

## **LAB 6: POLYMORPHISM INTERFACE & ABSTRACT**

### **Question 1 :**

Create an abstract class called GeometricFigure. Each figure includes a height, a width, a figure type and an area. Include an abstract method to determine the area of the figure. Create two subclasses called Square and Triangle. Create a program that demonstrates the use of both subclasses.

### **Question 2:**

Modify question no 2 with the abstract class called GeometricFigure. Add an interface called Sides with a method printSide(). Modify the subclasses to include the use of the interface to print the number of side of the figure. Create the program which demonstrates the use of both subclasses.

### **Question 3 :**

Create an abstract class called Student. This class includes a name and a Boolean value representing full-time status. Include an abstract method to determine the tuition, with full-time students paying \$2000 and part-time students paying \$200 per credit hour. Create two subclasses called FullTime and PartTime. Create a program which demonstrates the use of both subclasses.

## ASSIGNMENT (Object – Polymorphism) BITI

Sanchez Construction Loan Co. makes small loans for construction projects up to a maximum of \$10,000.00. The current cost for a \$10,000 loan is based on the following fee structure that has a maximum loan payoff time of 24 months :

Time	Fee
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6 months	\$800.00
12 months	\$1,800.00
18 months	\$3,000.00
24 months	\$4,000.00

You as an expert have been asked to write a program that will track a starting and ending date ( due date ) for all new construction loans. The program must also calculate the amount of the original loan and the total amount owed at the due date ( original loan amount + loan fee ). The program should include four classes as shown in the table below:

Class	Type
Loan	Public class
LoanInterface	Public interface
AnnualLoan	Public class extends Loan implements LoanInterface
DemoLoan	Test program

The LoanInterface requires a CalculateFee() method. This method must be implemented in the Annual Loan class. The DemoLoan test program should instantiate at least two AnnualLoan objects that output the loan amount of \$10,000, the loan fee for the period, the beginning date of the loan, the ending date of the loan, and the balance due at the loan due date.

\*\*\*\*\* Please use all the fundamentals knowledge in this assignment.

### NOTES :

- Assignment due by 17 November 2016 before 5 pm.
- Late submissions are penalised by (- 3 ) marks for each day late (weekend is one day)
- Any condition of plagiarism will effect your marks. (definitely 0)
- Submissions the assignment : through U-learn
- **GROUP OF 2 MEMBERS - A TEAM.**