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1  /*
2   Student name: Vu Nguyen
3   Student number: T00612390
4   Due date: Oct 22, 2019
5   Seminar: 5
6
7   Description: This BookInput class is a program that takes in a string,
8   40 long, 20 for the title, 15 for author, 4 for the year, and 1 for the book location.
9
10  ie:  Java Foundations  Lewis et al  2015H
11       |← 20 chars → |←15 chars→ |
12
13  */
14  import java.util.Scanner;
15  import java.lang.Exception;
16  public class BookInput
17  {
18
19      public static void main(String[] args)
20      {
21
22          String bookInfo;
23          boolean check = true;
24          String title;
25          String author;
26          int year;
27          char library;
28
29
30          Scanner input = new Scanner(System.in);
31          System.out.println("Enter book information, type \"STOP\" to stop ");
32          bookInfo = input.nextLine();
33
34
35          while (!bookInfo.equals("STOP"))
36          {
37
38
39              try
40              {
41                  // System.out.println(bookInfo.length());
42
43
44                  //these are specific scenarios that indicate a missing section:
45                  //                                     title, author, or year
46
47                  // wouldn't make too much sense to put these in since .length()
48                  // might be 20, but not necessarily be missing the title section
49                  // but might be useful if needed.
50
51                  //          if(bookInfo.length() == 20)
52                  //              throw new StringIndexOutOfBoundsException("Book inputed is
53                  //              missing title section ");
54                  //
55                  //          if(bookInfo.length() == 35)
56                  //              throw new StringIndexOutOfBoundsException("Book inputed is
57                  //              missing author section");
58                  //
59                  //          if(bookInfo.length() == 39)
60                  //              throw new StringIndexOutOfBoundsException("Book inputed is
61                  //              missing year section");
62                  //
63
64
65                  //this if-statement checks and throws NumberFormatException exception whether or not

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66         //                                     the year is too old and new
67         if (bookInfo.length() > 40)
68             throw new StringIndexOutOfBoundsException("Book inputed is too long");
69         if (bookInfo.length() < 40)
70             throw new StringIndexOutOfBoundsException("Book inputed is too short");
71
72
73         title = bookInfo.substring(0, 19);
74         author = bookInfo.substring(20, 35);
75         year = Integer.parseInt(bookInfo.substring(35, 39));
76         library = bookInfo.charAt(39);
77
78         //this checks and then throws a NumberFormatException if the year is too old
79         //                                     or new*
80
81         if(year > 2019)
82         {
83             throw new YearCheck(title.trim() + " published in " + year +
84                                 " is an invalid year");
85         }
86         else if (year < 2000)
87         {
88             throw new YearCheck(title.trim() + " published in " + year +
89                                 " is too old");
90         }
91
92         //these four if-statements checks, then throws the isAtLibrary exception
93         //                                     whether or not the final-character has been satisfied
94
95
96         if (library == 'H')
97             throw new isAtLibrary(title.trim() + " by " + author.trim() +
98                                 " published in " + year + " is at the House of Learning Library");
99
100        if (library == 'L')
101            throw new isAtLibrary(title.trim() + " by " + author.trim() +
102                                " published in " + year + " is at the Main Library");
103
104        if (library == 'O')
105            throw new isAtLibrary(title.trim() + " by " + author.trim() + " publishef in "
106                                + year + " is at a library that is not at TRU");
107
108        if (library != 'h' | library != 'L' | library != 'O')
109            throw new isAtLibrary("Book inputed does not have one of the " +
110                                " required final character");
111
112    }
113    //Start of exception catch blocks
114
115    //unique exception to check the year
116    catch (YearCheck exception)
117    {
118        System.out.println(exception);
119    }
120
121
122    //unique exception to check the book location
123    catch (isAtLibrary exception)
124    {
125        System.out.println(exception);
126    }
127
128    catch (StringIndexOutOfBoundsException exception)
129    {
130        System.out.println(exception);

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```
131         }
132
133         catch(NumberFormatException exception)
134         {
135
136             System.out.println(bookInfo.substring(35, 39) + " is an invalid year");
137         }
138
139         catch(ArithmeticException exception)
140         {
141             System.out.println("incorrect calculation");
142         }
143
144
145         System.out.print("Enter a book title or STOP to quit: ");
146         bookInfo = input.nextLine();
147
148
149     }
150     //if input == "STOP", program goes through these two lines
151     System.out.println("Program has stopped");
152
153     //not sure if it's 100% needed, but here we close the scanner stream.
154     input.close();
155 }
156 }
157
158
159
160
```