HIT 265 C Programming – Tutorial 2 Solutions

Question 1

Top:
For an arbitrary number of salespeople, determine each salesperson's earnings for the last week
First refinement:
Input the salesperson's sales for the week, calculate and print the salesperson's wages for the week, then process the next salesperson
Second refinement:
Input the first salesperson's sales in dollars
While the sentinel value (-1) has not been entered for the sales
Calculate the salesperson's wages for the week
Print the salesperson's wages for the week
Input the next salesperson's sales in dollars

```
/* Question 1 Solution */
#include <stdio.h>

int main( void )
{

  float sales; /* gross weekly sales */
  float wage; /* commissioned earnings */

  /* get first sales */
  printf( "Enter sales in dollars (-1 to end): " );
  scanf( "%f", &sales );

  /* loop until sentinel value read from user */
  while ( sales >= 0.0 )
  {
     wage = 200.0 + 0.09 * sales; /* calculate wage */

     /* display salary */
     printf( "Salary is: $%.2f\n\n", wage );

     /* prompt for next sales */
     printf( "Enter sales in dollars (-1 to end): " );
     scanf( "%f", &sales );
   } /* end while */

return 0; /* indicate successful termination */
} /* end main */
```

Question 2

Top:
For an arbitrary number of loans determine the simple interest for each loan
First refinement:
Input the principal of the loan, the interest rate, and the term of the loan, calculate and print the simple interest for the loan, and process the next loan
Second refinement:
Input the first loan principal in dollars
While the sentinel value (-1) has not been entered for the loan principal
Input the interest rate
Input the term of the loan in days
Calculate the simple interest for the loan
Print the simple interest for the loan
Input the loan principal for the next loan

```
/* Question 2 Solution */
#include <stdio.h>

int main( void )
{
   float principal; /* loan principal */
   float rate; /* interest rate */
   float interest; /* interest charge */
   int term; /* length of loan in days */

   /* get loan principal */
   printf( "Enter loan principal (-1 to end): " );
   scanf( "%f", &principal );

   /* loop until sentinel value is read from user */
   while ( principal >= 0.0 )
   {
         printf( "Enter interest rate: " ); /* get rate */
         scanf( "%f", &rate );

         printf( "Enter term of the loan in days: " ); /* get term */
         scanf( "%d", &term );

         /* calculate interest charge */
         interest = principal * rate * term / 365.0;
         printf( "The interest charge is $%.2f\n\n", interest );

         /* get next loan principal */
         printf( "Enter loan principal (-1 to end): " );
         scanf( "%f", &principal );
   } /* end while */
return 0; /* indicate successful termination */

} /* end main */
```

Question 3

```
int main( void )
{
   int number; /* input number */
   int temp; /* temporary integer */
   int firstDigit; /* first digit of input */
   int secondDigit; /* second digit of input */
   int fourthDigit; /* fourth digit of input */
   int fifthDigit; /* fifth digit of input */

   printf( "Enter a five-digit number: " ); /* get number */
   scanf( "%d", &number );

   temp = number;

   /* determine first digit by integer division by 10000 */
   firstDigit = temp / 10000;
   temp = number % 10000;

   /* determine second digit by integer division by 1000 */
   secondDigit = temp / 1000;
   temp = number % 100;

   /* determine fourth digit by integer division by 10 */
   fourthDigit = temp / 10;

   fifthDigit = number % 10;

   /* if first and fifth digits are equal */
   if ( firstDigit == fifthDigit )
   {
      /* if second and fourth digits are equal */
      if ( secondDigit == fourthDigit )
      {
           /* number is a palindrome */
           printf( "%d is a palindrome\n", number );
      } /* end if */
      else
      { /* number is not a palindrome */
           printf( "%d is not a palindrome\n", number );
      } /* end else */
   } /* end if */
   else
   { /* number is not a palindrome */
      printf( "%d is not a palindrome\n", number );
   } /* end else */

return 0; /* indicate successful termination */
} /* end main */
```