Department of Computer Science
420-101-VA Programming 1

Teacher: Nagat Drawel

Week 4 part 2: `switch` and `if..else..if` statements

Requirements:

1. **Keep your code clean** (indent, right spacing, appropriate identifier, camel case). Each part that is not clean will get -2 paneity.
2. Add appropriate comments if it is necessary.
3. Please demonstrate your working programs to your teacher. Failing to explain your own code will be heavily panelized.
4. The lab must be submitted on Omnivox (Lea) before the end of the class.

What to do:

1. Using the switch statement, write a Java program to calculate the appropriate raise amounts. Your program should use a char variable named department and two double variables named salary and raise. The department variable contains one of the following letters (entered in either uppercase or lowercase): A, B, C, or D. Employees in departments A and B are receiving a 2% raise. Employees in department C are receiving a 1.5% raise, and employees in department D are receiving a 3% raise.

2. Convert the following Pseudocode to JAVA program. It enables the user (depending on the user's choice.) either to enter a Fahrenheit temperature and display the Celsius equivalent or to enter a Celsius temperature and display the Fahrenheit equivalent.

   the Celsius equivalent of a Fahrenheit temperature, using the calculation

   c = 5.0 / 9.0 *(f- 32)

   the Fahrenheit equivalent of a Celsius temperature, using the calculation

   f = 9.0 / 5.0 *c+ 32

Pseudocode:

input *"Press 1 to convert from Fahrenheit to Celsius or Press 2 to convert from Celsius to Fahrenheit. "*
input ask what number?
if 1 is pressed
Enter Fahrenheit temperature
    do f to c conversion
    print output

if 2 is pressed

Enter Celsius temperature
do c to f conversion
print output

else

print "run the program again "

3. The following table shows the approximate speed of sound in air, water, and steel:

Medium	Speed
Air	1,100 feet per second
Water	4,900 feet per second
Steel	16,400 feet per second

Using the switch statement, write a program that asks the user to enter “air”, “water”, or “steel”, and the distance that a sound wave will travel in the medium. The program should then display the amount of time it will take. You can calculate the amount of time it takes sound to travel in air with the following formula:

Time = Distance / 1,100

You can calculate the amount of time it takes sound to travel in water with the following formula: Time = Distance / 4,900

You can calculate the amount of time it takes sound to travel in steel with the following formula: Time = Distance / 16,400

4. Using the if..else statement, create a BMI (Body Mass Index) calculator program that reads the user’s weight in kilograms and height in meters, then calculates and displays the user’s body mass index. The program should also display the following information from the Department of Health and Human Services/National Institutes of Health so the user can evaluate his/her BMI:

BMI VALUES

Underweight: less than 18.5
Normal: between 18.5 and 24.9
Overweight: between 25 and 29.9
Obese: 30 or greater

The formula for calculating the BMI is weight in kilograms divided by height in meters squared. Because height is commonly measured in centimeters, divide height in centimeters by 100 to obtain height in meters.

BMI Formula = weight (kg) / [height (m)]^2