

Laboratory Exercise 2

OOP AND ADT

⁵ Ideally you can provide a few pieces of simple codes in Java. If you cannot, some diagrams are acceptable.

1. Explain, with an example⁵, three principles of Object-oriented programming:
 - (a) Encapsulation
 - (b) Inheritance
 - (c) Polymorphism.
2. Using 'a list of integers' as an example, explain what is meant by ADT and what is meant by Data Structure. What is the main difference between an ADT list and an array.
3. Define an ADT appointment book for the programming problem below:
Design a computerized appointment book (program) that records your appointments with your tutor during one academic. To simplify the problem, suppose that you have only one tutor and, for each appointment, the book will take a brief notation about the purpose of each appointment along with the date and the time.

Hint

- (a) The data items in this ADT are the appointments, of which each consists of a date, time and a brief note about the purpose.
- (b) The operations can be⁶:
 - Make an appointment for some purpose for a certain *available* date, time.
 - Cancel the appointment for a certain date and time.
 - Ask whether you have an appointment at a given time.
 - Determine the purpose appointment at a given time.
 - Some intitialisation operations.
- (c) Your design can be presented in pseudocode, in plain English or in diagram.

⁶ Other correct operations are possible