**Task-Object Relationship**

**Reddit Crawler**

**Michael Nollette**

**Tim Thor**

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| **Task** | **Functions Carried Out** |
| **MainMenuInput()** | * Runs CheckFileExists() for rcLogin.txt * Runs NewLogin() if file does not exist * Retrieves login data from rcLogin.txt * Displays Main Menu * Based on user response, runs NewEmail(), NewSub(), NewSearch(), Listen(), DeleteSearchCriteria(), or exits application environment * Handles invalid input from user & generic exceptions, then returns to menu screen. |
| **NewLogin()** | * Runs CheckFileExists() for rcLogin.txt * Retrieves user input for website login & password * Checks validity of credentials; * Runs NewLogin() if credentials are invalid * If credentials are valid, writes them to rcLogin.txt using WriteToFile() * Handles invalid input, invalid credentials, and generic exceptions, then returns to NewLogin() |
| **NewSub()** | * Runs CheckFileExists() for rcSubreddit.txt * Retrieves user input for subreddit to monitor * Overwrites data in rcSubreddit.txt using WriteToFile() * Handles invalid user input and generic exceptions, then returns to main menu. |
| **NewEmail()** | * Runs CheckFileExists() for rcEmail.txt * Retrieves user input for email credentials * Overwrites data in rcEmail.txt using WriteToFile() * Handles invalid user input and generic exceptions, then returns to main menu. |
| **NewSearch()** | * Runs CheckFileExists() for rcSearchCriteria.txt * Retrieves user input for new search criteria * Overwrites data in rcSearchCriteria.txt using WriteToFile() * Handles invalid user input and generic exceptions, then returns to main menu. |
| **DeleteSearchCriteria()** | * Runs CheckFileExists() for rcSearchCriteria.txt * Displays existing search criteria in rcSearchCriteria() using ReadFile() * Confirms user desire to delete all existing search criteria. * If yes, overwrite rcSearchCriteria.txt with fresh document * If no, return to main menu. * Handles invalid user input and generic exceptions, then returns to the main menu. |
| **NotifyUser()** | * Retrieves string from sender * Displays string on console * Runs CheckFileExists() for rcEmail.txt * Retrieves email credentials from rcEmail.txt with ReadFile() * Initializes mail message and SmtpClient. * Initializes and retrieves mail.To, mail.From, mail.Subject, mail.Body. * Establishes port and sets email credentials from earlier saved strings. * Enable Ssl * Send email to user using SmtpServer.Send, then resume Listen() * Handles generic exceptions, then returns to main menu. |
| **GetPosts()** | * Initializes new instance of Program. * Creates Reddit, Subreddit, & Login information for RedditSharp * Initializes lstResultList * Uses RedditSharp to retrieve most recent fifteen posts. * Adds post titles to lstResultList * Returns lstResultList * Handles generic exceptions, then returns to main menu. |
| **CheckFileExists()** | * Checks for existence of specified file * If file does not exist, create it, then dispose of the object. |
| **ReadFile()** | * Initializes list lstRead, new instance of Program * Confirm file exists using CheckFileExists() * Creates streamreader object * Creates string line * Confirms streamreader read line is not null, then sets value of string line to it in while loop * Add line to lstRead * Return lstRead * Handles generic exceptions, then returns to main menu. |
| **WriteToFile()** | * Initializes new instance of Program. * Confirms file exists using CheckFileExists() * Creates streamwriter object * Retrieves each line from sent List<string> and writes it to text file using streamwriter. * Flushes & closes streamwriter. * Handles generic exceptions, then returns to main menu. |
| **Listen()** | * Confirms files rcSearchCriteria.txt, rcSubreddit.txt, and rcSearchRecords.txt exist using CheckFileExists() * Initializes List<string> for rcSearchCriteria.txt and rcSearchRecords.txt * Initializes string for rcSubreddit.txt * Confirms rcEmail.txt exists using CheckFileExists * Retrieves posts using GetPosts() * Cycle through GetPosts() result, checking each entry against each item of lstSearchCriteria, removing non-matches * Cycle through each matching result and each item in lstSearchRecords, removing matches (items already found) * Write resulting list to rcSearchRecords.txt, and send each item in list to user using NotifyUser() * Clear result list, duplicate list, and search input list * Sleep thread for 60,000ms * Handles generic exceptions, then returns to main menu. |
| **DebugLog()** | * Confirms existence of rcErrorLog.txt using CheckFileExists() * Initializes new List<string> * Creates string containing passed error’s source, stack trace, target site, data, and message. * Writes error details to console * Writes error details to rcErrorLog.txt using WriteToFile() * Returns user to main menu |