**SOFTWARE DESIGN LABORATORY**

* 1. Python:
  2. Chap 9 : Ref Lab2 Fundamentals of Python First Programs, 2nd Edition by Kenneth A. Lambert ·
  3. Chapter 13 : Ref Lab2 Core Python Programming by Wesley J. Chun

**OBSERVATION AND CONCLUSION**

This chapter has examined the use of a variety of software tools in the solution of computational problems. The abstraction techniques for simplifying designs and managing the complexity of solutions are the most essential of these tools. Functions, modules, objects, and classes are examples of abstraction techniques. We started with an external view of a resource, demonstrating what it does and how it might be utilized in each situation. To utilize a function from the built-in math module, for example, you import it, run help to understand how to use it correctly, and then include it in your code.

1.2 Ref Lab2 Professional Git by Brent Laster  
• Connected Lab 2

This chapter contains several options and steps, and we can learn how to use Git status and its different commands. Also we can understand the tracked and untracked files. We learned how to get your information into Git and how to move it through the stages in the previous chapter. Because Git allows you to have multiple versions of files at different levels, you'll need a mechanism to keep track of where everything is and how the different levels' versions differ. In other words, we'll need simple techniques to keep track of all of your ongoing projects. Status and diff are two Git commands that can help you with this: they allow users to immediately understand the state of their modifications in the local environment and guarantee that the proper changes are recorded and preserved in Git.

1.3 UML:  
• Chapter 4 : Ref Lab2 Toolkit by Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado

In this chapter we can see and learn different kinds of diagrams using UML. When modeling business data, UML class diagrams come in handy. We can easily transfer these class diagram requirements to entity beans using CMP by precisely modeling properties and relationships of class entities. For permanent fields, class attributes correspond to abstract access methods, whereas association roles correspond to abstract access methods for relationship fields. Whether relationship access methods show in both linked entity beans or just one is determined by navigability. Multiplicity notation also defines the appropriate type for relationship fields, life cycle concerns, and cascading delete attributes.

• Chap 5: Ref Lab 2 Systems Analysis and Design An Object-Oriented Approach with UML by Alan Dennis, Barbara Haley Wixom, David Tegarden

In this chapter we can learn how to make CRC cards, class diagrams, and object diagrams by following the rules and stylistic guidelines, understand how CRC cards, class diagrams, and object diagrams are created. Recognize the connections between the structural models. Recognize the connection between structural and functional models.

• Answers to Questions

Ref Lab2 Fundamentals of Python First Programs, 2nd Edition by Kenneth A. Lambert

Answer : Exercises 1 to 3, page 346

2. InLab

• Write your Objectives (you can have your own objectives)  
• Steps performed with screenshots of tools used https://www.umlet.com/ and https://code.visualstudio.com/ (UMLet and VSCode), debugging, sample run with DISCUSSIONS (DONT copy and paste from the e-book).• Edit your figures (screenshot), highlight by putting a box, give a figure number and brief description.  
• Use the source codes of Lambert (refer to the reference I have given you in our Class materials).Given the source code (with classes), create corresponding class diagram using UMLET.

Write your own Observation and Conclusion from what you have executed/read.

