```
 1  /*
 2          Problem 3:      Pane Version
 3                              mathematical manipulation
 4                              converting a numeric value to a String
 5                              NumberFormat (currency)
 6                              if statement
 7                              while statement
 8                              try/catch block
 9                              switch/case statement
10          Programmer:     Wayne Spence
11          Date:           September 20, 2005
12          Program Name:   DME3Pane
13  */
14
15  import javax.swing.*;
16  import java.text.*;
17
18  public class DME3CPane
19  {
20      public static void main (String[] args)
21      {
22
23          //Declaring Variables
24          String customerNameString = "";;
25          String customerTypeString = "R";
26          int customerNumber= 0;
27          int serviceType= 1;
28          int meterReadingDay = 10;
29          int meterReadingMonth = 9;
30          int meterReadingYear = 2003;
31          int kilowattHours = 0;
32          int recordCount = 0;
33          double fuelCharge;
34          double fuelChargeRate = 0.025;
35
36          String paneTitle = "Denton Municipal Utilities";
37          String outputLine = "";
38          String moreInput = "yes";
39
40          while (!moreInput.equalsIgnoreCase("no"))
41          {
42              //Prompt and get input from user
43              customerNumber = promptUser("customer number",
                customerNumber, 1, 99999);
44              customerNameString = promptUser ("customer name",
                customerNameString);
45              boolean validData = false;
46              while (!validData)
47              {
48                  customerTypeString = promptUser ("customer type (R, C
                    or G)", "R");
49                  char customerTypeChar = customerTypeString.charAt(0);
50                  switch (customerTypeChar)
51                  {
52                      case 'R': validData = true;
53                                break;
54                      case 'C': validData = true;
55                                break;
56                      case 'G': validData = true;
57                                break;
58                      default: System.out.println("try again");
59                  }
60              }
61              serviceType = promptUser ("service type (1 or 2)",
                serviceType, 1, 2);
62              meterReadingDay = promptUser ("meter reading day",
                meterReadingDay, 1, 31);
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 63              meterReadingMonth = promptUser ("meter reading month",
                 meterReadingMonth, 1, 12);
 64              meterReadingYear = promptUser ("meter reading year",
                 meterReadingYear, 2000, 2003);
 65              kilowattHours = promptUser ("kilowatt hours usage (KWH)",
                 kilowattHours, 1, 99999);
 66
 67              //Calculations
 68              fuelCharge = Math.round(kilowattHours * fuelChargeRate *
                 100.0)/100.0;
 69              NumberFormat currency = NumberFormat.getCurrencyInstance();
 70              String fuelChargeString = currency.format(fuelCharge);
 71
 72              //Output
 73              recordCount++;
 74              String paneTitlePlus = paneTitle + ":  " + recordCount + "
                 record(s) processed.";
 75              outputLine = "\nThe fuel charge for " + kilowattHours +
 76                  " KWH used by "+ customerNameString + " is " +
                     fuelChargeString;
 77              JOptionPane.showMessageDialog(null, outputLine,
 78                  paneTitlePlus, JOptionPane.PLAIN_MESSAGE);
 79              moreInput = JOptionPane.showInputDialog(null, "Do you wish
                 to continue entering input? (Yes or No)",
 80                  paneTitle, JOptionPane.PLAIN_MESSAGE);
 81          }
 82          System.exit(0);
 83      }
 84
 85      private static int promptUser (String userPrompt, int initialValue,
         int minValue, int maxValue)
 86      {
 87          boolean goodData = false;
 88          String outputLine = "";
 89          String initialValueString = Integer.toString(initialValue);
 90          int intNumber = 0;
 91
 92          while (!goodData)
 93          {
 94
 95              String intNumberString =
 96                  JOptionPane.showInputDialog(null, "What is the " +
                     userPrompt + "?",
 97                      "Denton Municipal Electric", JOptionPane.
                         QUESTION_MESSAGE);
 98              try
 99              {
100                  intNumber = Integer.parseInt(intNumberString);
101                  if (intNumber < minValue || intNumber > maxValue)
102                  {   outputLine = "The " + userPrompt + " should be
                     between " +
103                      minValue + " and " + maxValue + ".";
104                      displayMessage(outputLine);
105                  }
106                  else
107                      goodData = true;
108              }
109              catch (NumberFormatException e)
110              {
111                  outputLine = "You have not entered digits for the " +
                     userPrompt + ".";
112                  displayMessage(outputLine);
113              }
114          }
115          return intNumber;
116      }
117
```

```
118      private static String promptUser (String userPrompt, String
         initialValue)
119      {
120          boolean goodData = false;
121          String outputLine = "";
122          String stringData = "";
123          while (!goodData)
124          {
125              stringData =
126                  JOptionPane.showInputDialog(null, "What is the " +
                     userPrompt + "?",
127                  initialValue);
128              goodData = true;
129          }
130          return stringData;
131      }
132
133
134      private static void displayMessage (String messageText)
135      {
136          String errorTitle = "An error has occurred";
137          messageText = messageText + "\nPlease, try again!";
138
139          JOptionPane.showMessageDialog(null, messageText, errorTitle,
140              JOptionPane.ERROR_MESSAGE);
141      }
142
143  }
144
```