**CSC 217 Lab 03 System Test Plan**

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| **Test ID** | **Description** | **Expected Results** | **Actual Results** |
| Test 1: Start Pack Scheduler  ✅ | Preconditions: None   1. Start the Pack Scheduler application.   *Check results.* | * Pack Scheduler GUI loads * New Student Directory is displayed. * Student Directory only shows labels. * New Student Information is empty. | * Pack Scheduler GUI loaded. * The Student Directory appears empty. * Only labels for Student fields are present. * Student information section is empty. |
| Test 2:  Stop Pack Scheduler  ✅ | Preconditions: Test 1 (Load GUI)  Click on the close window button. | * Pack Scheduler GUI closes without any errors. | * Pressed red X at the top left of the GUI window. * The GUI closes successfully. |
| Test 3:  Load Student Directory (Invalid File)  ✅ | Preconditions: Test 1 (Load GUI)   * Click on **“Load Student Directory”** button. * Select the *test-files/invalid\_student\_records.txt* file in the file chooser dialog window.   Check results | * A dialog appears to browse the file system for file with student information. * Select the file invalid\_student\_records.txt from test-files folder. * Student Directory should remain empty. | * Clicked **Load Student Directory** button. * A file chooser dialog appears, *invalid\_student\_records.txt* is selected. * Student Directory remains empty. |
| Test 4:  Load Student Directory (Valid File)  (Modified)  ✅ | Preconditions: Test 1 (Load GUI)   * Click on **“Load Student Directory”** button. * Select the *test-files/student\_records.txt* file in the file chooser dialog window.   Check results | * A dialog appears to browse the file system for file with student information. * Select the file student\_records.txt from test-files folder. * All 10 records from student\_records.txt are displayed in the *Student Directory* list:  1. Demetrius, Austin, daustin 2. Lane, Berg, lberg 3. Raymond, Brennan, rbrennan 4. Emerald, Frost, efrost 5. Shannon, Hansen, shansen 6. Althea, Hicks, ahicks 7. Zahir, King, zking 8. Dylan, Nolan, dnolan 9. Cassandra, Schwartz, cschwartz 10. Griffith, Stone, gstone  * Student Records should be displayed in that order (by last name, first name, and student id). | * Clicked **Load Student Directory** button. * File chooser dialog appears and *test-files/student\_records.txt* is selected. * 10 records from the *student\_records.txt* are displayed in the Student Directory section:  1. Demetrius, Austin, daustin 2. Lane, Berg, lberg 3. Raymond, Brennan, rbrennan 4. Emerald, Frost, efrost 5. Shannon, Hansen, shansen 6. Althea, Hicks, ahicks 7. Zahir, King, zking 8. Dylan, Nolan, dnolan 9. Cassandra, Schwartz, cschwartz 10. Griffith, Stone, gstone  * Student Records appear in the expected order. |
| Test 5:  New Student Directory  ✅ | Preconditions: Test 1 (Load GUI), Test 4 (Load Valid Students)  Click on **“New Student Directory”** button. | * A new student directory should be created. * The display is updated so that the *Student Directory* is empty. | * Clicked on **New Student Directory**. * The Student Directory section is empty. |
| Test 6:  Save Student Directory after loading directory  (Modified)  ✅ | Preconditions: Test 1 (Load GUI), Test 4 (Load Valid Students)   * Click on **“Save Student Directory”** button. * Select the *test-files/student\_records\_saved.txt* file in the file chooser dialog window.   Check results. | * A dialog appears to browse the file system and the name of the file. * All the 10 student records displayed in the Student Directory section are in the new file:  1. Demetrius, Austin, daustin 2. Lane, Berg, lberg 3. Raymond, Brennan, rbrennan 4. Emerald, Frost, efrost 5. Shannon, Hansen, shansen 6. Althea, Hicks, ahicks 7. Zahir, King, zking 8. Dylan, Nolan, dnolan 9. Cassandra, Schwartz, cschwartz 10. Griffith, Stone, gstone  * The order of the records in the output file is same as the order displayed in the UI. * All fields for each student are present. Those include first name, last name, id, email, password, max credits. | * Clicked **Saved Student Directory** button. * File chooser dialog appears and *test-files/student\_records\_saved.txt* is selected. * All 10 students loaded Student records appear in the *test-files/student\_records\_saved.txt*:  1. Demetrius, Austin, daustin 2. Lane, Berg, lberg 3. Raymond, Brennan, rbrennan 4. Emerald, Frost, efrost 5. Shannon, Hansen, shansen 6. Althea, Hicks, ahicks 7. Zahir, King, zking 8. Dylan, Nolan, dnolan 9. Cassandra, Schwartz, cschwartz 10. Griffith, Stone, gstone  * All records appear in the correct alphabetic order by last name, first name, and user id. * All fields are included: first name, last name, id, email, password, max credits. |
| Test 7:  Add Student to Student Directory (Valid Student Details)  (Modified)  ✅ | Preconditions: Test 1 (Load GUI), Test 4 (Load Valid Students)   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: John,* ***LastName****: Smith,* ***ID****: jsmith,* ***Email****: john.smith@ncsu.edu,* ***Password****: Test123,* ***Repeat Password****: Test123,* ***Max Credits****: 12*   * Click on **“Add Student”** button.   Check results | * A new student record for John Smith should be added and displayed near the bottom of the *Student Directory.* * The Student Directory section should display a total of 11 records:  1. Demetrius, Austin, daustin 2. Lane, Berg, lberg 3. Raymond, Brennan, rbrennan 4. Emerald, Frost, efrost 5. Shannon, Hansen, shansen 6. Althea, Hicks, ahicks 7. Zahir, King, zking 8. Dylan, Nolan, dnolan 9. Cassandra, Schwartz, cschwartz 10. John, Smith, jsmith 11. Griffith, Stone, gstone  * The Student Directory section should display the students in that exact order. * The Student Information section at the bottom should become empty after the new student is added to the directory. | * Entered valid student information in the Student Information section: John, Smith, jsmith, [john.smith@ncsu.edu](mailto:john.smith@ncsu.edu), Test123, Test123, 12. * Clicked **Add Student**. * The Student Directory displays a total of 11 records:  1. Demetrius, Austin, daustin 2. Lane, Berg, lberg 3. Raymond, Brennan, rbrennan 4. Emerald, Frost, efrost 5. Shannon, Hansen, shansen 6. Althea, Hicks, ahicks 7. Zahir, King, zking 8. Dylan, Nolan, dnolan 9. Cassandra, Schwartz, cschwartz 10. John, Smith, jsmith 11. Griffith, Stone, gstone  * The student information appears in that exact order. * The Student Information section is empty. |
| Test 8:  Add Student to Student Directory (Valid Student Details without max credits)  (Modified)  ✅ | Preconditions: Test 1 (Load GUI), Test 4 (Load Valid Students), Test 7 (Add Student 1st Student).   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: Bob,* ***LastName****: Builder,* ***ID****: bbuilder,* ***Email****: bob.builder@ncsu.edu,* ***Password****: Test123,* ***Repeat Password****: Test123,* ***Max Credits****: (leave blank)*   * Click on **“Add Student”** button.   Check results | * A new student record for Bob Builder should be added without any errors and displayed towards the middle of the *Student Directory.* * The Student Directory section should display a total of 12 records:  1. Demetrius, Austin, daustin 2. Lane, Berg, lberg 3. Raymond, Brennan, rbrennan 4. Bob, Builder, bbuild 5. Emerald, Frost, efrost 6. Shannon, Hansen, shansen 7. Althea, Hicks, ahicks 8. Zahir, King, zking 9. Dylan, Nolan, dnolan 10. Cassandra, Schwartz, cschwartz 11. John, Smith, jsmith 12. Griffith, Stone, gstone  * The Student Directory section should display the students in that exact order. * The Student Information section at the bottom should become empty after the new student is added to the directory. | * Entered valid student information in the Student Information section: Bob, Builder, bbuild, bob.builder@ncsu.edu, Test123, Test123. * Clicked **Add Student**. * The Student Directory displays a total of 12 records:  1. Demetrius, Austin, daustin 2. Lane, Berg, lberg 3. Raymond, Brennan, rbrennan 4. Bob, Builder, bbuild 5. Emerald, Frost, efrost 6. Shannon, Hansen, shansen 7. Althea, Hicks, ahicks 8. Zahir, King, zking 9. Dylan, Nolan, dnolan 10. Cassandra, Schwartz, cschwartz 11. John, Smith, jsmith 12. Griffith, Stone, gstone  * The student information appears in that exact order. * The Student Information section is empty. |
| Test 9:  Add Student to Student Directory and Save (Valid Student Details)  (Modified)  ✅ | Preconditions: Test 1 (Load GUI), Test 8 (Add 2nd Student)   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: Axel,* ***LastName****: Aaron,* ***ID****: axaron,* ***Email****: axaron@ncsu.edu,* ***Password****: Test123,* ***Repeat Password****: Test123,* ***Max Credits****: 14*   * Click on **“Add Student”** button. * Check results. * Select the folder as test-files and the file name as student\_records\_add\_saved.txt. * Click on **“Save Student Directory”** button. * Check results. | * A new student record for Axel Aaron should be added and displayed at the bottom of the *Student Directory.* * The Student Directory section should display a total of 13 records:  1. Axel, Aaron, axaron 2. Demetrius, Austin, daustin 3. Lane, Berg, lberg 4. Raymond, Brennan, rbrennan 5. Bob, Builder, bbuild 6. Emerald, Frost, efrost 7. Shannon, Hansen, shansen 8. Althea, Hicks, ahicks 9. Zahir, King, zking 10. Dylan, Nolan, dnolan 11. Cassandra, Schwartz, cschwartz 12. John, Smith, jsmith 13. Griffith, Stone, gstone  * The Student Directory section should display the students in that exact order. * The Student Information section at the bottom should become empty after the new student is added to the directory. * After clicking on **“Save Student Directory”** button, a dialog appears to browse the file system and to enter the name of the file. * All the 13 student records displayed in the Student Directory section of the UI are saved to the new file student\_records\_add\_saved.txt. * The order of the records in the output file is the same as the order displayed in the UI. * The password for all the records saved in the text file are hashed using SHA-256. | * Entered valid student information in the Student Information section: Axel, Aaron, axaron, axaron@ncsu.edu, Test123, Test123, 14. * Clicked **Add Student**. * The Student Directory displays a total of 13 records:  1. Axel, Aaron, axaron 2. Demetrius, Austin, daustin 3. Lane, Berg, lberg 4. Raymond, Brennan, rbrennan 5. Bob, Builder, bbuild 6. Emerald, Frost, efrost 7. Shannon, Hansen, shansen 8. Althea, Hicks, ahicks 9. Zahir, King, zking 10. Dylan, Nolan, dnolan 11. Cassandra, Schwartz, cschwartz 12. John, Smith, jsmith 13. Griffith, Stone, gstone  * The student records appear in that exact order. * The Student Information section is empty. * Clicked **Save Student Directory**. * All 13 student records are displayed in the Student Directory section of the UI appear in the student\_records\_add\_saved.txt file. * All records in exported file our find in the same order as the Student Directory. * The password for all records is saved in the text file in hashed SHA-256 format. |
| Test 10:  Add Student to Student Directory (Invalid Last Name)  ✅ | Preconditions: Test 1 (Load GUI)   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: John,* ***LastName****: (leave blank),* ***ID****: jsmith,* ***Email****:* [*john.smith@ncsu.edu*](mailto:john.smith@ncsu.edu)*,* ***Password****: Test123,* ***Repeat Password****: Test123,* ***Max Credits****: 12*   * Click on **“Add Student”** button.   Check results | * After clicking on “Add Student” button a pop-up message box should be displayed stating “Invalid last name” * After clicking “OK”, the Student Directory should remain unchanged with NO new student added to the directory. | * Entered invalid information for student in the Student information section: John, BLANK, jsmith, [john.smith@ncsu.edu](mailto:john.smith@ncsu.edu), Test123, Test123, 12. * Clicked on **Add Student**. * A pop-up dialog box appears stating, “Invalid last name”. * Clicked “OK” to exit pop-up. * Student Directory remains unchanged. |
| Test 11:  Add Student to Student Directory (Invalid Email)  ✅ | Preconditions: Test 1 (Load GUI)   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: John,* ***LastName****: Smith,* ***ID****: jsmith,* ***Email****: (leave blank),* ***Password****: Test123,* ***Repeat Password****: Test123,* ***Max Credits****: 12*   * Click on **“Add Student”** button.   Check results | * After clicking on “Add Student” button a pop-up message box should be displayed stating “Invalid email”. * After clicking “OK”, the Student Directory should remain unchanged with NO new student added to the directory. | * Entered invalid information for student in the Student information section: John, Smith, jsmith, BLANK, Test123, Test123, 12. * Clicked on **Add Student**. * A pop-up dialog box appears stating, “Invalid email”. * Clicked “OK” to exit pop-up. * Student Directory remains unchanged. |
| Test 12:  Add Student to Student Directory (Non-Matching Passwords)  ✅ | Preconditions: Test 1 (Load GUI)   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: John,* ***LastName****: Smith,* ***ID****: jsmith,* ***Email****:* [*john.smith@ncsu.edu*](mailto:john.smith@ncsu.edu)*,* ***Password****: Test123,* ***Repeat Password****: Test456,* ***Max Credits****: 12*   * Click on **“Add Student”** button.   Check results | * After clicking on “Add Student” button a pop-up message box should be displayed stating “Passwords do not match”. * After clicking “OK”, the Student Directory should remain unchanged with NO new student added to the directory. | * Entered invalid information for student in the Student information section: John, Smith, jsmith, john.smith@ncsu.edu, Test123, Test, 12. * Clicked on **Add Student**. * A pop-up dialog box appears stating, “Passwords do not match”. * Clicked “OK” to exit pop-up. * Student Directory remains unchanged. |
| Test 13:  Add Student to Student Directory (Duplicate Unique ID)  ✅ | Preconditions: Test 1 (Load GUI)   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: John,* ***LastName****: Smith,* ***ID****: zking,* ***Email****:* [*john.smith@ncsu.edu*](mailto:john.smith@ncsu.edu)*,* ***Password****: Test123,* ***Repeat Password****: Test123,* ***Max Credits****: 12*   * Click on **“Add Student”** button.   Check results | * After clicking on “Add Student” button a pop-up message box should be displayed stating “Student already in system”. * After clicking “OK”, the Student Directory should remain unchanged with NO new student added to the directory. | * Entered invalid information for student in the Student information section: John, Smith, zking, john.smith@ncsu.edu, Test123, Test123, 12. * Clicked on **Add Student**. * A pop-up dialog box appears stating, “Student already in system”. * Clicked “OK” to exit pop-up. * Student Directory remains unchanged. |
| Test 14:  Add Student to Student Directory (Invalid Max credits)  (Modified)  ✅ | Preconditions: Test 1 (Load GUI), Test 9 (Add Student and Save)   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: Kevin,* ***LastName****: Doelle,* ***ID****: kdoe,* ***Email****: kevin.doelle@ncsu.edu,* ***Password****: Test123,* ***Repeat Password****: Test123,* ***Max Credits****: 25*   * Click on **“Add Student”** button.   Check results   * Click on **Save Student Directory**. * Select *test-files/student\_records\_add\_saved.txt* and press “Save”.   Check results | * After clicking on “Add Student” a new student should appear towards the middle of the Student Directory List: Kevin, Doelle, kdoe. * Student Directory now displays:  1. Axel, Aaron, axaron 2. Demetrius, Austin, daustin 3. Lane, Berg, lberg 4. Raymond, Brennan, rbrennan 5. Bob, Builder, bbuild 6. Kevin, Doelle, kdoe 7. Emerald, Frost, efrost 8. Shannon, Hansen, shansen 9. Althea, Hicks, ahicks 10. Zahir, King, zking 11. Dylan, Nolan, dnolan 12. Cassandra, Schwartz, cschwartz 13. John, Smith, jsmith 14. Griffith, Stone, gstone  * After clicking on “Save Student Directory” and saving to the *test-files/student\_records\_add\_saved.txt* file the record for Kevin Doelle should show: Kevin, Doelle, kdoe, [kevin.doelle@ncsu.edu](mailto:kevin.doelle@ncsu.edu), 18. * The Student Directory appears in that exact same order. | * Entered invalid information for student in the Student information section: Kevin Doelle. * Student Directory displays:  1. Axel, Aaron, axaron 2. Demetrius, Austin, daustin 3. Lane, Berg, lberg 4. Raymond, Brennan, rbrennan 5. Bob, Builder, bbuild 6. Kevin, Doelle, kdoe 7. Emerald, Frost, efrost 8. Shannon, Hansen, shansen 9. Althea, Hicks, ahicks 10. Zahir, King, zking 11. Dylan, Nolan, dnolan 12. Cassandra, Schwartz, cschwartz 13. John, Smith, jsmith 14. Griffith, Stone, gstone  * Kevin Doelle’s record in the *test-files/student\_records\_add\_saved.txt*shows the default 18 credits. * The Student Directory appears in that exact same order. |
| Test 15:  Add Student to Student Directory (Invalid Email Address without a “.”)  ✅ | Preconditions: Test 1 (Load GUI)   * Enter valid information for the student in the *Student Information* section as follows:   ***FirstName****: John,* ***LastName****: Smith,* ***ID****: jsmith,* ***Email****:* [*jsmith@ncsuedu*](mailto:john.smith@ncsuedu)***Password****: Test123,* ***Repeat Password****: Test123,* ***Max Credits****: 14*   * Click on **“Add Student”** button.   Check results | * After clicking on “Add Student” button a pop-up message box should be displayed stating “Invalid email”. * After clicking “OK”, the Student Directory should remain unchanged with NO new student added to the directory. | * Entered invalid information for student in the Student information section: John, Smith, jsmith, john.smith@ncsuedu, Test123, Test123, 12. * Clicked on **Add Student**. * A pop-up dialog box appears stating, “Invalid email”. * Clicked “OK” to exit pop-up. * Student Directory remains unchanged. |
| Test 16:  Remove Student from Student Directory (without selecting any record)  ✅ | Preconditions: Test 1 (Load GUI) Test 14 (Adding Student)   * Click on **“Remove Student”** button.   Check results. | * The Student Directory section should display a total of 14 records. * Don’t select any record and click on “Remove Student” button. A pop-up message box should be displayed stating “No student selected.”. * After clicking “OK”, all 14 records are displayed in *Student Directory*. | * **Load Student Directory** clicked. * Selected student\_records\_add\_saved.txt file. * Clicked **Remove Student**. * A pop-up dialog appears stating, “No student selected.” * Clicked “OK” and all 14 records are still displayed. |
| Test 17:  Remove Student from Student Directory (select one record)  (Modified)  ✅ | Preconditions: Test 1 (Load GUI), Test 14 (Adding Student)   * Select the last record (John Smith) and click on “Remove Student” button. * Click on **“Remove Student”** button.   Check results. | * The Student Directory section should display a total of 14 records. * Select the record (John Smith) and click on “Remove Student” button. * The record (John Smith) is removed from the display in *the Student Directory* section and only 13 records are displayed:  1. Axel, Aaron, axaron 2. Demetrius, Austin, daustin 3. Lane, Berg, lberg 4. Raymond, Brennan, rbrennan 5. Bob, Builder, bbuild 6. Kevin, Doelle, kdoe 7. Emerald, Frost, efrost 8. Shannon, Hansen, shansen 9. Althea, Hicks, ahicks 10. Zahir, King, zking 11. Dylan, Nolan, dnolan 12. Cassandra, Schwartz, cschwartz 13. Griffith, Stone, gstone | * Selected John Smith student record in Student Directory. * Clicked **Remove Student**. * Student Directory now displays 13 records:  1. Axel, Aaron, axaron 2. Demetrius, Austin, daustin 3. Lane, Berg, lberg 4. Raymond, Brennan, rbrennan 5. Bob, Builder, bbuild 6. Kevin, Doelle, kdoe 7. Emerald, Frost, efrost 8. Shannon, Hansen, shansen 9. Althea, Hicks, ahicks 10. Zahir, King, zking 11. Dylan, Nolan, dnolan 12. Cassandra, Schwartz, cschwartz 13. Griffith, Stone, gstone |
| Test 18:  Remove Student from Student Directory and Save Student Directory (select one record)  ✅ | Preconditions: Test 1 (Load GUI), Test 14 (Add Student)   * Select the record (Kevin Doelle) and click on “Remove Student” button.   Check results.   * Click on “Save Student Directory”. * Select *test-files* and save student directory as *student\_records\_remove\_saved.txt*.   Check results. | * The record (Kevin Doelle) is removed from the display in *the Student Directory* section and only 12 records are displayed:  1. Axel, Aaron, axaron 2. Demetrius, Austin, daustin 3. Lane, Berg, lberg 4. Raymond, Brennan, rbrennan 5. Bob, Builder, bbuild 6. Emerald, Frost, efrost 7. Shannon, Hansen, shansen 8. Althea, Hicks, ahicks 9. Zahir, King, zking 10. Dylan, Nolan, dnolan 11. Cassandra, Schwartz, cschwartz 12. Griffith, Stone, gstone  * After clicking on “Save Student Directory” button, a dialog appears to browse the file system and to enter the name of the file. * Select the folder as test-files and the file name as student\_records\_remove\_saved.txt. * All the 12 student records displayed in the Student Directory section of the UI are saved to the new file student\_records\_remove\_saved.txt. * The order of the records in the output file is the same as the order displayed in the UI. * The password for all the records saved in the text file are hashed using SHA-256. | * Selected Kevin Doelle student reocrd in Student Directory. * Clicked **Remove Student** * Student Directory Displays:  1. Axel, Aaron, axaron 2. Demetrius, Austin, daustin 3. Lane, Berg, lberg 4. Raymond, Brennan, rbrennan 5. Bob, Builder, bbuild 6. Emerald, Frost, efrost 7. Shannon, Hansen, shansen 8. Althea, Hicks, ahicks 9. Zahir, King, zking 10. Dylan, Nolan, dnolan 11. Cassandra, Schwartz, cschwartz 12. Griffith, Stone, gstone  * Clicked **Load Student Directory**. * Selected student\_records\_remove\_saved.txt. * All 12 student records are present in the file in the correct order and with all fields (first name, last name, id, email, password, max credits). |