



Sri Lanka Institute of Information Technology

B.Sc. Honours Degree in Information Technology

Final Examination
Year 1, Semester 2 (2019)

IT 1060 - Software Process Modeling

Duration: 2 Hours

June 2019

Instructions to Candidates:

- ◆ This paper is preceded by 10 minutes reading period. The supervisor will indicate when answering may commence.
- ◆ This paper has 3 questions. Answer all questions.
- ◆ Write answers in the booklet given.
- ◆ Total marks 100.
- ◆ This paper contains 4 pages including the cover page.
- ◆ Electronic devices capable of storing and retrieving text, including calculators and mobile phones are not allowed.

Question 1

(40 Marks)

You are asked to come up with requirement analysis for an online super market system called “eShopper”. Analyze the basic requirements given below and answer the subsequent questions.

eShopper serves registered customers to shop online. Visitors to the eShopper can browse or search items and if they wish to order online, they have to register.

Registered customers can place orders as a normal order or a priority order. A priority order will be delivered within a maximum of 6 hours and a normal order delivery is within a day. Each order will be identified by a unique key. Customers can add items to the order and change items if they wish.

Once they complete adding items, they can check out their items. When checking out, system will show a summary of the shopping cart and customers can add/change/remove items if they wish. Once the customer confirms the items, system shows the total payment amount including the delivery charges based on the order type. A discount also will be calculated based on the previous month online shopping bill. To complete check out process, customer can pay the bill through either credit card or PayPal. Once the user pays, depending on the payment method, payment will be verified by the CreditCardSystem or PayPalSystem which are external systems.

Within working hours, the Store Manager (SM) will get a list of orders every hour. SM uses the system to create Issue Order Statements (IOS) for the hourly orders. SM then confirms those IOS. When SM confirms the IOS, the stock levels of the items will be updated. Then the system sends the confirmed IOS to Delivery Manager (DM). DM uses the system to generate Delivery Orders based on the order type (i.e. normal order or priority order) and assigns staff to deliver the goods.

- a) Draw a Use Case Diagram for eShopper stating appropriate assumptions.

(30 marks)

- b) Write a Use Case Scenario for “Check out items” through the system.

(10 marks)

Question2

(30 Marks)

- a) “SRS is a Black Box Specification”.
- i. Do you agree with the above statement? Justify your answer.
(04 marks)
 - ii. Briefly explain what is meant by **SRS**.
(03 marks)

- b) Draw an Activity Diagram **with swim lanes** for the “Book Driver” process of the Online Driver Assistance System (ODAS) given below.

ODAS is a facility provided by a leading company in Malabe. A customer can use the system to book a driver through ODAS. There are two types of drivers, “priority driver (PD)” and “normal driver (ND)”. If the driver is requested for an emergency, a PD will be assigned, otherwise a ND will be assigned.

When booking for a driver, customer has to first select whether he needs a PD or ND, where a PD will be charged more. If a PD is requested, system sends a message to the driver with an alert giving the details of the address and the time he has to be.

If a ND is requested, the system checks the availability of the drivers from the duty log. Then the system displays the details of the drivers including their age, driving experience and the rating given by the other customers. Customer can then select a driver from the given list. Then the system sends a message to the relevant driver. If the driver does not respond within one minute or driver denies the request, system will again show the available drivers for the customer to choose. If the driver confirms the request within one minute, the system send a message to him giving the details of the address and the time he has to be.

Once a driver is assigned, the details of the driver will be sent to the customer and the duty log will be updated in parallel. Once both are done, the system will start tracking the driver. The tracking information will be sent to the customer every two minutes until the driver confirms that he has reached the destination.

(23 marks)

Question 3

(30 marks)

- a) Contrast the aims of **Specifying** and **Documenting** in Design Models. (05 marks)
- b) Write the most suitable word(s)/phrase for the blanks of the statements given below.
- i. **UML** stands for
 - ii. **Round-Trip Engineering** is the combination of and engineering.
 - iii. **COTS** stands for
 - iv. Checking whether we **build the right product** is called
- (05 marks)
- c) Compare **Software Development Life Cycle (SDLC)** with **Software Testing Life Cycle (STLC)**. (05 marks)
- d) Write a **user story** for the following scenario

Mathmal likes to watch movies. Instead of visiting each website for movies, he wants a system to categorize movies and show their ratings. Also he wishes to see the list of movies in the local cinema halls with the showing times. He also loves to invite his friends and share his movie interests with his friends.

(05 marks)

- e) A SCRUM team is asked to complete a project within 10 days. Analyze the work performance table of the team given below and answer the subsequent questions.

Day	0	1	2	3	4	5	6	7	8	9	10
Remaining work (man days)	90	72	60	60	60	55	48	30	12	5	0

- i. Draw the **Burn-down Chart** (04 marks)
- ii. Comment on the team performance in terms of **Burn-down Velocity**. (06 marks)

***** End of Exam Paper *****