Lab Assignment 4
Due Tuesday December 1ˢᵗ , 2009

Program 8:

Your company has a fleet of taxis and you wish to determine the energy and cost efficiency of each taxi in the fleet as well as the entire fleet. The manager asked you to write a Java program that calculates such energy and cost efficiency. The main method of your program accepts miles traveled, no of gallons used, and price per gallon from the keyboard . The parameters are passed to a calculateCEmethod . This function of this method is to calculate and display the energy and cost efficiency. Cost of fuel is the product of no of gallons by price per gallon. The efficiency is the result of dividing miles traveled by no of gallons .

Program 9:

A parking garage charges $2.00 minimum fee to park up to two hours hours. The garage charges an additional $0.50 for each additional hour or part of hour that exceeds of two hours. Write a java program that calculates and displays the parking charges for each customer. You should enter the fours parked from the keyboard. Your program should use the method calculateCharges to determine and display the charges for each customer.

Program 10:

The following formula gives the distance between two points (X1, Y1) and (X2 , Y2) in Cartesian plane.

$$\sqrt{(x2 - x1)^2 + (y2 - y1)^2}$$

Given the center of a circle and a point on the circle, you can use this formula to find the radius of the circle. Write a program that prompts the user to enter the center and a point on the circle. The program then should output the circles radius , diameter, circumference , and area. Your program must have at least the following methods :-

a. *distance* : This method takes as its parameters four numbers that represent two points in the plan and **return** the distance between them.

b. *radius* : This method takes as its parameters four numbers that represent the center and a points on the circle, calls the method *distance* to find the radius of the circle, and returns the circle's radius.

c. *circumference* : This method takes it parameter a number that represents the radius of the circle and **returns** the circle's circumference. (if *r* is the radius, the circumference is $2 \pi r$).

d. *area* : This method takes it parameter a number that represents the radius of the circle and **returns** the circle's area.   (if *r* is the radius, the area is πr^2).

Note : Your name and program number should be included as part of your program documentation. You must name your program by program number such as program8, program9 ..etc.