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**COMSATS University Islamabad Lahore Campus**

**Lab Final Examination – Semester Spring 2023**

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| Course Title: | Object Oriented Software Engineering | | | | | Course Code: | | CSE-304 | | Credit Hours: | 3(2,1) |
| Course instructor/s: | Sana Maqbool | | | | Programme Name: | | | BS Software Engineering | | | |
| Semester: | 4th | Batch: | FA21-BSE | Section: | A, B | | | Date |  | | |
| **Time Allowed:** | **3 Hour** | | | | **Maximum Marks:** | | | | **50** | | |
| Student’s Name: |  | | | | Reg. No. | |  | | | | |
| **Important Instructions / Guidelines:**   * Answer all questions. Be very brief & precise. Manage your time accordingly. | | | | | | | | | | | |

**Q: NO: 1 [CLO<4>]; Bloom Taxonomy Level<Creating>**

**Case Study 1**

Online Pet House is a web and android application where the purchase and sale of pets took place and vets are available for pet treatments. Today we came to know about the circumstances that most of the people depend on Local markets and nearby houses in order to buy a pet for their house. Through this project, we are planning to digitalize this process through online marketing. Thus the individuals can also rely on other persons across the district in order to buy a variety of breeds of pets. People could also be able to come to know about the different price ranges for the same breed offered by different persons. Thus our app provides a platform where the users could buy or sell pets by providing the contact details of the buyers/sellers. We are building the android application in a way that we create a login for all users. After logging in, the user is directed towards the homepage where he/she could see the pets available for buying. Besides these, one could see options for selling pets and managing his/her account. The details of the pet, some of its pictures, its age (rough one), etc. are all to be provided if one could sell a pet whereas the buyer can view pets classified into categories. Moreover, we are also providing a feature that allows the users to know about all the pet shops in the city so that they could buy pets or their food from there also. Thus our app makes a perfect choice for the ones who love pets and seek variant breeds of them.

**Marks[3+5+2+5+5+5+5=30]**

**Answer the following questions:**

1. Identify the attributes
2. Draw a class diagram of given case study
3. Identify the operations
4. Identify the relationships i-e Generalizations, aggregation ,dependency and associations
5. Identify objects and draw an object diagram on the basis of class diagram drawn on scenario.
6. Identify the design pattern exist in drawn class diagram
7. Also implement it.

**Q: NO: 2** [CLO<3>]; Bloom Taxonomy Level<Applying>

**Draw a sequence diagram according to given activities of multi-threaded airport automation system. Marks [15]**

**Multi-threaded airport automation**

Automate the operations in an airport. Your application should support multi aircrafts using several run ways and gates avoiding collisions/conflicts. Landing: an aircraft uses the runway, lands and then taxes over to the terminal. Take-off: an air craft taxies to the run way and then takes off.

**Identification of activities;**

1. Passenger enters

2. Check visa.

3. Grant permission

4. Send out

5. if brought good in shop

6. Pay money

7. Don’t pay

8. Pilots land aeroplane in airport

9. Inform arrival

10. Boarding of passenger

11. Take off of plane

12. Reach destination.

**Q: NO: 3 [CLO<2>]; Bloom Taxonomy Level<Remembering>**

**Give viva and demo on semester projects assigned to you. (SPM) Marks [5]**