


National University of Computer and Emerging Sciences, Lahore Campus

	Course:	Object Oriented Analysis & Design - Lab	Time	150 mins
	Program:	BS (Computer Science)	Semester:	FALL 2018
	Code	CL309	Total Marks:	80
	Paper Date:	14-Dec-2018	Weight	-
	Section:	A,C,D,E	Page(s):	2
	Exam:	FINAL TERM	Reg. No.	

Instructions:

- If you find any confusion in the statement, make suitable ASSUMPTIONS.
- “Final Submission” folder is located in your respective lab folders.
- Submit complete project folder
- Your **mobile phones are not allowed**
- You are not allowed to borrow anything.
- You are immediately disqualified and awarded F in entire course from the exam if:
 - You are seen talking, whispering, borrowing or looking at someone’s PC.
 - A USB is found attached to your PC.
 - You are seen using cell phone.
 - You are caught using internet.
- F grade will be awarded on plagiarism.

Best of luck for the exam. 😊

Consider a Visa allocating company named “GetSetGo” which is a large scale company offering visa services to students for the countries Australia, Canada, Brazil, Spain and USA. The student can opt for Immigration Visa, Tourist Visa Visiting Visa, Urgent Visa and Research Visa of their selected country. The students who are interested to go to Australia have to enroll in the sub-company named Australian Visa Sub Company, students who wants to go to Canada have to contact Canada Visa Sub Company, students who wants to go to USA have to visit USA Visa Sub Company, opting for Brazil will require a student to enroll in Brazil Visa Company and similar is the case with going to Spain. Each student can have one type of Visa ONLY of one country ONLY. Each student has to provide his basic initials (Name, CNIC, Address etc.) to enroll him/herself with any sub-company. Each sub-company provides Token ID to each enrolled student that represents his Visa processing turn. The token depends on the number of times a student has visited that country before. The token is of much quicker turn if the students visits that country quite often, the token is of later turn if the student visits it not that often. For example if a student has visited Australia 3 times then his token number can be 1 as compared to the other two students who have visited Australia 1 time or never. (The more frequents your visits are the sooner you get visa).

There is a manager who is managing all the sub-companies of GetSetGo. The manager collects number of students enrolled by each sub-company, he then checks which sub-company has attracted more customers (i.e. students). He assigns star rating to all sub-company which has gathered more students. This also means that each sub-company holds record of its registered customers.

Q1: Identify the Design Pattern(s) used in the above mentioned and declare Class-Entity pairing for the applied design pattern (entity mapping) **(10)**

Q2: Draw pattern specific class diagram for the above mentioned case study **(25)**

Q3: Write Java code such that an application corresponding to above mentioned requirements is created. Note that the application must not deviate much from your suggested diagram **(35)**

Q4: Draw a Sequence Diagram on StarUML for the interactions and activities of manager to assign star rating. **(10)**
