**CSC262 Java Programming – Module 1 Assignment**

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| **Assignment Week#** | Week 1 |
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# How to submit your Assignment

After filling all the parts in this file, please follow the following steps.

1. Add your name and ID to the first page.
2. Save the file in the original format (Docx or Doc)

(Please **do not** convert to other file formats e.g. PDF, ZIP, RAR, …).

1. Rename the file as

*YOUR* ***First*** *Name - YOUR* ***Last*** *Name- YOUR student ID-* CSC262*.docx*

**Example:**

John – Smith - 234566435 – CSC262.docx

1. Upload the file and submit it (only using Blackboard)

Please do not hesitate to contact your instructor for CSC262, should you have any questions.

# Problem 1: Fuel Efficiency

Design a program that calculates the fuel cost per 100 miles and how far the car can go with a full tank of gas.

Your program needs to acquire the following inputs from the user: (1) the number of gallons of gas in the tank, (2) the fuel efficiency in miles per gallon, (3) the price of gas per gallon.

Your program needs to display the cost per 100 miles and how far the car can go with a full tank of gas.

Extra requirement:

* Your program must start with a display to the user what the program does.
* When acquiring the information from the user, your program must give clear instruction on what data the user should input and in what format (whole number or floating-point number).
* When displaying any monetary amount, your program must prefix the amount with $ and keeps exactly two digits after the decimal points.
* The variable names must be descriptive to the quantity they represent.
* The number of miles the car can go with a full tank of gas must be displayed as a whole number.

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| Your code for this problem |
| import java.util.Scanner;  public class FuelCostCalculator {  public static void main(String[] args) {  // Display program description  System.out.println("Welcome to the Fuel Cost Calculator!");  // Acquire inputs from the user  Scanner scanner = new Scanner(System.in);  System.out.print("Enter the number of gallons of gas in the tank: ");  double gallonsInTank = scanner.nextDouble();  System.out.print("Enter the fuel efficiency in miles per gallon: ");  double milesPerGallon = scanner.nextDouble();  System.out.print("Enter the price of gas per gallon: $");  double pricePerGallon = scanner.nextDouble();  // Calculate cost per 100 miles  double costPer100Miles = (100 / milesPerGallon) \* pricePerGallon;  // Calculate miles the car can go with a full tank of gas  double milesWithFullTank = gallonsInTank \* milesPerGallon;  // Display results  System.out.printf("Cost per 100 miles: $%.2f\n", costPer100Miles);  System.out.printf("Miles with a full tank of gas: %d\n", (int) milesWithFullTank);  }  } |

Run the code and insert the result in the following box.

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| Sample Run Result |
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# Problem 2: GPA Converter

In the CSC262 Course Outline, there is a Grade Table that shows the conversion from course grades in points to letter grades (A, A-, B+, etc.) and from letter grades to GPA number grade. Your instructor is responsible for assigning the course grades in points and converting them to letter grades. Please write a program that converts a letter grade into a GPA grade. If the user enters anything other than a valid letter grade, please display a descriptive error message before exiting the program.

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| Your code for this problem |
| import java.util.Scanner;  public class GradeConverter {  public static void main(String[] args) {  // Create a Scanner object to read input  Scanner scanner = new Scanner(System.in);  // Prompt the user to enter a letter grade  System.out.print("Enter a letter grade (A, A-, B+, etc.): ");  String letterGrade = scanner.nextLine().toUpperCase(); // Convert input to uppercase  // Convert letter grade to GPA grade  double gpaGrade = convertToGPA(letterGrade);  // Display the GPA grade  if (gpaGrade != -1) {  System.out.printf("Equivalent GPA grade: %.1f\n", gpaGrade);  } else {  System.out.println("Error: Invalid letter grade entered.");  }  // Close the Scanner  scanner.close();  }  // Method to convert letter grade to GPA grade  public static double convertToGPA(String letterGrade) {  switch (letterGrade) {  case "A":  return 4.0;  case "A-":  return 3.7;  case "B+":  return 3.3;  case "B":  return 3.0;  case "B-":  return 2.7;  case "C+":  return 2.3;  case "C":  return 2.0;  case "C-":  return 1.7;  case "D+":  return 1.3;  case "D":  return 1.0;  case "D-":  return 0.7;  case "F":  return 0.0;  default:  return -1; // Indicates an invalid grade  }  }  } |

Run the code and insert the result in the following box.

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| Sample Run Result |
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**The end**