


National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Software Construction & Development	Course Code:	CS-3001
	Degree Program:	BS(SE)	Semester:	Fall 2023
	Exam Duration:	60 Minutes	Total Marks:	45
	Paper Date:	10 - Nov - 2023	Weight:	15.00%
	Section:	ALL	Page(s):	6
	Exam Type:	Midterm-II		

Student Name:_____ Roll No._____ Section:_____

Instruction/Notes: Attempt all questions. Do not use pencil or red ink. In case of confusion or ambiguity make a reasonable assumption. **Do not attach any extra sheet.** Use extra sheet for rough work only. A **double-sided hand-written** cheat sheet is allowed but it shouldn't be photo-copied.

Question 1 [CLO-1]

5+10=15 points

Origin:

v

Destination:

v

Departure date:

Return date:

Passengers:

Adults:

-

1

+

Children:

-

0

+

Ticket:

☒ One-way

☐ Return

Search

Consider a UI mock-up given above for a Flight Reservation System. **Origin** and **Destination** are dropdowns populated with a list of cities. **Departure date** and **Return date** are text boxes that stores date in **mm/dd/yyyy** format. **Passengers** information maintains the count of **adults** and **children** intending to travel. The count for each can be updated through corresponding **increment (+)** and **decrement (-)** buttons. **Ticket** type can be either **One-way** or **Return**, controlled through a radio button group. If **One-way**, then **Return date** is disabled, but if ticket type is selected as **Return** then **Return date** textbox will be enabled.

Write event handling code for:

- enable / disable **Return date** textbox based upon Ticket type.
- increment / decrement count for adult and children passengers, using a single event handler.

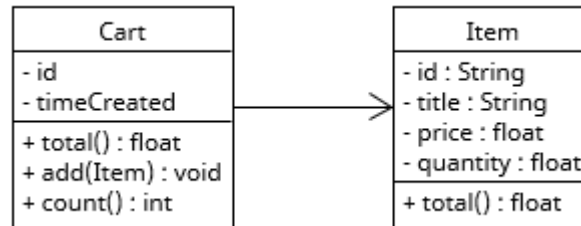
Excise Department maintains the registration record of vehicles using the following class:

Vehicle
- registrationNumber : String - registrationDate : Date - engineNumber : String - make : String - modelName: String - modelYear : Integer - bodyType : String
+ save()

Suppose they want to simultaneously store the information both in: (a) a relational database management system (e.g. MySql, SQL Server, etc.); and (b) a text file where each vehicle takes one line with its values comma-separated; for the purpose of reliability. Write code to support this requirement using relevant architectural and design patterns.

Question 3 [CLO-3]**10 points**

Write unit tests (using JUnit) for the following class diagram of a shopping cart system:



Item total provides the gross price (price x quantity) of a single item whereas Cart total provides the gross price of all items in a cart. Items can be added to the cart using add function. Count provides the number of items added to cart at any specific point in time.

