**Practice-4.2**

**Code:**

import java.util.regex.\*;

import java.io.\*;

public class FinalExamProcessor {

// Method to validate the name format

public static void validateName(String input) {

// Regular expression to validate name format: "Firstname Lastname"

String regex = "^[\\p{L}]+\\s[\\p{L}]+$";

Pattern pattern = Pattern.compile(regex);

Matcher matcher = pattern.matcher(input);

if (!matcher.matches()) {

System.out.println("Incorrect format for name");

} else {

System.out.println("Name accepted");

}

}

// Method to process the coded answer key

public static String processAnswerKey(String filename) throws IOException {

BufferedReader codedAnswers = new BufferedReader(new FileReader(filename));

String line;

StringBuilder answers = new StringBuilder();

// Regular expression to match valid answer choices

Pattern pattern = Pattern.compile("^[a-dA-D]$");

while ((line = codedAnswers.readLine()) != null) {

Matcher matcher = pattern.matcher(line);

if (matcher.matches()) {

answers.append(line);

}

}

codedAnswers.close();

return answers.toString();

}

// Method to finalize answers based on teacher's instructions

public static String finalAnswers(String answers) {

// Replace characters as per teacher's instructions

String finalAnswers = answers.replaceAll("e", "b")

.replaceAll("E", "A")

.replaceAll("f", "c")

.replaceAll("F", "D");

// Convert the string to lowercase

return finalAnswers.toLowerCase();

}

// Method to test regular expressions

public static void testRegex() {

// Testing "?anana"

String str = "anana";

System.out.println("str.matches(\"anana\"): " + str.matches("anana")); // true

str = "banana";

System.out.println("str.matches(\"anana\"): " + str.matches("anana")); // false

str = "gabanana";

System.out.println("str.matches(\"anana\"): " + str.matches("anana")); // false

// Testing "[Bb]anana"

String str2 = "banana";

System.out.println("str2.matches(\"[Bb]anana\"): " + str2.matches("[Bb]anana")); // true

str2 = "anana";

System.out.println("str2.matches(\"[Bb]anana\"): " + str2.matches("[Bb]anana")); // false

str2 = "shanana";

System.out.println("str2.matches(\"[Bb]anana\"): " + str2.matches("[Bb]anana")); // false

// Testing ".\*anana"

String str3 = "montanana";

System.out.println("str3.matches(\".\*anana\"): " + str3.matches(".\*anana")); // true

str3 = "anana";

System.out.println("str3.matches(\".\*anana\"): " + str3.matches(".\*anana")); // true

str3 = "\_anana";

System.out.println("str3.matches(\".\*anana\"): " + str3.matches(".\*anana")); // true

}

public static void main(String[] args) {

// Example of validating a name

String name = "John Doe";

validateName(name); // Output: Name accepted or Incorrect format for name

try {

// Process the coded answer key

String filename = "CodedAnswerKey";

// Uncomment the following block to create a mock file if needed

/\*

BufferedWriter writer = new BufferedWriter(new FileWriter(filename));

writer.write("A\n");

writer.write("b\n");

writer.write("C\n");

writer.write("D\n");

writer.write("x\n"); // This line should not be included in the final answer

writer.close();

\*/

String answers = processAnswerKey(filename);

System.out.println("Decoded answers: " + answers);

// Finalize the answers

String finalAnswerString = finalAnswers(answers);

System.out.println("Final answers: " + finalAnswerString);

} catch (IOException e) {

System.out.println("Error reading the file: " + e.getMessage());

}

// Test regular expressions

testRegex();

}

}

**Output:**

