

1. With the aid of examples, differentiate *generic software* product from *bespoke software* product.

	Generic	Bespoke
Description	Develop for public	Develop for a specific user
Cost	Cheaper - share among buyer	Expensive - pay by one cost
Requirement spec.	Controlled by software organizer	Controlled by user/cost
Example	Ms word, Payroll system	Public bank system, Tar UC system

2. Do you think that *system engineering* same as *software engineering*? Explain.
- No. Software engineering is a part of system engineering.
 - System engineering is to identify the roles of hardware, software, people, database and other system elements involved with that system which is going to be developed.
 - Software engineering is to tell the practicalities of developing and delivering useful software.

3. Easy2Study is interested to develop an education system according to the Software Engineering's layered technology which consists of 4 important layers. Assist Easy2Study to analyse each layer based on the system by proposing appropriate technology. [Hint: technology for each layer can be a tool, methodology, quality attributes, and software process model.]

Quality Focus

- Any engineering approach must rest on an organizational commitment to quality.
- Example: software quality attributes: reliability, maintainability, etc.

Process

- Process defines a framework for a set of key process areas (KPAs) that must be established for effective delivery of software engineering technology.
- Example: waterfall, prototype, incremental, spiral model, agile

Methods

- Methods are organized ways of producing software, including suggestions for the process to be followed, the notations to be used, rules governing the system descriptions, which are produced and design guidelines.
- Example: OOAD methodology

Tools

- Tools provide automated and semi-automated support for the process and the methods.
- Example: IBM RSA

4. Sri Touch Academy is a newly established company in Kuala Lumpur which offers make-up, hairstyling, and art courses. The courses are conducted in both full time and part time modes. As a software engineer, you are responsible to build an online website for the company to allow customer to register as member, pay the fees, check classes' schedule, post questions, share success story, subscribe to weekly newsletter, chat with company personnel, and connect to other social networks such as Facebook Page, Twitter, and Instagram. You have three months to accomplish the project together with your junior software engineer. Sri Touch Academy requested you to deliver the initial version within two months and the subsequent within one month.

Recommend and explain 3 software quality attributes that must be included in the online website.

Reliability - Sri Touch Academy online website very less downtime

Usable - User easy to navigate the Sri Touch Academy online website

Efficiency - Sri Touch Academy online website has fast response time

Flexible - Sri Touch Academy can be run in any platform

Availability - Sri Touch Academy online website available 24 hrs 365 days

5. Discuss 3 challenges/problems on software developments that are likely to be faced by software engineer in current software industry.

The legacy challenge

- the challenge of maintaining & updating legacy software in such a way that excessive costs are avoided and essential business services continue to be delivered

The diversity challenge

- the challenge of developing techniques to build dependable software which is flexible enough to cope with different types of computer & support systems

The delivery challenge

- the challenge of shortening delivery times for large & complex system without compromising system quality.

6. Mandy is a fresh graduate from the School of Computer Sciences. Recently she is hired by a software house to develop bespoke software for clients. Describe 3 important code of ethics that Mandy need to follow as a software engineer in the software house.

Public - Software engineers shall act consistently with the public interest.

Client and Employer - Software engineers shall act in a manner that is in the best interest of their client and employer consistent with the public interest.

Product - Software engineers shall ensure that their products and related modifications meet the highest professional standards possible.

Judgment - Software engineers shall maintain integrity and independence in their professional judgment.

7. EPS Company is currently researching into Track Your Truck (TYT) application that offers an efficient and effective vehicle tracking system. TYT allows users to check real time location of their vehicles through Global Positioning System (GPS). Users can also view their vehicles' fuel usage, mileage, performance analysis reports through TYT. In the event of vehicle theft, a notification message will be sent to police station automatically and to the owner at the same time. In order to recover the lost vehicle, the real time location can be tracked by the owner. (Source: <http://www.trackyourtruck.com/>)

Software engineering is a layered technology consisting of Quality, Process, Methods, and Tools. Suggest 3 software qualities that must be included in the Track Your Truck system. Justify your answer.

Secure - In the event of vehicle theft, a notification message will be sent to the police station automatically and to the owner at the same time. The system is hack resistant from theft.

Reliability - The system has very less downtime

Usable - User easy to navigate the website

Efficiency - The system has fast response time

Flexible - Website can be run in any platform

Availability - Website available 24 hrs 365 days