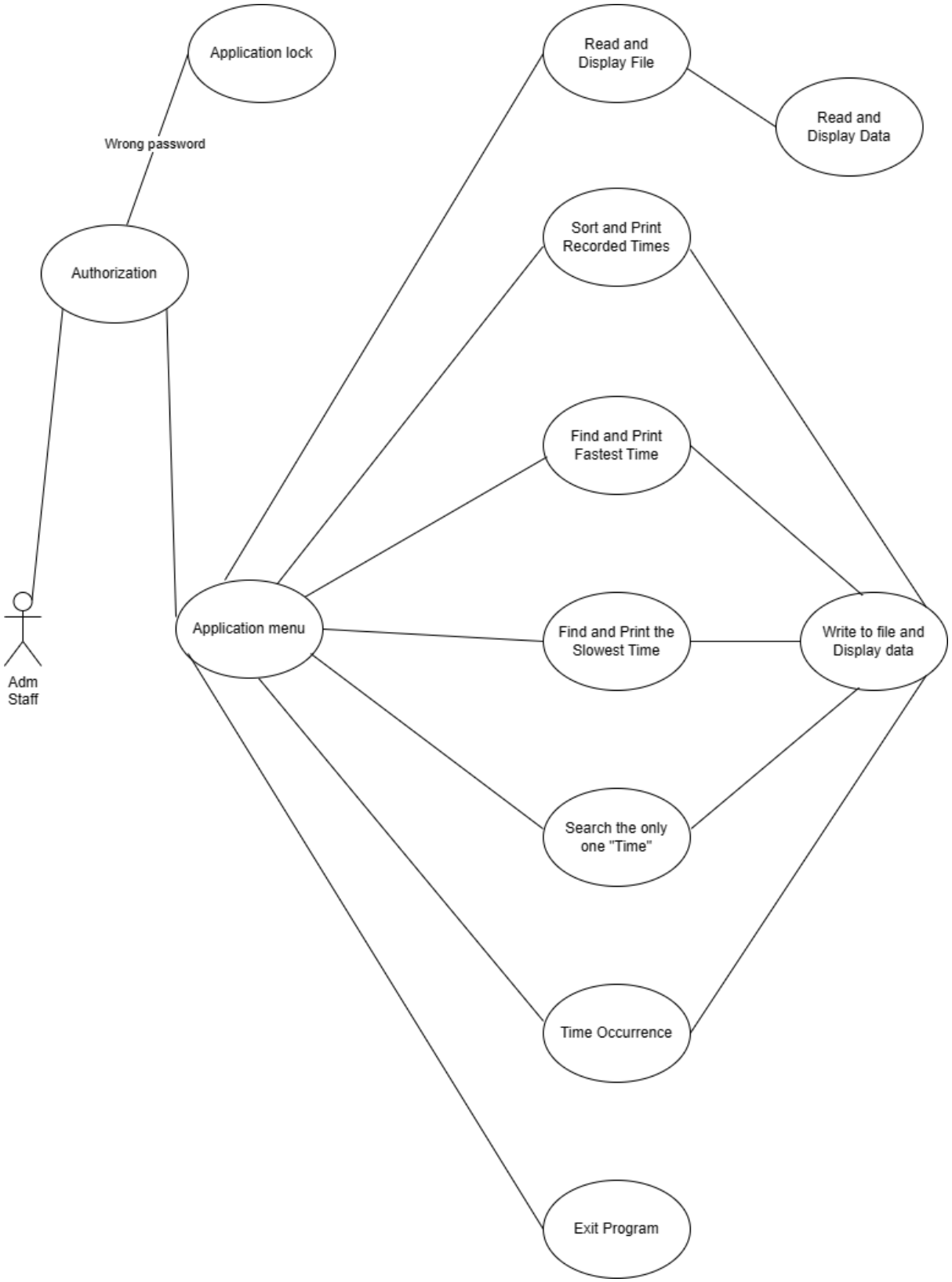
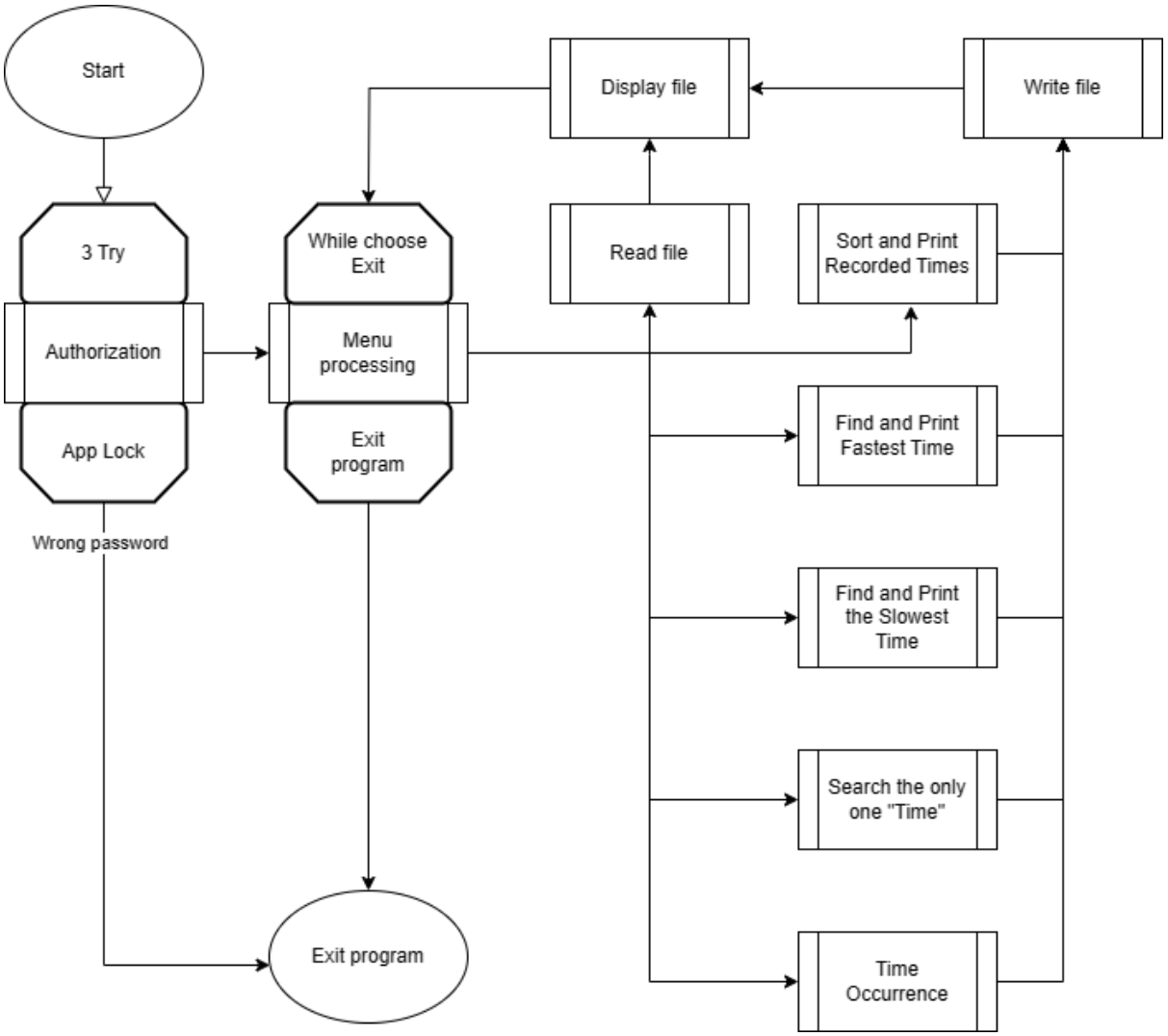
User Interface Design



Structure Chart



Data Dictionary

ID	Data item	Format	Description
1	menuHeader	Class: Menus Type: String	Used to display the menu header
2	menuBody	Class: Menus Type: String	Used to display the menu body
3	menuFooter	Class: Menus Type: String	Used to display the menu footer
4	fileForRead	Interface: IOTools Class: FileRead	Used to read data from a text file
5	fileForWrite	Interface: IOTools Type: FileWrite	Used to write data to a text file
6	textColors	Interface: Tools Type: TextTools	Used to change the text color in the console
7	fileName	Class: IOFiles Type: String	Used to store the full file name (including its path) for reading or writing
8	fullName	Class: Runner Type: String	Used to store the full name of the race participant

9	firstName	Class: Runner Type: String	Used to store the first name of the race participant
10	secondName	Class: Runner Type: String	Used to store the second name of the race participant
11	timeSeconds	Class: Runner Type: Long	Used to store the result in seconds of a race participant

Design using pseudocode

1. LOOP Input password
   1.1. The user must enter a password
   1.2. IF Check password
      1.2.1. If the password is “pass” then we complete the check and display to the user a menu for selecting actions
      1.2.2. If the password is not equal to “pass”, then, provided that he had 1-2 attempts, we display a message to him that the password is not correct and ask him to enter it again, notifying him how many attempts are left.
      1.2.3. If the password is not equal to “pass” and this was his 3rd attempt, block the application and display a message about this
   1.3. END Check password
2. END LOOP Input password
3. LOOP Menu processing
   3.1. Show the user a selection menu
      - “1. Read and Display File”
      - “2. Sort and Print Recorded Times”
      - “3. Find and Print Fastest Time”
      - “4. Find and Print the Slowest Time”
      - “5. Search”
      - “6. Time Occurrence”
      - “7. Exit Program”
   3.2. SWITCH CASE Menu items
      3.2.1. **The menu item is equal to 1**. Read the file with the results of the race and display it on the screen
      3.2.2. **The menu item is 2**. Sort the race results by time result from highest to lowest and display this list on the screen and write it to a file
      3.2.3. **The menu item is 3**. Find the time of the fastest runner, display the result on the screen and write to a file
      3.2.4. **The menu item is 4**. Find the time of the slowest runner, display the result on the screen and write it to a file
      3.2.5. **The menu item is 5**. Ask the user for the result of the race time and find only one (first) time in the list, display the result on the screen and write it to a file

3.2.6. **The menu item is 6**. Ask the user for the result of the race time and find all entries in the list of this time, display the result on the screen and write it to a file

3.2.7. **The menu item is 7**. Exit the program and display a corresponding message to the user

3.3. END SWITCH CASE Menu items

4. END LOOP Menu processing
5. Exit from program