Computer Programming I — Homework Assignment #1

**1.** (*Exercise 2.24*) Write a program that reads in an integer and determines and prints whether it is odd or even. [Hint: Use the modulus operator. An even number is a multiple of two. Any multiple of two leaves a remainder of zero when divided by 2.] The screen dialog should appear as follows:

|  |
| --- |
| **Enter an integer: 73**  **The integer 73 is odd.** |

|  |
| --- |
| **Enter an integer: 74**  **The integer 74 is even.** |

**2.** (*Exercise 2.28*) Write a program that inputs a five-digit integer, separates the integer into its individual digits and prints the digits separated from one another by three spaces each. [Hint: Use the integer division and modulus operators.] For example, if the user types in 42339, the program should print:

|  |
| --- |
| **4 2 3 3 9** |

**3.** (*Exercise 3.26*) 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 it’s a palindrome. [Hint: Use the division and modulus operators to separate the number into its individual digits.] The screen dialog should appear as follows:

|  |
| --- |
| **Enter a 5-digit number: 12321**  **12321 is a palindrome!!!** |

|  |
| --- |
| **Enter a 5-digit number: 12345**  **12345 is not a palindrome.** |

**4.** (*Exercise 3.33*) Write a program that reads three nonzero integers and determines

and prints whether they could be the sides of a right triangle. The screen dialog should appear as follows:

|  |
| --- |
| **Enter side 1: 3**  **Enter side 2: 4**  **Enter side 3: 5**  **These are the sides of a right triangle.** |

|  |
| --- |
| **Enter side 1: 5**  **Enter side 2: 12**  **Enter side 3: 14**  **These do not form a right triangle.** |

**5.** Write a program that reads in a year as an integer and determines whether it is a leap year or not. (A year is a leap year if it is divisible by 4 but not divisible by 100, or is divisible by 400.) The screen dialog should appear as follows:

|  |
| --- |
| **Enter a year ( 1583-3000 ): 2016**  **Year 2016 is a leap year.** |

|  |
| --- |
| **Enter a year ( 1583-3000 ): 1900**  **Year 1900 is a common year.** |

|  |
| --- |
| **Enter a year ( 1583-3000 ): 2000**  **Year 2000 is a leap year.** |

|  |
| --- |
| **Enter a year ( 1583-3000 ): 2014**  **Year 2014 is a common year.** |