

```
/Library/Java/JavaVirtualMachines/jdk-21.0.2-jdk/content/Home/bin/java -jar javaagent.jar --app
Enter book information, type "STOP" to stop
Java Foundations Lewis et al 2015H
isAtLibrary: Java Foundations by Lewis et al published in 2015 is at the House of Learning Library
Enter a book title or STOP to quit: Java Foundations Lewis et al 2015L
isAtLibrary: Java Foundations by Lewis et al published in 2015 is at the Main Library
Enter a book title or STOP to quit: Java Foundations Lewis et al 2015O
isAtLibrary: Java Foundations by Lewis et al published in 2015 is at a library that is not at TRU
Enter a book title or STOP to quit: Java Foundations Lewis et al 2015X
isAtLibrary: Book inputted does not have one of the required final character
Enter a book title or STOP to quit: Java Foundations Lewis et al 201xH
201x is an invalid year
Enter a book title or STOP to quit: Java Foundations Lewis et al 2015
java.lang.StringIndexOutOfBoundsException: Book inputted is too short
Enter a book title or STOP to quit: Java Foundations Lewis et al 2015
201 is an invalid year
Enter a book title or STOP to quit: Java Foundations Lewis et al 1999H
YearCheck: Java Foundations published in 1999 is too old
Enter a book title or STOP to quit: Java Foundations Lewis et al 2020H
YearCheck: Java Foundations published in 2020 is an invalid year
Enter a book title or STOP to quit: Java Foundations Lewis et al 2015H
java.lang.StringIndexOutOfBoundsException: Book inputted is too long
Enter a book title or STOP to quit: Java Foundations Lewis et al Java Foundations Lewis et al H 2015H
java.lang.StringIndexOutOfBoundsException: Book inputted is too long
Enter a book title or STOP to quit: Java Foundations Lewis et al H
java.lang.StringIndexOutOfBoundsException: Book inputted is too short
Enter a book title or STOP to quit: Java Foundations Lewis et al 2015H
java.lang.StringIndexOutOfBoundsException: Book inputted is too long
Enter a book title or STOP to quit: Java Foundations 2015H
java.lang.StringIndexOutOfBoundsException: Book inputted is too short
Enter a book title or STOP to quit: Lewis et al 2015H
java.lang.StringIndexOutOfBoundsException: Book inputted is too short
Enter a book title or STOP to quit: Java Foundations Lewis et al 2020L
YearCheck: Java Foundations published in 2020 is an invalid year
Enter a book title or STOP to quit: Java Foundations Lewis et al 2019L
isAtLibrary: Java Foundations by Lewis et al published in 2019 is at the Main Library
Enter a book title or STOP to quit: Java Foundations Lewis et al 2000L
isAtLibrary: Java Foundations by Lewis et al published in 2000 is at the Main Library
Enter a book title or STOP to quit: STOP
Program has stopped

Process finished with exit code 0
```

```
1  /*
2    Student name: Vu Nguyen
3    Student number: T00612390
4    Due date: Oct 22, 2019
5    Seminar: 5
6
7    Description: This is the isAtLibrary exception for the BookInput class.
8                This exception just returns the string s, some message s.
9                None of the Checked throwable exceptions fit the naming description
10               so this was made and does a generic thing, prints the message.
11 */
12 public class isAtLibrary extends Exception
13 {
14
15     public isAtLibrary()
16     {
17         super("The value inputted is valid");
18     }
19
20
21     public isAtLibrary(String s)
22     {
23         super(s);
24     }
25
26
27
28
29 }
30
```

```
1  /*
2    Student name: Vu Nguyen
3    Student number: T00612390
4    Due date: Oct 22, 2019
5    Seminar: 5
6
7    Description: This is the YearCheck exception for the BookInput class.
8                 This exception just returns the string s, some message s.
9                 None of the Checked throwable exceptions fit the naming description
10                 so this was made and does a generic thing, prints the message.
11 */
12
13 public class YearCheck extends Exception
14 {
15     public YearCheck()
16     {
17         super("The value inputted is valid");
18     }
19
20     public YearCheck(String s)
21     {
22         super(s);
23     }
24 }
25
```

```

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                                    "
111                                    required final character");
112
113    }
114    //Start of exception catch blocks
115
116    //unique exception to check the year
117    catch (YearCheck exception)
118    {
119        System.out.println(exception);
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);

```

```
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
```