Programming Pangolins

CSC 470

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# Acceptance Testing - Requirements

* FURPS+
  + F = Functionality
  + U = Usability
  + R = Reliability
  + P = Performance
  + S = Supportability
  + D = Design Constraints
  + Others not necessary
* Red indicates the results to see if the requirement is met.

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| **Functional Requirements** |
| 1. Must Requirements    1. Compile payroll data into a pay stubs PDF and a NACHA files (F)       1. User selects the employees for payroll from a list (UF)          1. Met. When clicking the button, it will display a list of all employees       2. User inputs the number of hours for each hourly employee (UF)          1. Met. When an hourly employee is selected for payroll, it will display an input for hours       3. User selects the save location for each file (UF)          1. Met. After the user selects the employees and inputs hour, he/she will be prompted to select the save locations       4. The system builds a PDF for the pay stubs (F)          1. Met. The program will build a PDF file with each page being a pay stub for each employee in payroll       5. The system builds the NACHA file (F)          1. Met. The program will build a NACHA file       6. The system displays a message stating the process is completed (UF)          1. Met. The system will display a message saying the payroll was successful       7. Net pay cannot be a negative amount (F)          1. Met. If the amount is negative, the system will display an error and cancel payroll       8. This requirement is met    2. Add a new employee to the database (SUF)       1. User inputs all employee information (required) (UF)          1. Employee ID is automatically calculated by the database (F)             1. Met. The program will display the user ID for the employee being saved          2. Deductions will be entered at a later point (F)             1. Met. There is no option to add deductions in the adding screen       2. An employee should either be “Hourly” or “Salary” with an input box for the dollars per hour or salary per pay period respectively (F)          1. Met. There is a combo box where the user can selection hourly or salary       3. This requirement is met.    3. Delete employee from the database (SUF)       1. User chooses the employees to delete (UF)          1. Met. The user can select any number of employees       2. The user cannot delete every user with access to payroll (F)          1. User cannot delete itself (F)          2. Met. The user cannot delete himself/herself, so this prevents every user from losing access (excluding race time errors)       3. This requirement is met    4. Change business information in the database (SF)       1. Met. The user can edit the business’s information    5. Login to access payroll functions (UF)       1. The user needs an employee ID and password (F)       2. Met. The user will need his/her employee ID and last 4 of SSN to login    6. No information is saved when closing any screen early (UF)       1. Met. To do any action, the user must hit a button, so if the screen is closed early, no information will be sent to the database    7. The system validates any information before doing the required operation (adding, updating, deleting) to the database (F)       1. To validate, the input must not be empty and must fit the required format (F)       2. Met. Every way we tried the input was rejected when trying to save it to the database 2. Should Requirements    1. Display invalid input message to the user (UF)       1. The system displays a message stating the entered information is incorrect (UF)       2. The system should not erase text from the screen when displaying this message (UF)       3. Met. The system will display a red exclamation next to the box with incorrect input, and when the user scrolls over it, it will display why the input was rejected. Additionally, this will not delete any input from the boxes    2. Edit existing employee in the database (SUF)       1. Cannot edit employee ID (F)       2. Admins can revoke their own privilege (UF)       3. Met. The admins can edit any employee information besides ID and their own privileged on the edit screen    3. Add/Delete payroll deductions for an employee (SUF)       1. Deductions can be percentages or flat but not both (F)       2. Deductions cannot be a negative amount (F)       3. Met. Admin can add flat and percentage deductions, and neither can be negative    4. View employee information (F)       1. Any employee can view his/her information with the correct login (UF)       2. Met. A non-admin user can login using his/her ID and last 4 of SSN    5. When successfully finishing editing, deleting, or adding an employee, display a message saying that the operation was successful (UF)       1. Met. The system will display a message at the end of any process    6. When finishing editing or adding an employee or any other information (company, deductions) and the system successfully saves it, clear any text from the screen and stay on that screen (UF)       1. Met. The system will stay on screen and clear any text 3. Could Requirements (Not implemented)    1. The system should automatically close the employee information screen after 30 seconds of inactivity    2. Allow user to change his/her password    3. User has the option to input the number of overtime hours during payroll for each hourly employee    4. Implement a time clock    5. Archive old employees and their information    6. Have another option for payroll besides hourly/salary: “Other”       1. This would be used for commission employees or someone similar    7. Print a summary page at the end of the pay stubs 4. Won’t Requirements (Not implemented)    1. Expand how the system calculates federal tax    2. Computer year-to-date payroll information       1. Requires long-term storage of payroll data in the database |

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| **Nonfunctional Requirements** |
| 1. Must/Should Requirements    1. Operational Requirements       1. The system will be compatible with Windows 10/11 Desktop Computers (D)          * Met. The program works on Windows 10/11 computers. However, the time for the computer will need to be 12-hour format (currently, we are trying to fix this as we speak)       2. The database will be available 20 hours a day at minimum (R)          * The database will be AWS (DS)          * Met. The database is available at least 20 hours a day       3. All needed extra software will be installed by the installation files (SR)          * Met. Computers that have had no VS or database software will still run the program    2. Performance Requirements       1. Displaying any screen will take less than 5 seconds (P)          * Met. Any screen takes roughly 1-2 seconds to display       2. 5 users should be able to use the software at the same time (P)          * Met. The program does not depend on users being connected constantly. However, there may be race conditions       3. Connecting to and querying databases will take less than 3 seconds (P)          * Met. Any database operation takes less than this though this is untested with many employees       4. Compiling the payroll information to a PDF file and a NACHA file should take less than 30 seconds (P)          * Met. Creating the PDF and NACHA files takes 1-5 seconds       5. Displaying an invalid input message takes less than 2 seconds (P)          * Met. Errors will be displayed when user leaves the box       6. Starting the application should take less than 10 seconds (P)          * Met. The program typically launches in less than 2 seconds    3. Security Requirements       1. None of the employee’s information will be stored long-term outside of the database (excluding the pay stubs and NACHA files) (F)          * Met. Classes will be destroyed when the form is not used anymore       2. Ensure that sensitive information (SSN, Password) is stored securely and encrypted (F)          * The information also needs to be able to be decrypted (F)          * Met. Any sensitive information is stored securely using AES and SHA256          * Not Met. SSN is not encrypted.       3. No requirements for password but they are always of length 4 (F)          * Met. Passwords are last 4 of SSN       4. Only users with the proper permissions should be able to access the payroll operations (F)          * Met. If the employee is not an admin, they will not be able to access payroll    4. Cultural and Political Requirements       1. Our team will try our best to comply with a simplified version of payroll law (RD) 2. Could/Won’t Requirements (Not implemented)    1. Operational Requirements       1. The system will work on Linux and Mac computers (D)    2. Performance Requirements    3. Security Requirements       1. The program will have salted sensitive information (F)    4. Cultural and Political Requirements       1. The program will be fully compliant with payroll law (RD) |