Zambia Centre for Accountancy Studies

NCC Diploma in Computing – Level 4

DDOOCP – Java

Problem Set 2.0

You are required to solve all the problems. Your solutions must be properly planned for and well thought out before any implementation in Java.

1.0 Write a program that requests a word (with lowercase letters) as input and translates the word into pig latin. The rules for translating a word into pig latin are as follows:

a. **If the word begins with a consonant, move the first letter to the end of the word and add** ay**. For instance,** chip **becomes** hipcay**.**
b. **If the word begins with a vowel, add** way **to the end of the word. For instance, else becomes** elseway**.**

2.0 Write a Java program that will implement the following algorithm:

1. Read a set of four marks.
2. Compute their average by summing them and dividing by 4.
3. If the average is below 50, then display the grade with a failing message, otherwise display the grade with a passing message.

3.0 Algorithm LARGEST_OF_THREE. This algorithm determines the largest of three given numbers. LARGEST contains the largest value encountered so far. CURRENT denotes the current number being considered. All values are integers.

1. [Read first number]
   Read(LARGEST)
2. [Read second number]
   Read (CURRENT)
3. [Update largest number so far]
   if CURRENT > LARGEST
   then LARGEST <---CURRENT
   end if.
4. [Read third number]

Read(CURRENT)

5. [Update largest number so far]
   if CURRENT > LARGEST
   then LARGEST <--- CURRENT
   end if
6. [Display largest value]
   Write(LARGEST)

4.0 Let us now consider a problem to compute the payroll for a small company. The problem is simplified considerably as compared with a real payroll problem. The BMK school has 20 employees. Each is assigned an employee number and works for a specific rate of pay. The monthly pay is computed by multiplying the hours worked, up to a maximum of 170 hours, by the rate of pay. When employees work more than 170 hours a month, they are paid at the normal rate for the first 170 hours, and at time and half for any additional hours.

A general algorithm is as follows:

1. Set total pay variable to 0.
2. Repeat through step 6 twenty times (once for each employee)
3. Obtain the set of data for the current employee.
4. Compute pay for the current employee.
5. Display information, including total pay, for the current employee.
6. Add current employee's pay to the total pay.
7. Display the total pay.