```java
/*
 * Justin Mendes
 * December 7, 2016
 * Unit 4 Activity 2 Program/Question 1
 * This program will ask for a distance(m) and time(m) to calculate velocity (rounded
to the nearest hundredth)
 */
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
import java.text.DecimalFormat;
public class Velocity
{
	public static void main(String[] args) throws NumberFormatException,
IOException
	{
		//Variable Declarations and Initializations
		int tryAgain = 1;
		double distance, time;
		BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
		while(tryAgain == 1)
		{
			System.out.println("VELOCITY CALCULATOR");
			System.out.println("==================\n");
			//user inputs a distance in metres
			System.out.println("Enter a distance (metres):");
			distance = Integer.parseInt(br.readLine());
			//user inputs a time in seconds
			System.out.println("\nEnter a time (seconds):");
			time = Integer.parseInt(br.readLine());
			//Call the velocity Calculator method
			velocityCalculator(distance, time);
			//user inputs whether or not they want to try again
			System.out.println("Press 1 to try again.");
			tryAgain = Integer.parseInt(br.readLine());
		}//end loop
	}//end main
	public static void velocityCalculator(double distance, double time)//this
subroutine will calculate the velocity and print it
	{
		DecimalFormat twoDigit = new DecimalFormat("###,##");
		double velocity = distance / time;
		//Output the answer
		System.out.println("\nThe velocity is " + twoDigit.format(velocity) + "
m/s.\n");
	}//end velocityCalculator method
}//end class
```

```
Velocity [Java Application] C:\Program F
VELOCITY CALCULATOR
===================

Enter a distance (metres):
100

Enter a time (seconds):
20

The velocity is 5 m/s.

Press 1 to try again.
1
VELOCITY CALCULATOR
===================

Enter a distance (metres):
200

Enter a time (seconds):
40

The velocity is 5 m/s.

Press 1 to try again.
1
```

```java
/*
 * Justin Mendes
 * December 22, 2016
 * Unit 4 Activity 2 Program/Question 2
 * This program will get a user input of a number from 10 - 99 and an output of the
number in words
 */
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
public class NumberWords1
{
	public static void main(String[] args) throws NumberFormatException,
IOException
	{
		//Variable Declarations and Initializations
		int tryAgain = 1, tensDigit, onesDigit, numInput;
		while (tryAgain == 1)
		{
			BufferedReader br = new BufferedReader (new InputStreamReader
(System.in));// user input
			System.out.println("Numbers to Words (10-99 Edition)");
			System.out.println("================================\n");
			System.out.println("Input a number (10-99) and this program will
repeat it to you with words.");
			//to check if the user inputs a valid number
			numInput=Integer.parseInt(br.readLine());
			while (numInput < 10 || numInput > 99)
```

```
                    {
                           System.out.println("Invalid number. Enter a number between
10 and 99.\n");
                           numInput=Integer.parseInt(br.readLine());//user must re-
enter a number if they entered an invalid one
                    }//end loop
                    tensDigit = (int) (Math.floor(numInput % 100) / 10);
                    onesDigit = numInput % 10;
                    System.out.print("Your number in words is: ");
                    if(numInput >= 10 && numInput<=19)
                    {
                           teens(numInput);
                    }//end if
                    else
                    {
                           tens(tensDigit);
                           ones(onesDigit);
                    }//end if
                    System.out.println("\n\nPress 1 to try again.");
                    tryAgain = Integer.parseInt(br.readLine());//user decides to try
again
             }//end loop
      }//end main
      public static void tens(int tensDigit)
      {
             switch (tensDigit)
             {
             case 2: System.out.print("TWENTY ");
             break;
             case 3: System.out.print("THIRTY ");
             break;
             case 4: System.out.print("FOURTY ");
             break;
             case 5: System.out.print("FIFTY ");
             break;
             case 6: System.out.print("SIXTY ");
             break;
             case 7: System.out.print("SEVENTY ");
             break;
             case 8: System.out.print("EIGHTY ");
             break;
             case 9: System.out.print("NINETY ");
             break;
             default: System.out.print("");
             }//end switch
      }//closes tens method
      public static void teens(int numInput)
      {
             switch (numInput)
             {
             case 10: System.out.println("TEN");
             break;
             case 11: System.out.println("ELEVEN");
             break;
             case 12: System.out.println("TWELVE");
```

```
                break;
                case 13: System.out.println("THIRTEEN");
                break;
                case 14: System.out.println("FOURTEEN");
                break;
                case 15: System.out.println("FIFTEEN");
                break;
                case 16: System.out.println("SIXTEEN");
                break;
                case 17: System.out.println("SEVENTEEN");
                break;
                case 18: System.out.println("EIGHTEEN");
                break;
                case 19: System.out.println("NINETEEN");
                break;
                }//end switch
        }//closes teens method
        public static void ones(int onesDigit)
        {
                switch (onesDigit)
                {
                case 1: System.out.print("ONE");
                break;
                case 2: System.out.print("TWO");
                break;
                case 3: System.out.print("THREE");
                break;
                case 4: System.out.print("FOUR");
                break;
                case 5: System.out.print("FIVE");
                break;
                case 6: System.out.print("SIX");
                break;
                case 7: System.out.print("SEVEN");
                break;
                case 8: System.out.print("EIGHT");
                break;
                case 9: System.out.print("NINE");
                break;
                default: System.out.print("");
                }//end switch
        }//closes ones method
}//end class
```

```
Numbers to Words (10-99 Edition)
================================

Input a number (10-99) and this program will repeat it to you with words.
90
Your number in words is: NINETY

Press 1 to try again.
1
Numbers to Words (10-99 Edition)
================================

Input a number (10-99) and this program will repeat it to you with words.
999
Invalid number. Enter a number between 10 and 99.

999
Invalid number. Enter a number between 10 and 99.

999
Invalid number. Enter a number between 10 and 99.

99
Your number in words is: NINETY NINE

Press 1 to try again.
1
Numbers to Words (10-99 Edition)
================================

Input a number (10-99) and this program will repeat it to you with words.
```

```java
/*
 * Justin Mendes
 * December 22, 2016
 * Unit 4 Activity 2 Program/Question 3
 * This program will get a user input of a number from 1 - 999 and an output of the
number in words
 */
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
public class NumberWords2
{
	public static void main(String[] args) throws NumberFormatException,
IOException
	{
		//Variable Declarations and Initializations
		int tryAgain = 1, hundredsDigit, tensDigit, onesDigit, numInput;
		while (tryAgain == 1)
		{
			BufferedReader br = new BufferedReader (new InputStreamReader
(System.in));// user input
			System.out.println("Numbers to Words (1-999 Edition)");
			System.out.println("================================\n");
```

```
                    System.out.println("Input a number (1-999) and this program will
repeat it to you with words.");
                    //to check if the user inputs a valid number
                    numInput=Integer.parseInt(br.readLine());
                    while (numInput < 1 || numInput > 999)
                    {
                           System.out.println("Invalid number. Enter a number between
1 and 999.\n");
                           numInput = Integer.parseInt(br.readLine());//user must re-
enter a number if they entered an invalid one
                    }//end loop
                    hundredsDigit = (int) (Math.floor(numInput % 1000) / 100);
                    tensDigit = (int) (Math.floor(numInput % 100) / 10);
                    onesDigit = numInput % 10;
                    System.out.print("Your number in words is: ");
                    hundreds(hundredsDigit);
                    if(numInput >= 10 && numInput<=19)
                    {
                           teens(numInput);
                    }//end if
                    else
                    {
                           tens(tensDigit);
                           ones(onesDigit);
                    }//end if
                    System.out.println("\n\nPress 1 to try again.");
                    tryAgain = Integer.parseInt(br.readLine());//user decides to try
again
             }//end loop
      }//end main
      public static void hundreds(int hundredsDigit)
      {
             switch (hundredsDigit)
             {
             case 1: System.out.print("ONE HUNDRED ");
             break;
             case 2: System.out.print("TWO HUNDRED ");
             break;
             case 3: System.out.print("THREE HUNDRED ");
             break;
             case 4: System.out.print("FOUR HUNDRED ");
             break;
             case 5: System.out.print("FIVE HUNDRED ");
             break;
             case 6: System.out.print("SIX HUNDRED ");
             break;
             case 7: System.out.print("SEVEN HUNDRED ");
             break;
             case 8: System.out.print("EIGHT HUNDRED ");
             break;
             case 9: System.out.print("NINE HUNDRED ");
             break;
             default: System.out.print("");
             }//end switch
      }//closes hundreds method
```

```
public static void tens(int tensDigit)
{
	switch (tensDigit)
	{
	case 2: System.out.print("TWENTY ");
	break;
	case 3: System.out.print("THIRTY ");
	break;
	case 4: System.out.print("FOURTY ");
	break;
	case 5: System.out.print("FIFTY ");
	break;
	case 6: System.out.print("SIXTY ");
	break;
	case 7: System.out.print("SEVENTY ");
	break;
	case 8: System.out.print("EIGHTY ");
	break;
	case 9: System.out.print("NINETY ");
	break;
	default: System.out.print("");
	}//end switch
}//closes tens method
public static void teens(int numInput)
{
	switch (numInput)
	{
	case 10: System.out.println("TEN");
	break;
	case 11: System.out.println("ELEVEN");
	break;
	case 12: System.out.println("TWELVE");
	break;
	case 13: System.out.println("THIRTEEN");
	break;
	case 14: System.out.println("FOURTEEN");
	break;
	case 15: System.out.println("FIFTEEN");
	break;
	case 16: System.out.println("SIXTEEN");
	break;
	case 17: System.out.println("SEVENTEEN");
	break;
	case 18: System.out.println("EIGHTEEN");
	break;
	case 19: System.out.println("NINETEEN");
	break;
	}//end switch
}//closes teens method
public static void ones(int onesDigit)
{
	switch (onesDigit)
	{
	case 1: System.out.print("ONE");
	break;
```

```
            case 2: System.out.print("TWO");
            break;
            case 3: System.out.print("THREE");
            break;
            case 4: System.out.print("FOUR");
            break;
            case 5: System.out.print("FIVE");
            break;
            case 6: System.out.print("SIX");
            break;
            case 7: System.out.print("SEVEN");
            break;
            case 8: System.out.print("EIGHT");
            break;
            case 9: System.out.print("NINE");
            break;
            default: System.out.print("");
            }//end switch
      }//closes ones method
}//end class
```

```
Numbers to Words (1-999 Edition)
================================

Input a number (1-999) and this program will repeat it to you with words.
1
Your number in words is: ONE

Press 1 to try again.
1
Numbers to Words (1-999 Edition)
================================

Input a number (1-999) and this program will repeat it to you with words.
123
Your number in words is: ONE HUNDRED TWENTY THREE

Press 1 to try again.
1
```