
CPT 111 – PRINCIPLES OF PROGRAMMING
WEEK 3: PROGRAMMING LAB
Programming Practice

Complete the *Programming Lab 1* and *Programming Lab 2* from Week 2 Lab Session. Understand what the meaning of the syntax so you can refer to them when answering these questions.

1. A bag of cookies holds 30 cookies. The calorie information on the bag claims there are 10 "servings" in the bag and that a serving equals 300 calories. Write a program that asks the user to input how cookies as the input of the cookies he or she actually ate, then report how many total calories were consumed.
2. Write a program that calculates the average rainfall for three months. The program should ask the user to enter the name of each month such as June or July, and the amount of rain (in inches) that fell each month. The program should display a message similar to the following:
The average rainfall for June, July and August is x.xx inches.
3. Malaysian identity card (IC) consists of 12 digit number in which, the first 6 digits represent the date of birth of a citizen in the following format: YYMMDDxxXXXX, and the next 6 digit x represents the ID with no specific meaning.

Without using array, loop, conditions, substr function or any string manipulation function, **get the age of the IC owners** using what you have learned up until this week.
Note: calculate based only on the year portion in the ID card. No need to consider the month.

Assumption: All IC cardholders were born earlier than the year 2000.

4. As one goes higher up the mountains, the temperature decreases. The rate at which this occurs is called the lapse rate. The actual value depends on the humidity of the air. We can easily use the typical value of around 5°C/km or 2.7°F/1000ft.
Write a program that asks the user for the temperature at sea level in degrees Celcius and displays the following :
The temperature at sea level (for reference) in Fahrenheit.
The temperature at 1000, 2000 and 3000m
The temperature at the top of Mount Everest (8.848 m)
The height at which the temperature is 0°C.

As an additional exercise, show also the temperatures in degrees Fahrenheit and the height in feet. To convert temperatures in degrees Celcius to degrees Fahrenheit, multiply by 1.8 (or 9/5) and add 32; to convert meters to feet, multiply by 3.28.

5. Last month Joe purchased some stock in Acme Software, Inc. Here are the details of the purchase:
 - The number of shares that Joe purchased was 1,000.
 - When Joe purchased the stock, he paid \$45.50 per share.

- Joe paid his stockbroker a commission that amounted to 2% of the amount he paid for the stock.

Two weeks later Joe sold the stock. Here are the details of the sale:

- The number of shares that Joe sold was 1,000.
- He sold the stock for \$56.90 per share.
- He paid his stockbroker another commission that amounted to 2% of the amount he received for the stock.

Write a program that displays the following information:

- The amount of money Joe paid for the stock.
- The amount of commission Joe paid his broker when he bought the stock.
- The amount that Joe sold the stock for.
- The amount of commission Joe paid his broker when he sold the stock.
- Display the amount of profit that Joe made after selling his stock and paying the two commissions to his broker. (If the amount of profit that your program displays is a negative number, then Joe lost money on the transaction.)