B.Sc. in Computer Science and Engineering

School of Science and Technology

Bangladesh Open University

CSE22P5 Information System Analysis and Design Lab

Lab Report-V

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Table of Contents

Experiment No: V.

Date: 29 Mar 24.

Problem: Design a sequence diagram of communication over phone (actors 2 – caller and recipient).

Objective:

- Learn sequence diagram modeling principles.
- Learn to identify the actors involved and the interactions between them.
- Visualize communication processes using UML.
- Translate real-world scenarios into formalized representations.

Theory: Phone communication relies on the transmission of audio signals over a network infrastructure. This process involves several key components to achieve and model this, the following study is essential –

i. **UML Sequence Diagram**:- UML Sequence Diagrams provide a visual representation of the interactions between various components of a system over time, making them an invaluable tool for system analysis and design.

ii. **Actor**:- An actor is an external entity that interacts with a system, typically to achieve specific goals or tasks. In the context of UML, actors represent users, devices, or other systems that interact with the system being modeled.

iii. **Lifeline**: Depicts the existence of an object over time, showing when it is active or inactive.

iv. **Activation**: Represents the period during which an object is actively processing a message or executing a method.

v. **Message**: Indicates communication or interaction between objects, triggering behavior.

vi. **Message Return**: Represents a response from the receiver back to the sender after processing a message.

vii. **Asynchronous Message**: Denotes communication where the sender does not wait for an immediate response from the receiver.

Required Tools and Softwares:

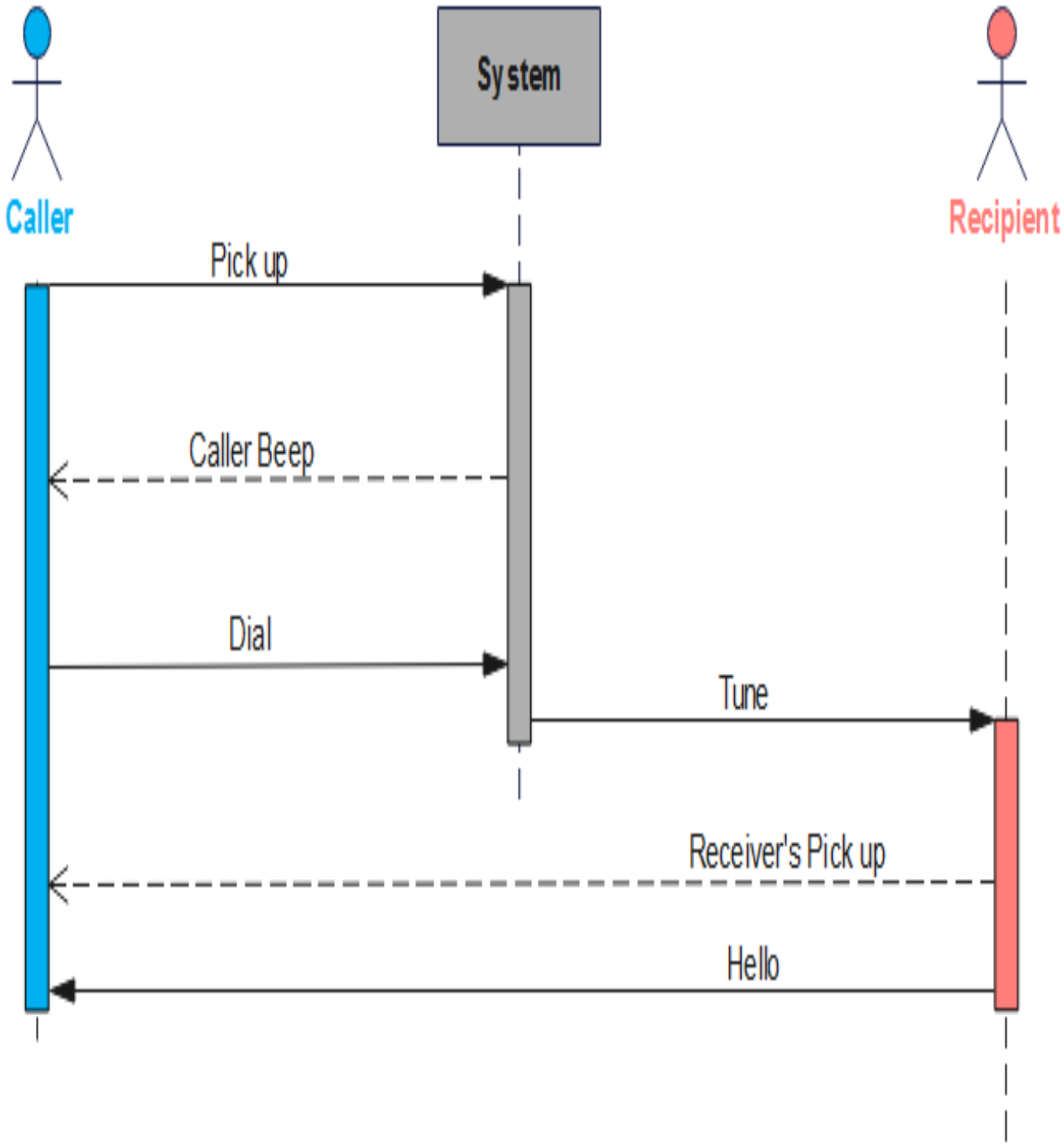
- Sketch Pen & Pad (for sketching the model)
- Wondershare EdrawMax (for designing the diagram)
- MS Word (for writing and furnishing)

Execution:

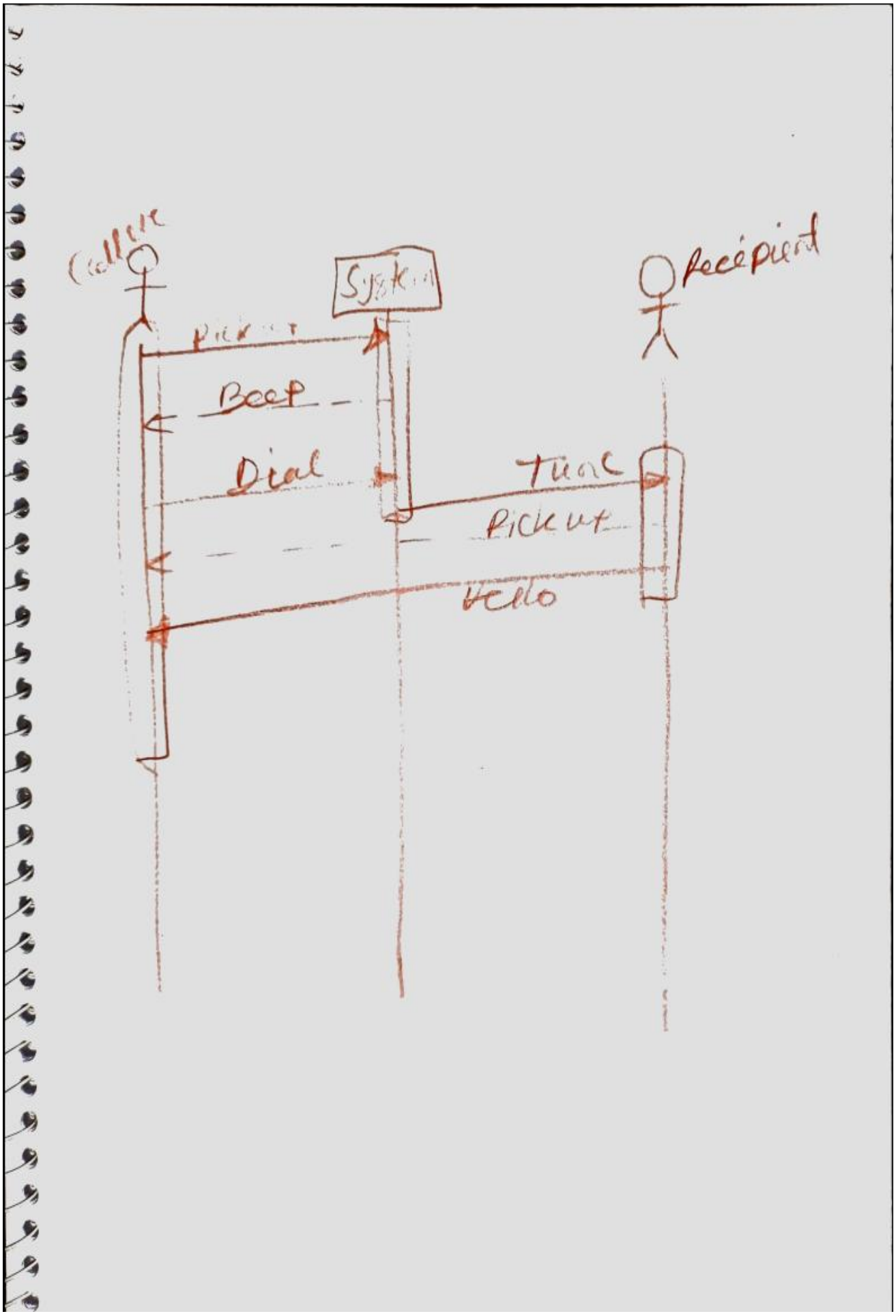
- Sketching The Model Using Sketch Pen & Pad
  - Gather necessary knowledge and understand system requirements.
  - Identify primary components.
  - Consider life line, activation and delegation carefully.
  - Design layout on pad, allocating space for lifelines and activations.
  - Arrows and labels to represent message clearly.
  - Carry out refinements before implementation in software.
- Drawing The Diagram Using Wondershare Edrawmax
  - Launch Wondershare EdrawMax and create a new blank UML Modeling.
  - Add actors, lifelines and messages.
  - Specify message details and sequences.
  - Use activation bars accordingly.
  - Review and finalize the diagram as needed.
- Formatting The Report Using Ms Word
  - Open MS Word and create a new document.

- Set up layout and formatting preferences.
- Give the structure inserting all sections.
- Type content for each section.
- Insert the sequence diagram and other required images.

Output:



Appendix: Sketch



References:

- Book

  Schmuller, Joseph, *SAMS Teach Yourself UML in 24 Hours* (3rd ed.), SAMS

- URL

  i. *Edraw Max User Manual Professional and All-in-one Diagramming Software* https://www.edrawsoft.com/guide/edraw-max-user-manual-en.pdf

  ii. *Edraw Max User Guide* https://images.edrawsoft.com/guide/edrawmax/edrawmax-user-manual-en.pdf

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