

BSc (Hons) in Information Technology

Year 1

Lab 01

IT1060 – Software Process Modeling

Semester 2, 2024

1. What is the difference between software engineering and system engineering?
2. What are critical systems? Explain the different types of critical systems.
3. What are the reasons for Software Failure? Find some real-world examples and explain it further.
4. Analyze the case study given below and answer the subsequent questions in pairs.

“TasteBuds(TB)” is a new restaurant at Malabe. TB needs a system to track the customers and their orders.

A customer can place orders through TBCS. If the customer is a registered customer, he will be given a discount from the total bill amount depending on how many orders he has placed during the month. The orders placed will be given a number which indicates the queue position of that order. The current serving order number will be displayed on the system main page.

The order numbers together with the order details will be sent to the Head Chef (HC) to prepare the order. Based on the details, HC will prepare the order as a normal order or a priority order. The HC will assign one or few chefs for the order and will estimate the time taken for the order. Once the order is prepared, the order will be delivered by the delivery staff. The Delivery manager will assign the delivery staff for a particular order considering its category. For example, a priority order will be assigned a vehicle and a driver within 10 minutes of the time the order is ready, while the normal order delivery is assigned based on the availability of the vehicles and drivers. To be a driver at TB, one needs to have a valid driving license. The driving license details will be stored in the TBCS for security purposes. When a delivery is handed over to the driver, he must use the TBCS on his mobile phone and check out the delivery with the order number and his driving license number.

Once the delivery is handed over to the customer, s/he can mark the order has been delivered through the TBCS system. Later, the customer can give a rating to the order and give his comments or suggestions if s/he is not satisfied with the order.

- a) Consider you and your partner to be the **owner** of the TB restaurant and the **project manager** of the TBCS. Carry out a feasibility study from the viewpoint of the **owner** and **project manager**. Discuss the points under Technical, Economic, Schedule and Operational feasibility.

5. Explain main features of a software process model.
6. Comment on the following statement. Justify your answer with the importance of having feasibility study phase.

"It is not mandatory to conduct feasibility study for mission critical software products as it intended to deliver a goal-oriented process".

Activity 01

A mining company named Galaxy Mining Company Ltd. (GMC) has mines located at various places in India. It has about fifty different mine sites spread across eight states. The company employs many mines at each mine site. Mining being a risky profession, the company intends to operate a special provident fund, which would exist in addition to the standard provident fund that the miners already enjoy. The main objective of having the special provident fund (SPF) would be quickly distribute some compensation before the standard provident amount is paid.

According to this scheme, each mine site would deduct SPF installments from each miner every month and deposit the same with the CSPFC (Central Special Provident Fund Commissioner). The CSPFC will maintain all details regarding the SPF installments collected from the miners. GMC employed a reputed software vendor Adventure Software Inc. to undertake the task of developing the software for automating the maintenance of SPF records of all employees. GMC realized that besides saving manpower on bookkeeping work, the software would help in speedy settlement of claim cases. GMC indicated that the amount it can afford for this software to be developed and installed is Rs. 1 million.

Adventure Software Inc. deputed their project manager to carry out the feasibility study. The project manager discussed the matter with the top managers of GMC to get an overview of the project. He also discussed the issues involved with the several field officers at various mine sites to determine the exact details of the project. The project manager identified two broad approaches to solve the problem. One was to have a central database which could be accessed and updated via a satellite connection to various mine sites. The other approach was to have local databases at each mine site and to update the central database periodically through a dialup connection. These periodic updates could be done on a daily or hourly basis depending on the delay acceptable to GMC in invoking various functions of the software.

- a) What are the good points the project manager has considered in carrying out the feasibility study?
- b) What could have been done to improve the feasibility study?
- c) What would be the best approach from the two mentioned above? Justify with reasons.

Activity 02

It should be done in pairs. Member 1 is required to write three subjects in secret. Member 2 is required to choose one of them.

Member 2 must also write three topics on a piece of paper and ask member 1 to choose one. Then they must both complete the following questions and discuss if the answers are right.

Format of the Topics

Topic of the system- Library System
What you need from the system Ex: Borrow book
What type of system you need Ex: Mobile/Web/Desktop

Questions

Who are the users of the system?
How can we gather requirements?
What are the requirements?
Any Characteristics?
Any Constraints