FIT9138 IS Analysis, Design and Systems Thinking
Week 1 Unit Overview & System Development Methodologies (Part 1)

AIMS OF THE APPLIED SESSION

1) Explain the foundational principles of design and systems thinking and their application to information systems development and security

STRUCTURE OF THIS WEEK'S APPLIED SESSION

- Section A: Introduction (15 min)
- Section B: Ice Breaker (25 min)
- Section C: Individual Task and Class Discussion (Matching SDLC Phases with Tasks) (30 min)
- **Break (5 min)**
- Section C: Group Discussion (Systems Analysis: Analysing Mobile Applications) (30 min)
- Section D: Group Discussion: (Systems Design: Workflow Definition and Diagram Creation) (40 min)
- **Break (5 min)**
- Section F: Mini Case (Systems Implementation) (20 min)

YOUR TASKS

BEFORE YOUR APPLIED SESSION

- Attend/listen to seminar 1
- Read the mini case

IN YOUR APPLIED SESSION

You will work with your fellow students and tutor through the Week 1 Applied activities.

Section A: Introducing FIT9138 Teaching Team	**A1)** Unit preview, Moodle overview, Tutor introduction, Ed Forum.
Section B: Ice breaker session	**B1)** We will use this session to familiarise class members to each other using several activities (e.g., getting to know each other, sharing experiences, and talking about things in common). **B2)** Have you ever heard of SDLC and implemented it in your work? Please share your story! (This discussion aims to better understand which students have or do not have prior experience in IT systems development. Students with prior experience can share their stories

about implementing the SDLC, while others can listen and ask questions related to those stories.)

B3) What do you expect (from us) from this unit? Please tell us about your expectations so we have a clearer picture and provide you with the best possible delivery.

Section C: Individual Task and Class Discussion (Matching SDLC Phases with Tasks)

Instructions:

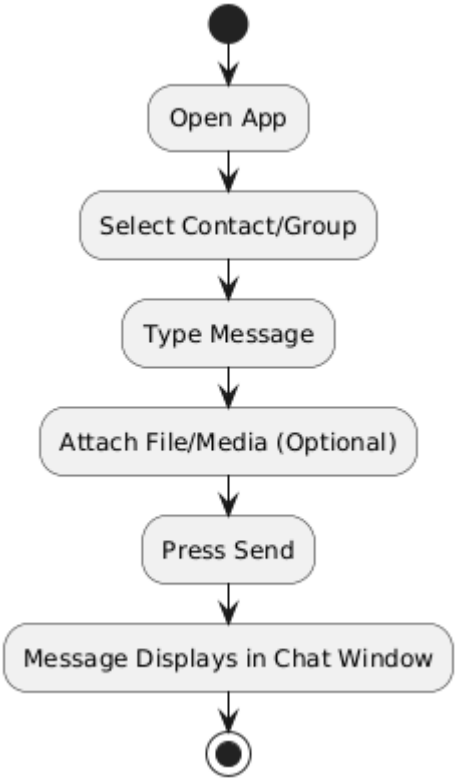
1. Work individually
2. You will match each task description to one of the four SDLC core processes:
   - Planning
   - Analysis
   - Design
   - Implementation
3. Here are the 16 tasks in random order for the matching activity:
   1. Develop wireframes or mockups for the user interface.
   2. Gather user requirements and system needs.
   3. Perform unit and integration testing.
   4. Define project goals and scope.
   5. Specify technologies, tools, and frameworks to be used.
   6. Analyse current processes and identify gaps.
   7. Write and test code for core features.
   8. Create a high-level project timeline.
   9. Document functional and non-functional requirements.
   10. Build the user interface and back-end logic.
   11. Identify stakeholders and team members.
   12. Create system architecture and database schemas.
   13. Prioritise features based on user needs.
   14. Estimate project costs and resources needed.
   15. Plan integration with existing systems or third-party tools.
   16. Deploy the system for initial user testing or production.
4. Carefully read each task description and determine the SDLC phase to which it belongs.
5. Put your answer in this table.

SDLC Core Process	Task
Planning	● (4) Define project goals and scope. ● ● ●
Analysis	● ● ● ●
Design	● ● ● ●
Implementation	● ● ● ●

Class Discussion:

After the activity, we will review the answers together. Be prepared to explain why you matched a task with a specific phase.

Section D: Group Discussion (Systems Analysis: Analysing Mobile Applications)	Systems analysis consists of those activities that enable a person to understand and specify **what the new system should accomplish**. The operative words here are understanding and specifying. Systems analysis is more than a brief statement of the problem. For example, a customer management system must track customers, register products, monitor warranties, and track service levels, among many other functions—all of which have many details. Systems analysis describes in detail what a system must do to satisfy the need or solve the problem. Activity: Analysing Mobile Applications ● Form groups of 3–4 members. ● Each group must choose **one application** installed on a group member's mobile phone. Ensure that no two groups choose the same app. Your tutor will assist in managing and recording the selected app for each group to avoid duplicates. ● Assume the role of a systems analyst. List the functions of your chosen app. Focus on what the app allows users to do, for example: ○ Sending or receiving messages. ○ Browsing or searching for information. ○ Creating or editing content. ○ Tracking or monitoring activities. ○ Completing transactions (e.g., shopping, booking). ○ Any other core functions specific to the app. ● Be prepared to share and discuss your findings with the class!
Section E: Group Discussion: (Systems Design: Workflow Definition and Diagram Creation)	Systems design consists of those activities that enable a person to describe in detail how the information system will actually be implemented to provide the needed solution. In other words, systems design describes **how the system will actually work**. It specifies in detail all the components of the solution system and how they work together. In systems design, many processes are involved. For this activity, we will focus on one process: defining the workflow and creating a simple workflow diagram. Activity: Workflow Definition and Diagram Creation ● Continue with your previous group and use the same application chosen in the previous activity. ● Choose 2 functions from the list of functions you defined earlier. For example: Application: WhatsApp Selected Functions: 1. Sending a Message 2. Receiving a Message ● Define the workflow for each selected function by breaking it down into sequential steps. Ensure the steps are clear and logical. For example: Workflow Definition for Sending a Message Steps: 1. Open the app. 2. Select a contact or group from the chat list. 3. Type the message in the text input box. 4. (Optional) Attach a file or emoji. 5. Press the Send button. 6. The app sends the message to the server. 7. The server delivers the message to the recipient.

	Workflow Diagram for Sending a Message (you can use pen and paper to create this)  • Be prepared to share and discuss your findings with the class!
Section F: Mini Case (Systems Implementation)	References: https://quod.lib.umich.edu/j/jsais/11880084.0001.103/--case-study-of-the-application-of-the-systems-development?rgn=main;view=fulltext **A Case Study of the Application of the Systems Development Life Cycle (SDLC) in 21st Century Health Care: Something Old, Something New?** The implementation stage of the SDLC usually follows one of four main forms. These are, according to Valacich, George, and Hoffer (2009): 1) Direct Installation (sometimes also referred to as Direct Cutover, Abrupt, or Cold Turkey method) where the old system is simply removed and replaced with the new software, perhaps over the weekend; 2) Parallel Installation, when the old and new systems are run side-by-side until at some point (the "go live" date) use of the former software is eliminated; 3) Single Location Installation (or the Pilot approach) involves using one site (or several sites if the software rollout is to be nationwide or international involving hundreds of locations) as beta or test installations to identify any bugs or usage problems before committing to the new software on a large scale; and 4) Phased Installation, which is the process of integrating segments of program modules into stages of implementation, ensuring that each block works before the whole software product is implemented in its entirety. The Home Care unit of General Hospital utilised the Parallel Installation method for approximately 60 days before the "go live" date. Clinicians would "double enter" patient records and admissions data into both the old and new systems to ensure that the new database was populated, while at the same time maintaining patient care with the former product until its disposal. The Director of the Home Care facility noted that this process took longer than anticipated but was well worth it in the long run. Once the "go live" date was reached the new system performed quite well, with a minimal amount of disruption. Training of staff commenced two weeks before the "go live" date. Of the approximately 25 users, half were trained the first week and the rest the next. Clinicians had to perform a live visit with one of their patients using the new system. Thus they would already have experience with it in a hands-on environment before switching to the new product and committing to it on a full-time basis.

It is again worth noting that the implementation method, Parallel Installation, follows from the SDLC and is what is taught in modern-day courses. Thus, it was satisfying to the researchers that textbook concepts were being utilised in “real world” situations. It also reinforced that teaching the SDLC was in line with current curriculum guidelines and should continue.

Choose only 1 correct answer!

Question 1: Which of the following is NOT one of the four main forms of implementation methods mentioned in the passage?

a) Direct Installation
b) Modular Installation
c) Parallel Installation
d) Phased Installation

Question 2: What is a characteristic of the Direct Installation method?

a) Running both the old and new systems side-by-side for a period of time
b) Using a single site as a beta installation before a full rollout
c) Replacing the old system with the new software abruptly, often over a weekend
d) Gradually implementing program modules in stages

Question 3: What was the implementation method used by the Home Care unit of General Hospital?

a) Direct Installation
b) Parallel Installation
c) Single Location Installation
d) Phased Installation

Question 4: Why did clinicians perform “double entry” during the Parallel Installation process?

a) To train staff before the new system was operational
b) To ensure the new database was populated while maintaining patient care with the old system
c) To reduce the time needed for the transition
d) To troubleshoot issues in the old system

Question 5: What was the purpose of clinicians performing a live visit with a patient using the new system?

a) To provide feedback on software bugs
b) To familiarise themselves with the system in a real-world environment before full-time use
c) To populate the new database with patient records
d) To identify the effectiveness of the phased installation method

Question 6: What is one of the key benefits of the Parallel Installation method as noted in the passage?

a) Faster implementation time
b) Minimal disruption during the transition
c) Lower cost compared to other methods
d) Avoids the need for staff training