HIT 265 C Programming – Tutorial 2

For questions 1 and 2, do the following for each question:

1. Read the problem statement.
2. Formulate the algorithm using pseudocode and top-down, stepwise refinement.
3. Write a C program.
4. Test, debug and execute the C program.

Question 1

One large chemical company pays its salespeople on a commission basis. The salespeople receive $200 per week plus 9% of their gross sales for that week. For example, a salesperson who sells $5000 worth of chemicals in a week receives $200 plus 9% of $5000, or a total of $650. Develop a program that will input each salesperson's gross sales for last week and will calculate and display that salesperson's earnings. Process a salesperson's figures one at a time. Here is a sample input/output dialog:

Enter sales in dollars (-1 to end): **5000.00**
Salary is: $650.00
Enter sales in dollars (-1 to end): **1234.56**
Salary is: $311.11
Enter sales in dollars (-1 to end): **1088.89**
Salary is: $298.00
Enter sales in dollars (-1 to end): **-1**

Question2

The simple interest on a loan is calculated by the formula:

Interest = principal * rate * days / 365;

The preceding formula assumes that rate is the annual interest rate, and therefore includes the division by 365 (days). Develop a program that will input principal, rate and days for several loans, and will calculate and display the simple interest for each loan, using the preceding formula. Here is a sample input/output dialog:

Enter loan principal (-1 to end): **1000.00**
Enter interest rate: **.1**
Enter term of the loan in days: **365**
The interest charge is $100.00

Enter loan principal (-1 to end): **1000.00**
Enter interest rate: **.08375**
Enter term of the loan in days: **224**
The interest charge is $51.40

Enter loan principal (-1 to end): **10000.00**
Enter interest rate: **.09**
Enter term of the loan in days: **1460**
The interest charge is $3600.00

Enter loan principal (-1 to end): **-1**

Question 3

A palindrome is a number or a text phrase that reads the same backward as forward. For example, each of the following five-digit integers is a palindrome: 12321, 55555, 45554 and 11611. Write a program that reads in a five-digit integer and determines whether or not it is a palindrome. [*Hint*: Use the division and remainder operators to separate the number into its individual digits.]