CMSC204 – Prof. Gary Thai

Project 1 – PasswordCheckerUtility

**High Level Design | Pseudocode**

During the first week of each project assignment, think about and come up with a high level design for it. For example -

* What exactly do you need to do in order to complete this assignment?
  + Be specific about each step of your game plan
* What methods and/or classes might you need to implement?
* What challenges (or exceptions) might you encounter?
* Envision your road map and the final deliverable

Other form of design, such as UML diagrams, are acceptable. The bottom line – I wanted you to think about your project first.

**This is just an example.**

Class PasswordCheckerUtility:

* Method isValidPassword
  + If password’s length is fewer than 6 characters, throw an exception
  + Call containsUpperCaseLetter() to verify that the password contains an upper case character
    - Throw an exception if false
* Method containsNumber
  + Examine all characters in the String
  + Return true if a numerical digit character is encountered
* … additional methods and such
* Inner exception class InvalidSequenceException
  + Extend RuntimeException
  + Error message: “The password cannot contain more than two of the same character in sequence”

Class PasswordMain:

* Method readFile
  + Open a FileChooser window for user to select file for reading
    - User limited to .txt files
  + Scanner reads through the file
  + Each line of file is added to an ArrayList as a new String element
  + When there are no more lines to be read, return the ArrayList to the method caller
* Button exitButton
  + Closes the program
  + Has a tooltip to explain its function
  + Mnemonic is ‘x’
* Button checkPwdsInFileButton
  + Calls validPasswords to open and read a .txt file
    - If no file is found, displays an Alert
    - If the user closes the FileChooser window (NullPointerException), do nothing
    - If the returned ArrayList is populated with invalid passwords, display an Alert window of the invalidated passwords and their error messages
    - If the returned ArrayList is empty, display an Alert stating that all passwords are valid
  + Has a tooltip to explain its function
  + Mnemonic is ‘f’

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| **NoLowerAlphaException** |
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**UML Diagrams**

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| **PasswordCheckerUtility** |
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| +PasswordCheckerUtility()  +isValidPassword (String) : boolean  +containsNumber(String) : boolean  +containsUpperCaseLetter(String) : boolean  +containsLowerCaseLetter(String) : boolean  +hasTriples(String) : boolean  +validPasswords(ArrayList<String>) : ArrayList<String>  +isWeakPassword(String) : boolean |

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| **NoUpperAlphaException** |
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| **LengthException** |
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| **NoDigitException** |
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| **InvalidSequenceException** |
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| **PasswordMain** |
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| +readFile() : ArrayList<String> |

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| **PasswordDriverFX** |
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| +main(String) : void  +start(Stage) : void |