take the lead in convincing companies, governments and the market in general that quality is not an option. To do this, the BCS must be perceived as representing the ICT Profession in the UK and in overseas locations where it is active.

It is the only professional body in the United Kingdom with the ability to grant chartered status to IT professionals.

Student membership

Students can gain membership and achieve a recognized qualification as a way to prove their commitment to the sector. Membership gives you access to contacts, advice and support. The Young Professional Group exists to support

and represent those in the foundation years of their career. It runs the Career Advancement Programme involving seminars and workshops, aimed at aiding young professionals.

Accreditations

The society accredits various courses at both undergraduate and postgraduate levels.

Or

11.2 Professional bodies and the British Computer Society

The British Computer Society (BCS) introduces itself as 'the leading professional body for those working in IT. We have over 58,000 members in more than 100 countries and are the qualifying body for Chartered IT Professionals (CITP).' Whereas this claim is undoubtedly true in the United Kingdom, it would certainly be disputed in some other countries, particularly in the US by, for example, the Association of Computing Machinery (ACM). Many countries have their own professional bodies in IT or in computing and there is an international professional society, the International Federation for Information Processing (IFIP).

The 'vision' and long-term goal of the BCS 'is to see the IT profession recognised as being a profession of the highest integrity and competence'. The mission statement of the BCS, which it claims encapsulates its 'core purpose', states that:

The BCS will lead the development and implementation of standards for the IT profession through innovative and valued products and services and by being the respected voice informing and influencing individuals, organisations and society as a whole.

The BCS will lead the change in the standing of the IT profession by creating an understanding of what is required to implement successful IT projects and programmes, and to advise, inform and persuade industry and government on what is required to produce successful IT enabled projects.

Of course, any professional society must make some similar set of claims and there is a need to ensure that the BCS is proactive in meeting these well-intended objectives.

There are many tens of thousands of professional societies around the world; some are small, informal groupings of people, but some are very large and, like the BCS, have a legal status. In the case of the BCS it is a 'chartered' organisation, which simply means that it has a charter – a document, that is recognised in UK law. The BCS's Royal Charter was approved in 1984 by Her Majesty Queen Elizabeth II on the advice of her Privy Council. The Privy Council is the highest

document, that is recognised in law. The BCS's royal charter was approved in 1997 by Her Majesty Queen Elizabeth II on the advice of her Privy Council. The Privy Council is the highest organisation in the UK, sitting between the monarch and the Houses of Parliament. Obviously, arrangements in other countries are different, but there is a critical difference between a legally recognised professional society and other groups who claim to represent some profession.

One obvious difficulty is what is meant by 'a profession'. A naïve distinction is between professionals and amateurs. Professionals are paid for their work and amateurs are not. The definition of a profession, however, needs more than this. It must be recognised that there is a discipline, a body of knowledge, skills and activities that are pursued by some group of people. Although not logically necessary, such recognition should be by people who are not members of the profession. The BCS has itself struggled for years to identify what profession it represents. Its use of 'computer' in its title is a historical legacy, and a more modern preference would be for 'computing', which would recognise the activity, rather than the thing – the computer itself.

Copyrighted material

CODES OF CONDUCT 195

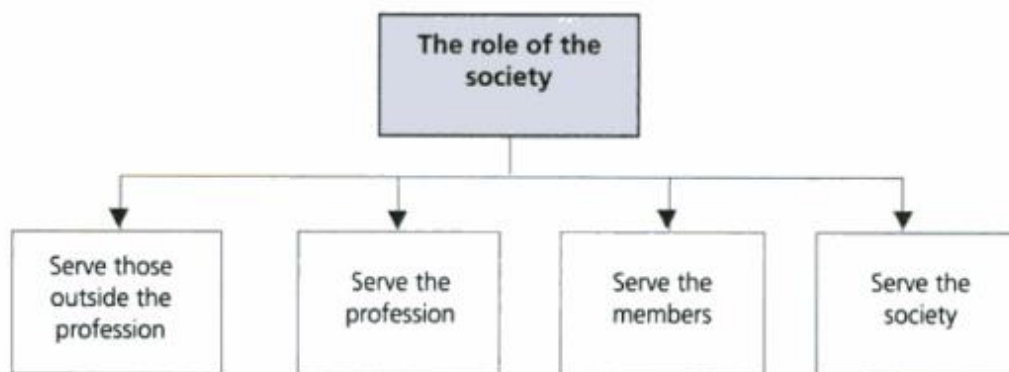
After all, the BCS does not represent computers but the people who work with them. These days, the BCS prefers to use 'IT' to describe its members' profession, but whether this is clearer, or even whether there is a universally acceptable definition of information technology (IT), is doubtful. The title 'information systems' (IS) is also frequently used as, increasingly, is 'information communication technology' (ICT).

Even when a professional society is recognised in law, there is a further consideration – whether a person must belong to the professional society to practise the profession. The case of mainstream medicine in the UK is fairly straightforward since it is illegal to interfere physically with other people's bodies. Even here, however, there are limits, particularly if the

person receiving some treatment, that is the patient, is willing to receive it. Thus, for example, it is not illegal in the UK for someone to stick needles in other people, to create tattoos or for acupuncture. The situation becomes even more complicated with professions such as accountancy. In the UK there are legal requirements on a variety of types of company to have their accounts approved and reported and this work must be done by a chartered accountant, that is, by someone who is a member of one of the legally recognised chartered accountancy professional societies. The problem for the BCS is that there are no such legal requirements for anyone to practise in the IT profession. Legally, no one has to be a member of the BCS to work on any aspect of IT. Furthermore, it is still far from common in the UK for those who pay IT professionals to require them to be members of the BCS. Whether BCS membership would significantly reduce the number of failed software and IT projects (see Chapter 10) is unknown, but it could not make the situation worse! However, a recent report (March 2007) by a BCS Management and Qualification Working Group found that:

Almost 90 per cent of organisations stated that it was the experience of their IT managers that was important to them, compared with 41 per cent who claimed that their IT qualifications were important.

As with all professional societies, the BCS is in the business of service. There are four types of service identifiable by who, or what, is being served. These are indicated in Figure 11.1.



From an ethical perspective, service to those outside the profession is the most important. People and organisations have to trust the expert advice and the quality of the work of the IT professionals they employ. Often, they have to trust almost 'blindly' because no one disputes that IT systems are extremely complicated, and their potential consequences even more so. Furthermore, because computers are a relatively new invention, and because they often do things that have never been done before, it is difficult for the lay person, who has little or no knowledge of IT, to even recognise that advice or work is of poor quality.

So as to support those outside the profession, it is essential to also serve the profession. This is because IT is a rapidly changing field. All fields of expertise undergo change, but IT is somewhat unusual in that it does not have many firm foundations which can be built upon over time. Thus, previous good practice may rapidly become dated. Therefore, the profession itself must continually change and those working in it must continually develop their skills.

In practice, the main work of a professional society such as the BCS is focused on serving its members and this is undoubtedly the simplest form of activity. The needs and requirements of members can be readily identified. In contrast it is much more difficult to define and address the needs of those who work outside the profession – it is even difficult to accurately identify the types of people who should be targeted for support. However, the membership of the society is clearly defined and their requirements can be readily determined via, for example, questionnaires. The BCS serves its members in a number of ways. In this context, the BCS indicates:

The essential requirement for professional competence coupled with appropriate professional standards lies at the heart of almost all BCS activity and the services that it provides. BCS enables individuals, organizations and society to realise the potential of and maximise the benefits from IT by:

- Setting and maintaining the highest professional standards for IT professionals including

including

- accrediting individual professional competence and integrity through the award of BCS professional qualifications and those of the Engineering Council and of the Science Council; and by inspection and accreditation of university courses and company training schemes
- defining standards for professional conduct through the BCS Code of Conduct and Code of Good Practice
- Initiating and informing debate on IT strategic issues with Government, Industry, and Academia
- Advising the UK Government and its agencies on IT-related matters regarding proposed legislation
- Representing the profession on issues of importance and liaising with other professional bodies, including other engineering institutions and overseas societies
- Examining and initiating debate on topical IT issues, most recently through the BCS programme of Thought Leadership debates
- Supporting individuals in their career development.

source: www.bcs.org

In reality, for the IT professional who is a member of the BCS, the services they receive tend to be quite specific. While the BCS does undoubtedly contribute to all of the above aspirations, its coverage is variable. For example, its 'cutting-edge products and services' are far from exhaustive and there are many areas of computing currently being researched which are not part of central BCS operations. Similarly, the debates on IT strategic issues tend to be relatively short-term. In addition, as we have noted, the IT field is rapidly evolving and advancing.

Copyrighted material

Q5. Explain Contractual issues?

Q6. Explain data protection principles?

➤ Data Protection:

Data protection is the process of safeguarding important information from corruption, compromise or loss. It is the legal control over access to and use of data stored in computers.

➤ Principles of data protection:

Seven principles of data protection are:

- Lawfulness, fairness and transparency
- Purpose limitations
- Data minimization
- Accuracy
- Storage limitation
- Integrity and confidentiality (security)
- Accountability

Lawfulness, fairness and transparency: Processed lawfully, fairly and in a transparent manner in relation to individuals.

Purpose limitation: collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes shall not be considered to be incompatible with the initial purposes.

Data minimization: adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed.

Accuracy: accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay.

Storage limitation: kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes subject to implementation of the appropriate technical and organisational measures required by the GDPR in order to safeguard the rights and freedoms of individuals.

Integrity and confidentiality: processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures.

Q7. Explain why it is necessary to display terms and conditions of purchase on an ecommerce website and why it is necessary to have a disclaimer on a website to inform users of the website when cookies are being used?

Reason #1: Prevent Abuses

A Terms and Conditions acts as a legally binding contract between you and your users.

This is the agreement that sets the rules and guidelines that users must agree to and follow in order to use and access your website or mobile app. The Privacy Policy agreement informs users what kind of data you collect and how you are using that data.

In this agreement, you can include the necessary sections to inform users of the guidelines of using your website or mobile app, what happens if users are abusing your website or mobile app, and so on.

Reason #2: Own Your Content

As the website owner, you're the owner of your logo, content (except for user-generated content, as most websites will inform users that any content created by users is theirs), the design of the website, and so on.

In the Terms and Conditions, you can inform users that you are the owner of such content (as mentioned above) and that the content you own is protected by international copyright laws.

Reason #3: Terminate Accounts

If Reason #1: Prevent Abuses suggested that you could temporarily ban users, another common clause that Terms and Conditions agreements include is **the Termination clause**.

This clause informs users that abusive accounts will be terminated and banned from using the service.

The Termination clause is aimed at websites that have a registration section (e.g. user must register before using and/or accessing certain sections of the website), as you can disable or ban the abusive users based on the activity of their accounts

Reason #4: Limit Liability

Terms and Conditions agreements commonly include a warranty disclaimer that tries to limit the website owner's liability in cases where errors are found in the content presented on the website.

This kind of clause notifies users that the owner can't be held responsible for any errors in the content presented, or for the information provided being accurate, complete, or suitable for any purpose

Reason #5: Set The Governing Law

Usually, the **Governing Law** clause of a Terms and Conditions agreement refers to the jurisdiction that applies to the terms presented in the agreement.

(b) Disclaimers are necessary to ensure that liability of your website is limited wherever possible. They are necessary as the company, business or website owner controlling the website may not always be able to ensure that the information provided is up to date or control how any information on the site is used or interpreted.

Other instances include articles or pieces posted to a website, which the site or owner may not necessarily agree with. To ensure that they are not liable for this type of information and to ensure any liability may be limited, there is need to provide a website disclaimer.

Finally, it is important for your site to include a disclaimer when a site makes reference to another site or provides any type of link to another website. Most websites fall into this category and in almost all of the situations where a link is provided to another site, it is highly unlikely that the site providing the link has control over or reviews the content of the referenced site. As a result, a website owner will not want to be held liable for unintended or unknown representations made by another site, which may be protected by a website disclaimer on their own site.