CSC 2111
Computer Science I
Winter Term 2016
Lab 03
50 points

Do the following problems. For assignment submission, use the format listed in the syllabus.

1. (25points)

Ron bought several acres of farm to grow and sell vegetables. Suppose that Ron wants to grow a maximum of two types of vegetables. Write a program that prompts Ron or the user to do the following:

1. Enter the total farm area in acres.
2. The number of vegetables (one or two) that the user wants to grow.
3. If the user wants to grow two types of vegetables, then specify the portion, as a percentage, of the farm land used for each type of vegetable.
4. Enter the seed cost, plantation cost, fertilizing cost, labor cost, for each acre.
5. Enter vegetable selling price per acre.
6. Output the total revenue.
7. Output the profit/loss.

2. (25points)

When you borrow money to buy a house, a car, or for some other purpose, you repay the loan by making periodic payments over a certain period of time. Of course, the lending company will charge interest on the loan. Every periodic payment consists of the interest on the loan and the payment toward the principal amount. To be specific, suppose that you borrow \$1000 at the interest rate of 7.2% per year and the payments are monthly. Suppose that your monthly payment is \$25. Now, the interest is 7.2% per year and the payments are monthly, so the interest rate per month is $7.2/12 = 0.6\%$. The first month's interest on \$1000 is $1000 \times 0.006 = 6$. Because the payment is \$25 and interest for the first month is \$6, the payment toward the principal amount is $25 - 6 = 19$. This means after making the first payment, the loan amount is $1000 - 19 = 981$. For the second payment, the interest is calculated on \$981. So the interest for the second month is $981 \times 0.006 = 5.886$, that is, approximately \$5.89. This implies that the payment toward the principal is $25 - 5.89 = 19.11$ and the remaining balance after the second payment is $981 - 19.11 = 961.89$. This process is repeated until the loan is paid. Write a program that accepts as input the loan amount, the interest rate per year, and the monthly payment. (Enter the interest rate as a percentage. For example, if the interest rate is 7.2% per year, then enter 7.2.) The program then outputs the number of months it would take to repay the loan. (Note that if the monthly payment is less than the first month's interest, then after each payment, the loan amount will increase. In this case, the program must warn the borrower that the monthly payment is too low, and with this monthly payment, the loan amount could not be repaid.)