COMSATS University Islamabad, Lahore Campus

Assignment 2 – Lab – Spring 2021

Course Title:	Object Oriented Programming				Course	CSC241		Credit	4(3,1)
Course Instructor/s:	Muhammad Ali Khan				Programme	Software Engineering			
Semester:	2nd	Batch:	FA20	Section:		Due Date:		24/04/2021	
Time Allowed:					**Maximum Marks:**			**25**	
Student's Name:					Reg. No.	CUI/SDP-		/LHR	

Important Instructions / Guidelines:

a) Attempt all the questions.
b) Draw diagrams where necessary.
c) Assignment must be submitted in .doc, .docx format
d) Assignments are not accepted after 11:00 PM on 24th April 2021
e) Use Turnitin for assignment submission
f) No submission via email is accepted

Q1. A Computer Science department keeps track of its CS students using some custom software. Each student is represented by a Student object that features a pass() method that returns true if and only if the student has all 20 ticks to pass the year. The department suddenly starts teaching NS students, who only need 10 ticks to pass. Using inheritance and polymorphism, show how the software can continue to keep all Student objects in one list in code without having to change any classes other than Student.

Q2. Imagine you have two classes: Employee (which represents being an employee) and Ninja (which represents being a Ninja). An Employee has both state and behaviour; a Ninja has only behaviour. You need to represent an employee who is also a ninja (a common problem in the real world). By creating only one interface and only one class (NinjaEmployee), show how you can do this without having to copy method implementation code from either of the original classes.